



PRODUCT DESIGN GUIDE
M70

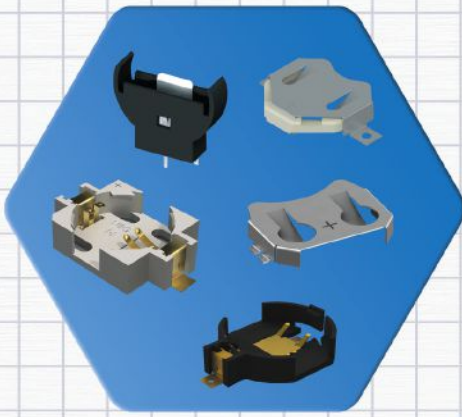
**DESIGNERS & MANUFACTURERS OF
ELECTRONIC COMPONENTS & HARDWARE**

KEYSTONE[®]
ELECTRONICS CORP.

RoHS COMPLIANT
ISO 9001:2015 QMS

Dynamic Catalog M70 at keyelco.com

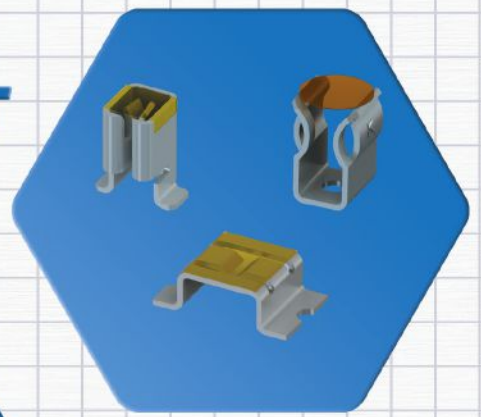
PRODUCT SPOTLIGHT



Coin Cell Holders & Retainers
pages 2-11



SMT & THM Battery Holders
pages 24-30



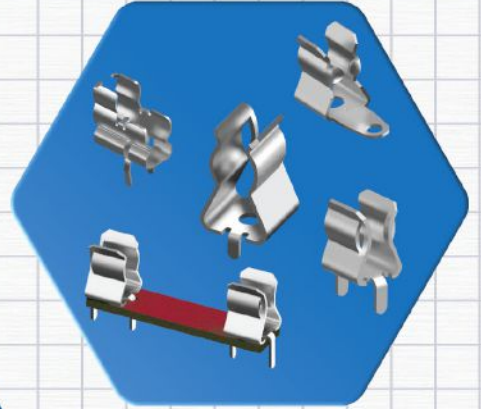
Fuse Clips Supplied on Tape & Reel with Kapton Tape
pages 48-53



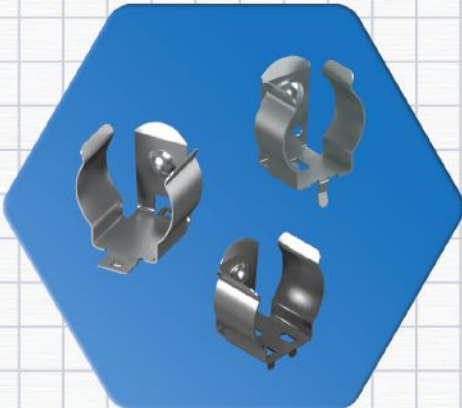
Coin Cell Enclosure Contacts
page 12



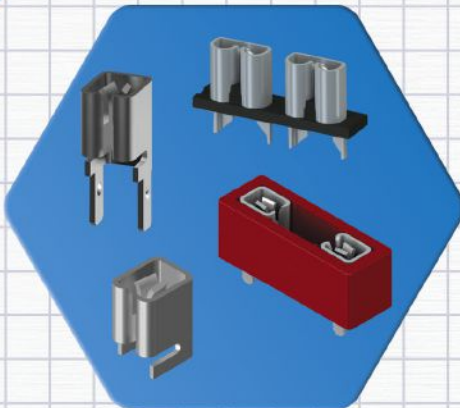
IP65 Water Resistant Battery Holders
page 31



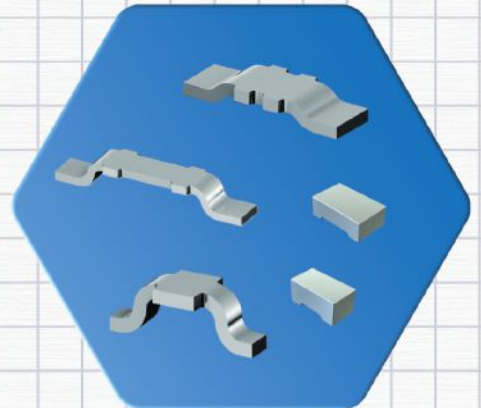
UL Recognized Fuse Clips & Holders
pages 50-53



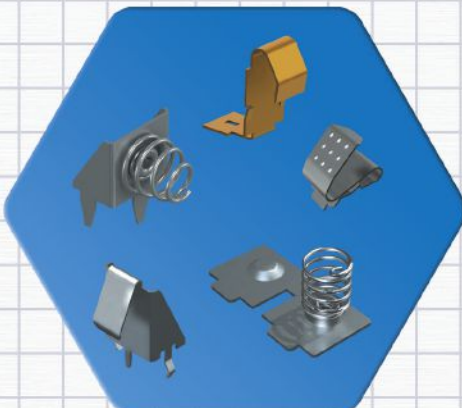
SMT & THM Battery Clips
page 13



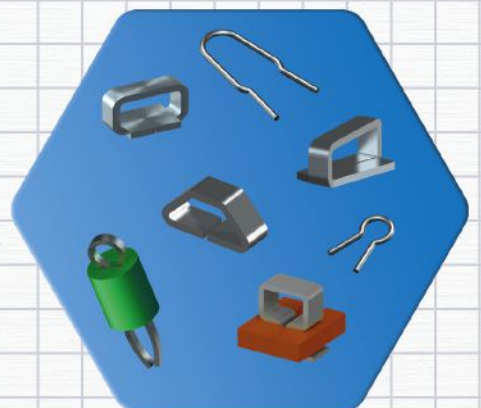
UL Recognized Auto Fuse Clips & Holders
pages 46-49



Jumpers & Zero Ohm Jumpers
page 60

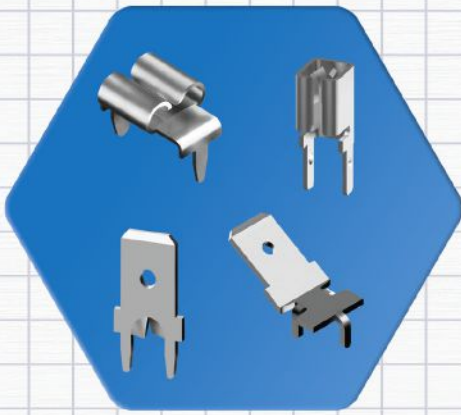


Battery Contacts
pages 14-21



SMT & THM Test Points
pages 61-63

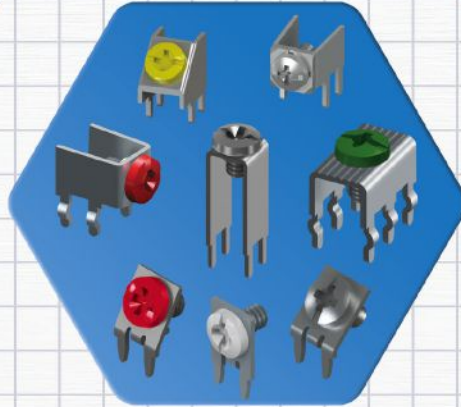
PRODUCT SPOTLIGHT



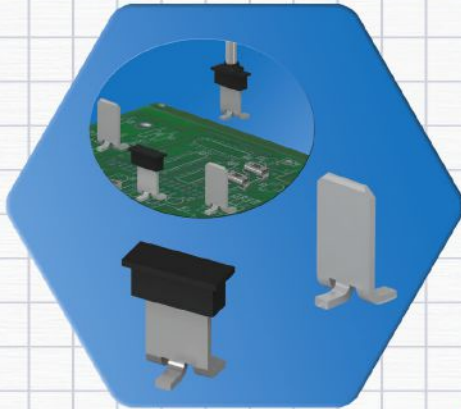
UL Recognized Quick-Fit Terminals
pages 64-69



Panel Hardware
pages 101-107



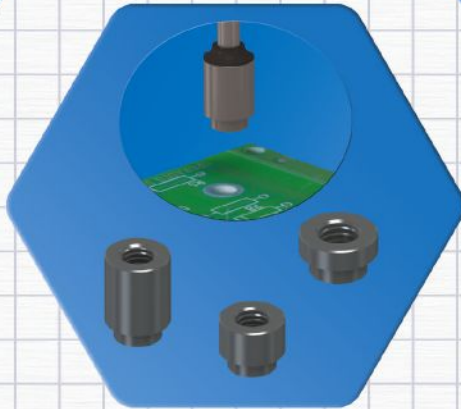
Color Coded Screw Terminals
pages 73-77



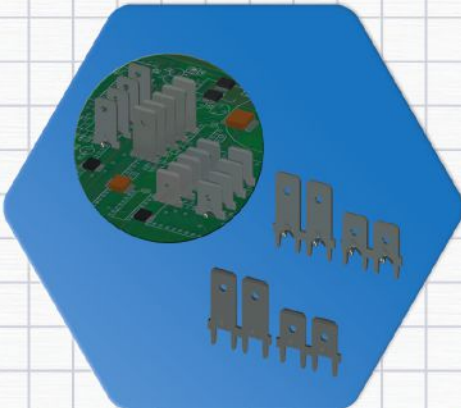
SMT Quick Fit Terminals
page 66



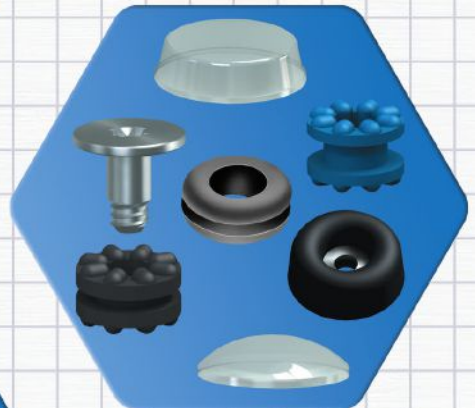
Micro Jacks & Pins
pages 112-115



SMT Standoffs & Spacers, Threaded Inserts
page 86



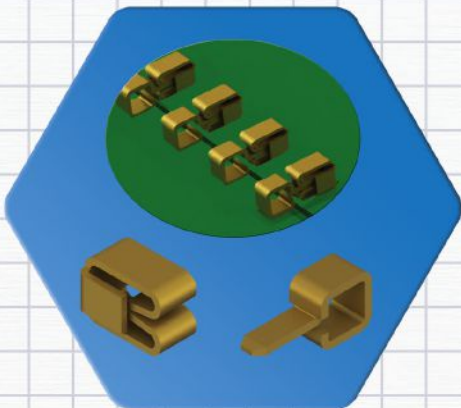
Quick-Fit Terminals Bulk & Continuous Reel
pages 64-69



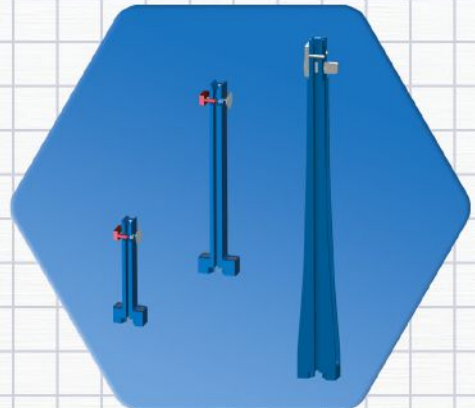
Grommets & Rubber Bumpers
pages 141-142



Extreme Temperature Nylon Standoffs
page 86



Edge Connectors
page 69



PC Board Guides
page 135

TABLE OF CONTENTS

<p>A</p> <p>ALLIGATOR CLIPS 62</p> <p>ALUMINUM & STEEL BATTERY HOLDERS 23</p> <p>AUDIO JACKS 121</p> <p>AUTOMOTIVE BLADE FUSE CLIPS & HOLDERS</p> <p> Low Profile Auto Fuse Clip & Holder 47-49</p> <p> MAXI Auto Blade Fuse Clip & Holder 46</p> <p> Mini Auto Blade Fuse Clip & Holder 48-49</p> <p> Standard Auto Blade Holder 46-49</p> <p> Standard Auto Blade Clip 46-49</p> <p>B</p> <p>BATTERY CONTACTS & CLIPS</p> <p> Accessories 38</p> <p> Battery Insulators (Pull Tabs) 38</p> <p> Button Cell Retainers 8</p> <p> Coin Cell Retainers/Contacts (SMT/THM) 9-12</p> <p> Coin Cell Retainers, Insulated (SMT/THM) 9</p> <p> Contacts for Off Board Applications 15</p> <p> Cylindrical Cell (SMT/THM) 13-16</p> <p> Cylindrical Cell (Molded Case) 17-21</p> <p> Steel Clips & Contacts 22</p> <p> 9 Volt Snaps & Contacts 34</p> <p>BATTERY HOLDERS</p> <p> Aluminum/Steel 23</p> <p> Coin Cell 2-7</p> <p> Covered (Densi-Pak) 31</p> <p> IP65 Water & Dust Resistant Holder 31</p> <p> Lithium-Ion 24-30</p> <p> Plastic - Economical 32-33</p> <p> Plastic - Enclosed 31</p> <p> Polarized 26-30</p> <p> PC Mount (Surface & Thru Hole Mount) 24-30</p> <p> 9 Volt Holders 37</p> <p> 9 Volt Straps 35-36</p> <p>BATTERY ACCESSORIES 38</p> <p>BATTERY CONTACT LAYOUTS & MOUNTING DETAILS 39-42</p> <p>BANANA PLUGS & JACKS 122-123</p> <p>BINDING POSTS</p> <p> Mini- THM mount 78</p> <p> Rivet Mount 79</p> <p>BOARD GUIDES, P.C. 134-135</p> <p>BRACKETS (Mounting) 132-133</p> <p>BRACKETS (Computer) 136-137</p> <p>BUMPERS, Adhesive Backing 142</p> <p>BUMPERS, Rubber 142</p> <p>BUSHINGS, Nylon & Rubber 140-141</p> <p>C</p> <p>CABLE CLAMPS 138-139</p> <p>CABLE TIES 139</p> <p>CABLE TIE ROUTING CLIP 139</p> <p>CARD EJECTORS, PC 134</p> <p>CLIPS</p> <p> Alligator 62</p> <p> Battery 22</p>	<p>C (cont.)</p> <p> Fuse - Automotive 46-49</p> <p> Fuse - Cylindrical 52-53</p> <p> Key Hole 145</p> <p>COIN/BUTTON CELL BATTERY</p> <p> Enclosure Contacts 12</p> <p> Holders 2-7</p> <p> Locking Retainers (SMT & THM) 9</p> <p> Positive & Negative Contacts 12</p> <p> Retainers (SMT & THM) 8-11</p> <p>COMPUTER</p> <p> Board Guides 134-135</p> <p> Card Ejectors 134</p> <p> Jack Screws 100</p> <p> Keystone (RJ45/8P8C) Jacks 125</p> <p> Mounting Brackets 132-133</p> <p> Network/Intranet (RJ45/8P8C) 124-125</p> <p> PC104 Standoffs 84</p> <p> USB Connectors 118-120</p> <p>COMPUTER BRACKETS 136-137</p> <p>CONNECTORS</p> <p> Audio 121</p> <p> Banana Plugs & Jacks 122-123</p> <p> "F" Coaxial Connector 124</p> <p> Keystone (RJ45/8P8C) Jacks 125</p> <p> Micro Jacks & Pins 112-115</p> <p> Phono Jacks & Plugs 128</p> <p> Screw Terminals 73-79</p> <p> USB 118-120</p> <p>CRIMP TERMINALS 70-71</p> <p>D</p> <p>DENSI-PAK BATTERY HOLDERS</p> <p> Covered Battery Holders 31</p> <p> Water & Dust Resistant Holders (IP65) 31</p> <p>E</p> <p>EYELETS 146</p> <p>EYELET STAKING TOOL 146</p> <p>EDGE CONNECTORS 69</p> <p>F</p> <p>FAN/FINGER GUARDS 104-105</p> <p>FIBER WASHERS (Flat & Shoulder) 144-145</p> <p>FUSE BLOCKS 51</p> <p>FUSE CLIPS & HOLDERS</p> <p> Automotive Blade Clips & Holders 46-49</p> <p> Cylindrical Clips 52-53</p> <p> Cylindrical Holders (3AG & 5mm) 50-51</p> <p> Midget (SPF) Clips & Holders 51</p> <p> Subminiature 51</p> <p>FUSE CONTACTS LAYOUT & MOUNTING DETAILS 54-56</p> <p>G</p> <p>GROMMETS</p> <p> Anti-Vibration 141</p> <p> Rubber 141</p> <p> Universal 141</p>	<p>H</p> <p>HANDLES, INSTRUMENTATION 103</p> <p>HARDWARE</p> <p> Bumpers 142</p> <p> Captive Panel Screws 101</p> <p> Cable Ties 139</p> <p> Eyelets/Rivets 146</p> <p> Jack Screws 100</p> <p> Machine Screws & Nuts 143</p> <p> Panel Hardware & Nuts 108</p> <p> Shoulder Screws 102</p> <p> Thumb Screws 101</p> <p> Washers 144-145</p> <p>HOLE PLUGS 140</p> <p>I</p> <p>IDC CONNECTORS, I-CLAMP 72</p> <p>ISOLATED GROMMETS 141</p> <p>INSTRUMENTATION CASES 108</p> <p>INSULATED CABLE CLAMPS 138</p> <p>INSULATED COIN CELL RETAINERS 9</p> <p>INSULATING HARDWARE</p> <p> Bushings 140-141</p> <p> Ceramic Standoffs 88</p> <p> Fiber Washers 144-145</p> <p> Mica Insulators 126</p> <p> Nylon Spacers 88-90</p> <p> Nylon Washers 144-145</p> <p> Spacer Supports (Nylon) 91-93</p> <p>INSTALLATION TOOLS</p> <p> Eyelet 146</p> <p> Rivet 147</p> <p> Staking 147</p> <p>IP65 BATTERY HOLDERS 31</p> <p>IP68 NETWORK JACKS 124</p> <p>J</p> <p>JACKS</p> <p> Audio 121</p> <p> Banana 123</p> <p> Insulated 117</p> <p> Keystone (RJ45) 125</p> <p> Micro 112-113</p> <p> Phono 128</p> <p> Test 116-117</p> <p> USB 118-120</p> <p>JACK SCREWS</p> <p> Nylon Patch 100</p> <p> Standard - SEMS 100</p> <p> Turnable 100</p> <p>JUMPERS</p> <p> THM 60</p> <p> SMT 60</p> <p> Zero OHM Chip Resistor Jumper 60</p> <p>K</p> <p>KNOBS, POINTERS 102</p> <p>KEY HOLE CLIPS 145</p>
---	--	--

TABLE OF CONTENTS (cont.)

K (cont.)

KEY-PAD DOMES	98-99
L	
LITHIUM-ION BATTERY HOLDERS	24-30
LED HARDWARE	
Holders	106
LENS Caps	106
Spacer Mounts	107
LOCKING COIN CELL RETAINERS	9
LUGS (SOLDER)	80

M

MAXI AUTOMOTIVE FUSE CLIPS & HOLDERS	44
MICA TRANSISTOR INSULATORS	126
MICRO JACKS	112-113
MICRO PINS	114-115
MINI AUTOMOTIVE FUSE CLIPS & CONTACTS	46-47
MIDGET FUSE HOLDER	51
MINI/MICRO USB SOCKETS & PLUGS	118-120
MOUNTING BRACKETS	132-133

N

NEGATIVE & POSITIVE COIN CELL CONTACTS	12
NETWORK JACKS	124-125
9 VOLT BATTERY CONTACTS & STRAPS	34-37
NUTS, MACHINE	143
NYLON CABLE CLAMPS	139
NYLON PC SPACERS/SUPPORTS	91-93
NYLON SCREWS	143
NYLON SNAP RIVETS	146
NYLON SPACERS	90
NYLON STANDOFFS	84
NYLON WASHERS	144-145

P

PANEL BEARINGS	108
PANEL HARDWARE	
Captive Panel Screws	101
Panel Nuts & Bearings	108
Shoulder Screws	102
Thumb Screws	101
PC BATTERY CONTACTS	12-16
PHONO PLUGS & JACKS	128
PINS, MICRO	114-115
PLUGS	
Banana	122-123
Hole	140
Shorting	115
Tips & Plugs	116-117
PULL TABS (Battery Insulators)	38

Q

QUICK-FIT COMPONENTS	
Boots	70
Continuous Reeled	66
Headers	67
PC Mount Female Terminals	68-69

Q (cont.)

PC Mount Male Terminals	64-67
Rivet Mount	67
Surface Mount Terminals	68

R

RIVETS	146
RJ45 (KEYSTONE) JACKS	124-125
RUBBER BUMPERS & GROMMETS	141-142
RETAINING SPACERS	90
RETAINING WASHERS	144

S

SCREWS	
Colored Head	73-78
Handle Mounting	103
Jack Screw	100
Machine Screw	143
Metric Screws	143
Panel Screw	108
Self-Tapping	143
Shoulder Screw	102
Thumb Screw	101
SCREW TERMINALS	
Slim-Line	73
Horizontal & Vertical - 15 Amp	74-75
Heavy Duty - 30 Amp	75
SEMS Screw - 15/30 Amp	76
Metric Thread	77
SHAFT LOCKS/EXTENDERS	108
SHORTING PINS, PLUGS & JACKS	115
SHOULDER SCREWS	102
SOCKETS	
Keystone (RJ45)	124-125
Micro	112-113
Phono	128
Transistor	127
USB	118-120
SOLDER LUGS & TERMINALS	80
SPACERS	
Aluminum, Brass, Nylon, Phenolic	88
Force Fit	87
LED	107
Organizer Kits	94
PC Board (Lock-In, Adhesive)	93
Self Retaining (Nylon)	90
Swage Mount	87
Surface Mount	86
STANDARD AUTOMOVE FUSE CLIPS & HOLDERS	46-49
STANDOFFS	
Aluminum, Brass, Ceramic, Nylon, Stainless Steel	85
Extreme Temperature Nylon	86
Force Fit	87
Hinged	90
Metric	89
Male - Female	84
Organizer Kits	94

S (cont.)

PC 104	84
Swage Mount	87
Surface Mount	86
Threaded Insert	86
STURDI-MOUNT QUICK-FIT TERMINALS	64-67

T

TAPE & REEL COMPONENTS	
Audio Jacks	121
Battery Contacts	9-14
Coin Cell Holders	2-7
Coin Cell Retainers/Contacts	8-12
Edge Connectors	69
Fuse Clips	48-49
Fuse Holders	48-49
Jumpers	60
Key Pad Dome Switches	98-99
Quick-Fit Female Terminals	69
Spacers & Standoffs	86
Test Points	61
USB Plugs & Sockets	118-120
TERMINALS	
Binding Post Terminal	78-79
Lugs (Solder)	80
Micro Jacks	112-113
Quick-Fit	64-68
Screw Terminals	73-79
Solderless (Crimp)	70-71
Sturdi-Mount, Quick-Fit	64-67
TEST POINTS	
Color Keyed, THM	62
Color Keyed, SMT	61
PC Mount	62
Surface Mount	61
Slotted & Loop	63
TEST TIPS, PLUGS & JACKS	116-117
THUMB SCREWS	101
TRANSISTOR COVERS	127
TRANSISTOR SOCKETS/MOUNTS	127

U

USB PLUGS & SOCKETS	118-120
---------------------------	---------

V

VERTICAL COIN CELL HOLDERS	3,7
VERTICAL PC BOARD GUIDE	135
VIBRATION (ANTI) GROMMETS	141

W

WASHERS	
Internal Tooth	144
Lock Washers	144
Fibre (Flat & Shoulder)	144-145
Nylon (Flat & Shoulder)	144-145
Self-Retaining	144

Z

ZERO OHM JUMPERS	60
------------------------	----

QUALITY POLICY

KEYSTONE ELECTRONICS CORP. is committed to meeting or exceeding our customer's expectations and satisfying all applicable requirements, as well as meeting or exceeding our annual quality goals and objectives by working together to continually improve our ISO 9001:2015 Quality Management System.

— Troy David, President/CEO

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
CERT-8053-2004-AQ-HOU-ANAB

Initial certification date:
18 February 1996

Valid:
09 March 2019 - 09 March 2022

This is to certify that the management system of

Keystone Electronics Corporation

55 South Denton Avenue, New Hyde Park, NY, 11040, USA
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:

The design and manufacture of interconnect components and electronic hardware

Place and date:
Katy, TX, 04 March 2019

For the issuing office:
DNV GL – Business Assurance
1400 Ravello Drive, Katy, TX, 77449-5164,
USA



John Stefan
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance USA, Inc., 1400 Ravello Drive, Katy, TX 77449 USA. TEL: 281-396-1000. dnvglcert.com

All products unconditionally guaranteed against defects in material and workmanship.

Keystone components are guaranteed to be free from defects in material and workmanship for a reasonable period of time after delivery. Our liability shall be limited to replacement of defective material only. Neither seller or manufacturer shall be liable for any injury, loss or damage, direct or consequential, rising out of the use of or the inability to use the products. Before using, user shall determine the suitability of the product for their intended use, user assumes all risk and liability whatsoever in connection therewith.

We reserve the right to change specifications on any and all items shown in this Product Design Guide or any supplements without prior notice providing the performance or appearance will not change the function of the item.

Keystone has carefully prepared this Product Design Guide. The specifications contained herein, are for reference only, any inaccuracies may be due to typographical errors or changes made after publication. Please refer to our Dynamic Catalog at keyelco.com for updated information and specifications.

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FEDERAL SUPPLY CODE
FSCM
91833

CONTENTS BY SECTION



BATTERY CLIPS, CONTACTS & HOLDERS

SECTION 1

PAGE 1



FUSE CLIPS & HOLDERS

SECTION 2

PAGE 45



TERMINALS & TEST POINTS

SECTION 3

PAGE 59



SPACERS & STANDOFFS

SECTION 4

PAGE 83



PANEL HARDWARE

SECTION 5

PAGE 97



PINS, PLUGS, JACKS & SOCKETS

SECTION 6

PAGE 111

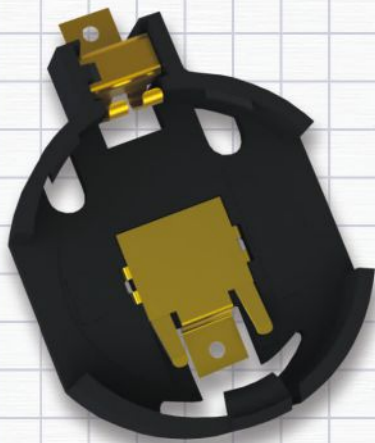
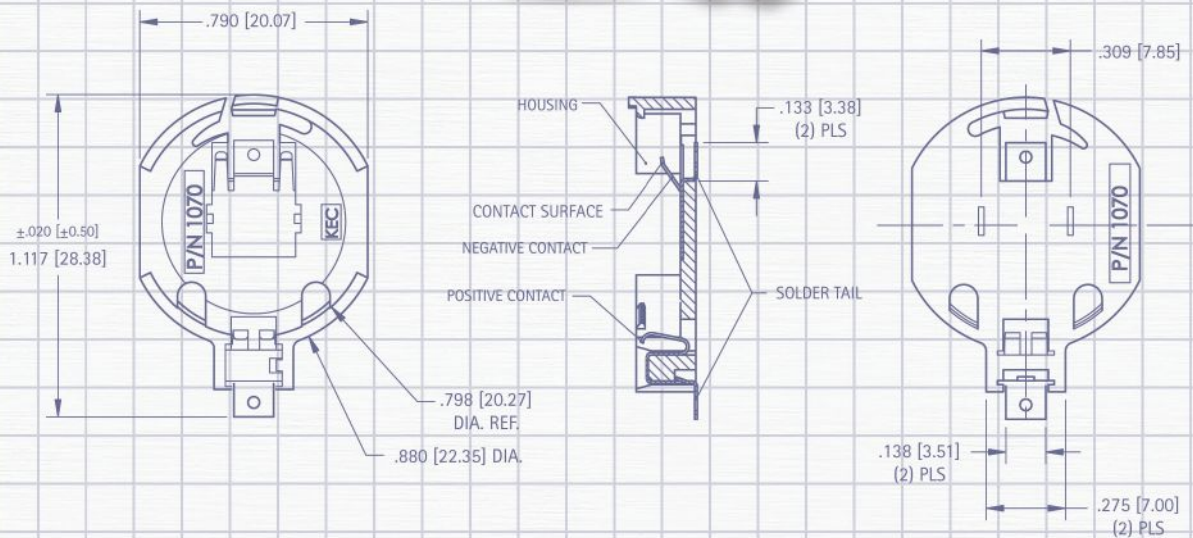
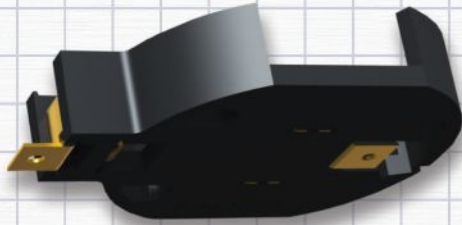


MULTI-PURPOSE HARDWARE

SECTION 7

PAGE 131

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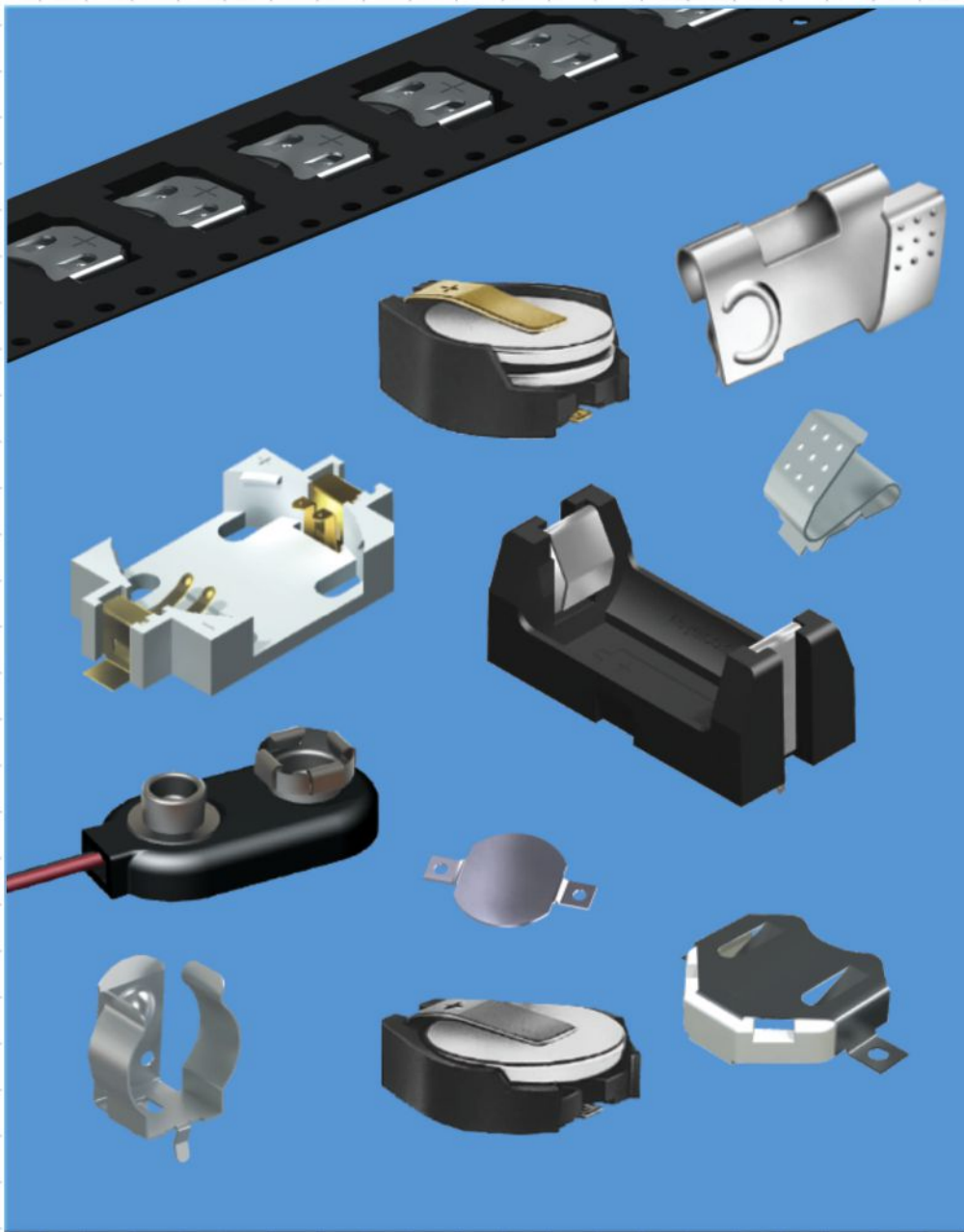
BATTERY CLIPS, CONTACTS & HOLDERS

Our battery clips, contacts and holders are designed with leading edge technology in mind, to accommodate all major manufacturers' batteries. Available in a wide range of materials and mounting styles including surface mount, thru hole and off board, some of the applications include:

- Telecommunications and Video power back-up
- Laptop and Mobile computing applications
- Communication system's power requirements
- Microcomputer and memory hold
- Preprogrammed electronic and video games
- Emergency power systems
- Industrial and commercial security and alarm systems
- Miniature battery power devices
- Computer memory, power transfer and back-up systems
- Personal medical monitoring devices

Our quality system is ISO 9001:2015 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.



SECTION 1 CONTENTS

COIN/BUTTON CELL RETAINERS

Button Cell.....	8
Coin Cell.....	8-11
Insulated.....	9
Locking.....	9
Positive & Negative Contacts.....	12

CLIPS/CONTACTS

Alkaline & Lithium Battery Clips, Rivet Mount.....	22
Alkaline & Lithium Clip, THM & SMT.....	13
PC Battery Contacts.....	14-16
Molded Case Contacts, Alkaline.....	17-21
Molded Case Contacts, Coin Cell.....	12

HOLDERS

Aluminum & Steel.....	23
Coin Cell.....	2-7
Lithium Cell.....	24-30
IP65 Water & Dust Resistant.....	31
PC Mount – SMT & THM.....	24-26
Plastic Economical.....	32-33

9 VOLT BATTERY

9 Volt Snaps & Contacts.....	34-35
9 Volt Holders.....	35-37
9 Volt Battery Straps.....	35-36

MOUNTING DETAILS	39-42
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THRU-HOLE (THM) & SURFACE MOUNT (SMT) COIN CELL HOLDERS

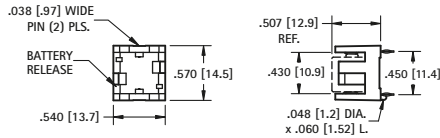
12mm to 16mm COIN CELL HOLDERS

DESIGN ADVANTAGES...

- Reliable spring tension assures low contact resistance
- Retains battery securely to withstand shock and vibration
- Base material UL Rated 94V-0. Impervious to most industrial solvents
- Operating temperature range: -60°F to +293°F (-51°C to +145°C)

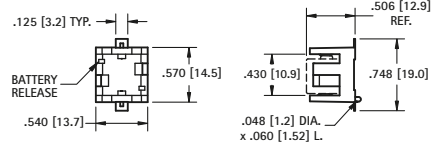
IDEALLY SUITED FOR...

- Computer memory, power transfer and back-up systems
- Video and telecommunications power back-up
- Microprocessors and Microcomputer memory hold (desktop and laptop applications)
- Industrial and commercial security and alarm systems
- PC 104 application



1/3N

AVAILABLE ON TAPE AND REEL



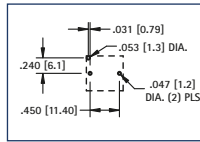
MATERIAL:

Base: High Temperature Nylon 46, UL Rated 94V-0

Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)

CAT. NO.	CELLS	BATTERY REFERENCE
503	1	DL1/3N, K58L, CR1/3N
	2	SR44, 357, MS76, G-13, 303, V313, PX76A

Mounting Detail



MATERIAL:

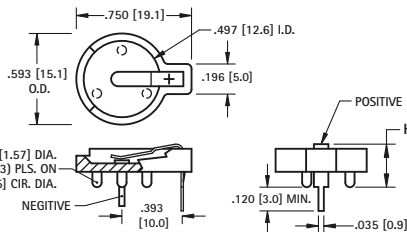
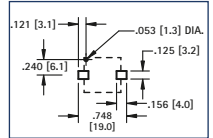
Base: High Temperature Nylon 46, UL Rated 94V-0

Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	CELLS	BATTERY REFERENCE
498	498TR	1	DL1/3N, K58L, CR1/3N
		2	SR44, 357, MS76, G-13, 303, V313, PX76A

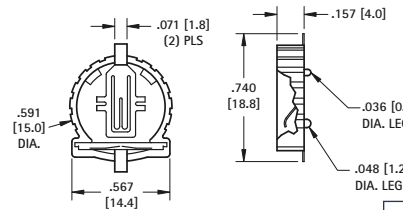
Tape & Reel Spec's: 44mm wide; 20mm pitch; 13 inch reel (200 pieces per reel)

Pad Layout



12mm

AVAILABLE ON TAPE AND REEL



MATERIAL:

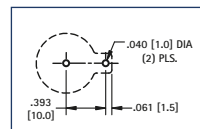
Base: PBT, UL Rated 94V-0

Positive Contact: .015 (.38) Spring Steel, Tin-Nickel Plate

Negative Contact: .035 (.89) Dia. Steel, Tin-Nickel Plate

CAT. NO.	HEIGHT (H)	CELLS	BATTERY REFERENCE
500	.280 (7.1)	1	BR1212, CR1216, CL1220, CR1225
501	.380 (9.7)	2	BR1212, CR1216, CL1220, CR1225

Mounting Detail



MATERIAL:

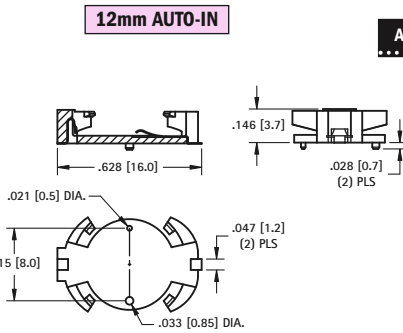
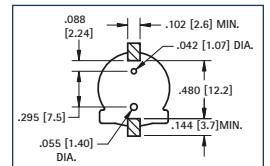
Base: Glass Filled PPS, UL Rated 94V-0

Contacts: .008 (.20) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	CELLS	BATTERY REFERENCE
1056	1056TR	1	CR1220, BR1220, CL1220

Tape & Reel Spec's: 32mm wide; 20mm pitch; 13 inch reel (500 per reel)

Pad Layout



12mm AUTO-IN

AVAILABLE ON TAPE AND REEL

MATERIAL:

Base: PA9T, Black

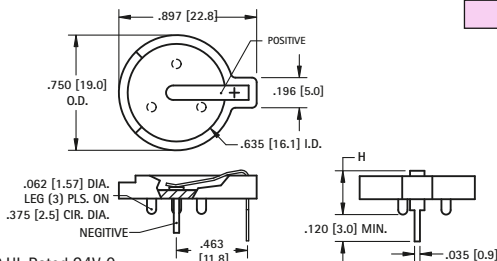
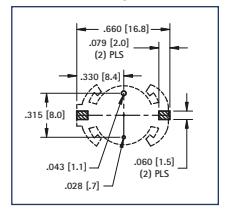
Contacts: .004 (.10) Phosphor Bronze

Contact Area: Gold Plate (Flash)

Solder Tails: Matte Tin Plate

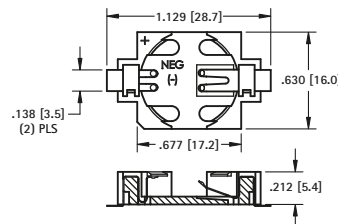
CAT. NO. BULK	ON TAPE & REEL	CELLS	BATTERY REFERENCE
1072	1072TR	1	CR1220, BR1220, CL1225

Tape & Reel Spec's: 44mm wide; 24mm pitch; 13 inch reel (450 per reel)



16mm

AVAILABLE ON TAPE AND REEL



MATERIAL:

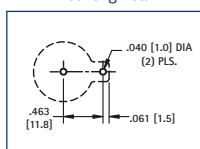
Base: Glass Filled LCP, UL Rated 94V-0

Positive Contact: .015 (.38) Spring Steel, Tin-Nickel Plate

Negative Contact: .035 (.89) Dia. Steel, Tin-Nickel Plate

CAT. NO.	HEIGHT (H)	CELLS	BATTERY REFERENCE
502	.285 (7.3)	1	CR1612, CL1616, CL1620
502-3	.330 (8.4)	1	BR1625, CR1632
		2	BR1616, CR1620, CL1620

Mounting Detail



MATERIAL:

Base: Glass Filled LCP, UL Rated 94V-0

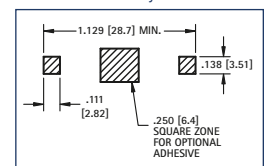
Contacts: .006 (.15) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	CELLS	BATTERY REFERENCE
504	504TR	1	BR1625, CR1632

Tape & Reel Spec's: 44mm wide; 24mm pitch; 13 inch reel (450 per reel)



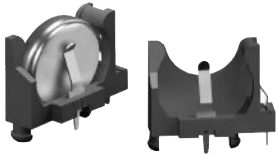
Pad Layout



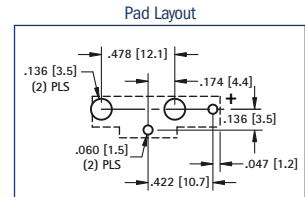
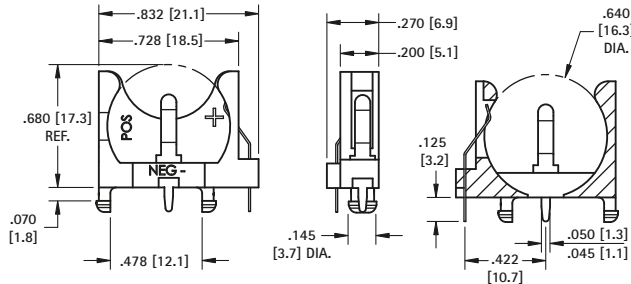
THRU-HOLE MOUNT (THM) VERTICAL VIBRA-FIT CELL HOLDERS

- Accepts all manufactures of 20mm coin cell batteries
- Retains cells securely, withstands shock and vibration
- Polarity clearly marked
- Mounts securely for wave soldering
- Operating Temperature Range: -60°F to 293°F (-51°C to 145°C)

16mm VERTICAL



- Stabilizing pins assure vertical positioning & reduce solder joint stress.
- Polarized holder protects circuit from improper use.



MATERIAL:

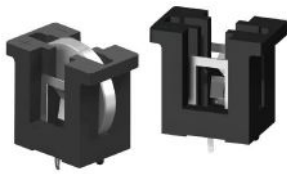
Base: PBT, UL Rated 94V-0

Contacts: .010 (.25) Steel, Tin-Nickel Plate

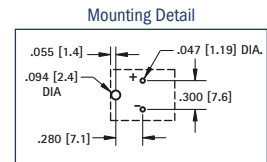
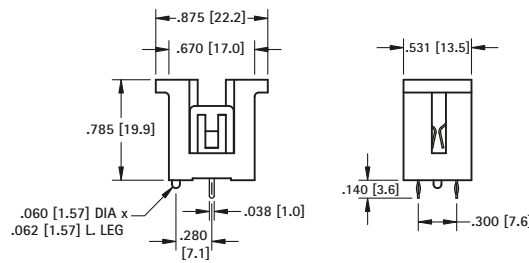
Battery Reference: (1) cell: BR1612, CR1616, CL1620, CR1625, BR1632

CAT. NO. 1069

20mm COMPACT



- Molded notch prevents improper insertion of 2032 size cells



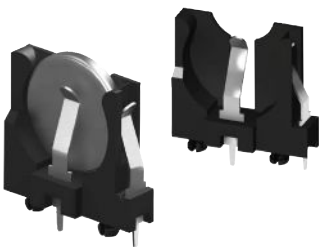
MATERIAL:

Contacts: .012 (.30) Spring Steel, Tin-Nickel Plate

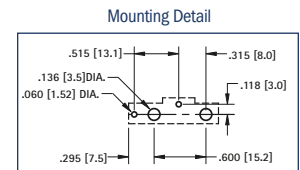
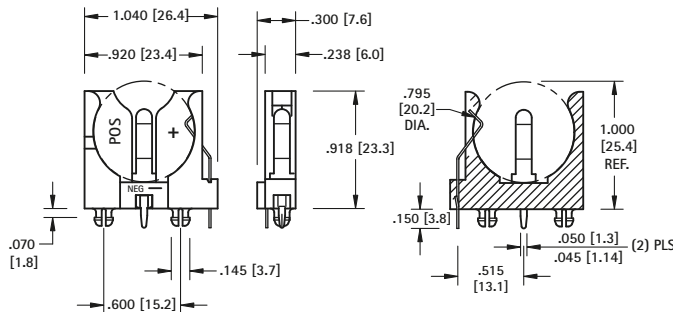
Base: PBT, UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1067	CR2016, DL2020, CL2025, CR2032

20mm SLIM-LINE



- Polarized holder, protects circuit from improper insertion of cells.



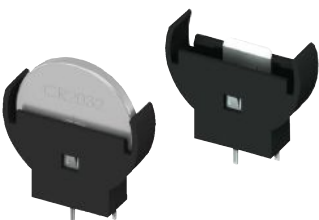
MATERIAL:

Contacts: .016 (.41) Spring Steel, Tin-Nickel Plate

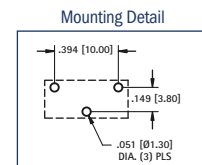
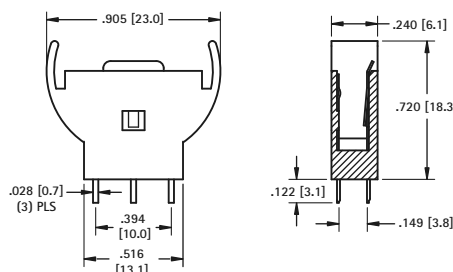
Base: PBT, UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1065	BR2012, CR2016, DL2020, CL2025, CR2032

20mm SLIM-LINE



- Top loading.



MATERIAL:

Contacts: .010 (.25) Brass, Tin Plate

Base: Nylon 6/6, Black

CAT. NO.	BATTERY REFERENCE
1074	CR2032

THRU-HOLE (THM) & SURFACE MOUNT (SMT) VIBRA-FIT HOLDERS

- Extremely rugged, holds battery securely under shock and vibration applications
- Polarized holder protects circuit from improper battery insertion
- Polarity clearly marked
- Safe for all soldering and reflow operations
- Designed for manual insertion of battery
- Glass Filled LCP base material UL Rated 94V-0 impervious to most industrial solvents
- Operating Temperature Range: -60°F to 293°F (-51°C to 145°C)

2025 / 2032 THRU HOLE MOUNT HOLDER



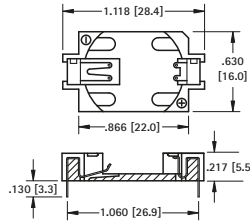
Thru Hole Mount

MATERIAL:

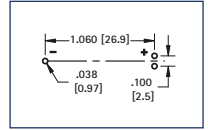
Contacts: .006 (.15) Phosphor Bronze, Tin Plate
Base: Glass Filled LCP, UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1059	CR2025, DL2032

- Tin plated contacts compatible with wave solder and manual soldering process



Mounting Detail



2025 / 2032 SURFACE MOUNT HOLDER



Surface Mount

MATERIAL:

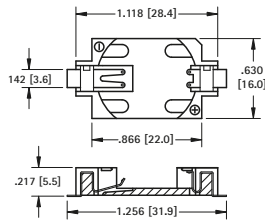
Contacts: .006 (.15) Phosphor Bronze, Gold Plate (Flash)
Base: Glass Filled LCP, UL Rated 94V-0

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
1060	1060TR	CR2025, DL2032

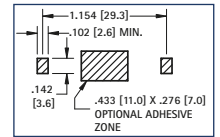
Tape & Reel Spec's: 44mm wide; 20mm pitch; 13 inch reel (500 pieces per reel)

AVAILABLE ON TAPE AND REEL

- Compatible with vacuum and mechanical pick & place assembly systems
- All conductive polystyrene carrier tape meets ANSI/EIA-481 standards
- Viewable solder tails allows for easy solder joint inspection



Pad Layout



SURFACE MOUNT (SMT) AUTO-IN HOLDERS

- Designed for applications where the battery will be automatically inserted via a vacuum or mechanical pick-and-place device
- All conductive polystyrene carrier tape meets ANSI/EIA-481 standards
- Viewable solder tails allows for easy solder joint inspection
- Gold plated contacts assure low contact resistance
- Ideal for retaining cells securely under shock and vibration
- Compatible with most vacuum and mechanical pick-and-place assembly systems

2032 LOW PROFILE HOLDER



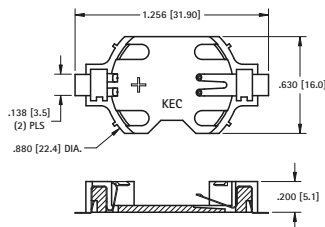
Surface Mount

MATERIAL:

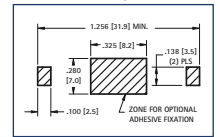
Contacts: .006 (.15) Phosphor Bronze, Gold Plate (Flash)
Base: Glass Filled LCP, UL Rated 94V-0

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
1058	1058TR	CR2032

AVAILABLE ON TAPE AND REEL



Pad Layout



2032 ULTRA LOW PROFILE HOLDER



MATERIAL:

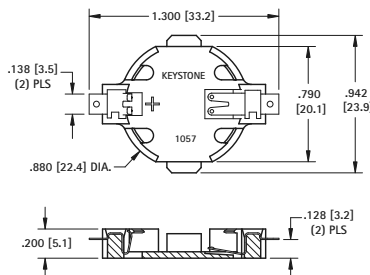
Contacts: .009 (.23) Phosphor Bronze, Gold Plate (Flash)
Base: Glass filled LCP, UL Rated 94V-0

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
1057	1057TR	CR2032

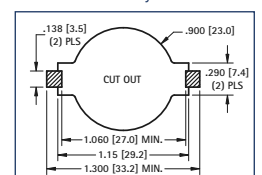
Tape & Reel Spec's: 56mm wide; 32mm pitch; 13 inch reel (400 pieces per reel)

AVAILABLE ON TAPE AND REEL

- Ideal when circuit board height is a critical design parameter
- Rises only 2mm above the PCB surface by mounting the holder thru a hole in the PCB, allowing the holder to sit through the PCB
- Built-in stabilization tabs add mounting security



Pad Layout



20mm COIN CELL HOLDERS

THRU-HOLE (THM) & SURFACE MOUNT (SMT) COIN CELL HOLDERS

DESIGN ADVANTAGES...

- Reliable spring tension assures low contact resistance
- Retains battery securely to withstand shock and vibration
- All conductive polystyrene carrier tape meets ANSI/EIA - 481 standard

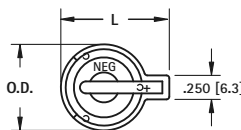
- Base material UL Rated 94V-0. Impervious to most industrial solvents
- Operating temperature range: -60°F to +293°F (-51°C to +145°C)

IDEALLY SUITED FOR...

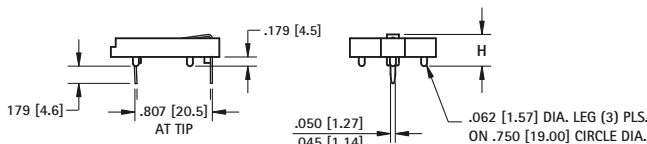
- Computer memory, power transfer and back-up systems
- Video and telecommunications power back-up
- Microprocessors and Microcomputer memory hold (desktop and laptop applications)

- Industrial and commercial security and alarm systems
- Communications power sources
- PC 104 applications

20mm THRU-HOLE MOUNT CON CELL HOLDER



- Advanced air-flow design enhances air circulation around battery
- Reliable spring tension assures low contact resistance
- Unique notched slots assure quick and easy battery insertion and replacement
- Retains battery securely to withstand shock and vibration



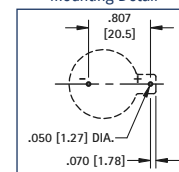
MATERIAL:

Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate

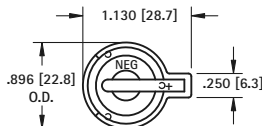
Base: PBT, UL Rated 94V-0

CAT. NO.	H	L	O.D.	NO. OF CELLS	BATTERY REFERENCE
103	.335 (8.5)	1.130 (28.7)	.896 (22.8)	(1) cell (any 20mm) (2) 2012, (2) 2016	BR2012, CR2012, CR2016, CL2016, DL2020, CL2025, BR2025, CR2032, CL2032
106	.335 (8.5)	1.219 (31.0)	1.093 (27.8)	(1) cell (any 20mm) (2) 2012, (2) 2016	BR2012, CR2012, CR2016, CL2016, DL2020, CL2025, BR2025, CR2032, CL2032
1026	.452 (11.5)	1.219 (31.0)	1.093 (27.8)	(2) 2020, (2) 2025, (2) 2032	DL2020, CR2020, CL2025, BR2025, CR2032, CL2032

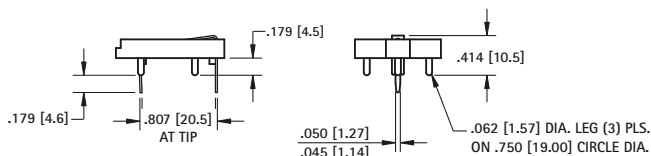
Mounting Detail



20mm RAISED MOUNT COIN CELL HOLDER



- Designed to maximize PC Board Capacity
- Unique raised mounting design allows components to be placed underneath the holder
- Ideal when board space is more important than board height; such as PC 104 applications



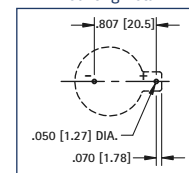
MATERIAL:

Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate

Base: PBT, UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE	NO. OF CELLS
101	BR2012, CR2016, CL2020, CR2025, CR2032	(1) cell (any 20mm) (2) 2012, (2) 2016

Mounting Detail

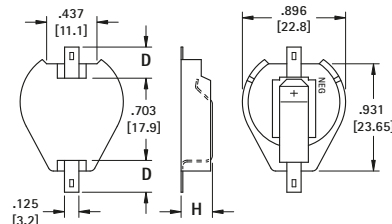


20mm SURFACE MOUNT COIN CELL HOLDER

AVAILABLE ON TAPE AND REEL



- Polarity clearly marked (+)
- Compatible with vacuum and mechanical pick & place assembly systems
- SMT solder tail with "Flow-Hole" design for increased joint strength
- Viewable solder tails assures reliable joint inspection
- Safe for all soldering & reflow operations



MATERIAL:

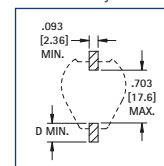
Contacts: .015 (.38) Steel

Base: High Temperature, Nylon 46, UL Rated 94V-0

Tin-Nickel Plate		Gold Plate (Flash)		D PAD SIZE	H HEIGHT	NO. OF CELLS	BATTERY REFERENCE
CAT. NO.	ON TAPE BULK & REEL	CAT. NO.	ON TAPE BULK & REEL				
1061	1061TR	1081	1081TR	.156 (4.0)	290 (7.4)	(1) Cell (any 20mm) (2) 2012, (2) 2016	CR2012, CL2016, BR2020, DL2032, CR2032
1063	1063TR	1093	1093TR	.278 (7.1)			
1062	1062TR	1082	1082TR	.156 (4.0)	.406 (10.3)	(2) 2020, (2) 2025, (2) 2032	
1064	1064TR	1094	1094TR	.278 (7.1)		(3) 2012, (3) 2016	

Tape & Reel Spec's: 44mm wide; 32mm pitch; 13 inch reel (200 pieces per reel)

Pad Layout



THRU HOLE (THM) & SURFACE MOUNT (SMT) 20mm EZ-OUT HOLDERS

- Top loading for compact applications
- Finger pressure against lever will release battery
- No tools required
- Holds battery securely under shock and vibration applications
- Nylon base material UL Rated 94V-0, impervious to most industrial solvents
- Operating Temperature Range: -60°F to 293°F (-51°C to 145°C)

THM EZ-OUT COIN CELL HOLDER

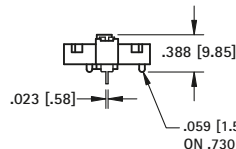
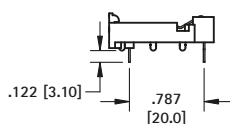
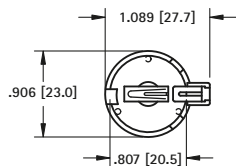


- Designed for manual insertion of battery.
- Mounts securely for wave soldering

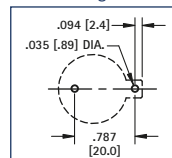
MATERIAL:

Contacts: .016 (.41) Phosphor Bronze, Tin Plate
Base: Nylon UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1066	BR2025, CR2032



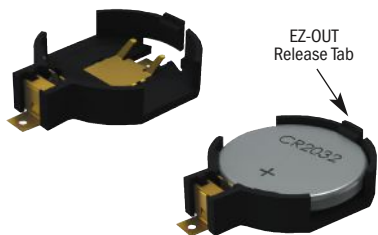
Mounting Detail



SMT AUTO-IN/EZ-OUT COIN CELL HOLDER

AVAILABLE ON TAPE AND REEL

- Designed for automatic vertical insertion of battery via a vacuum or mechanical pick-and-place device
- Compatible with vacuum and mechanical pick & place assembly systems
- All conductive polystyrene carrier tape meets ANSI/EIA-481 standards

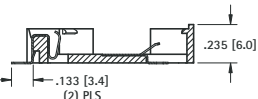
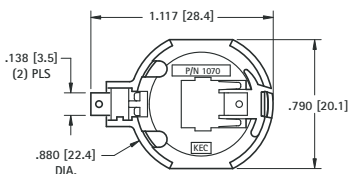


MATERIAL:

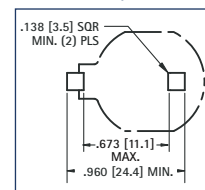
Contacts: .009 (.23) Phosphor Bronze, Gold Plate (Flash)
Base: High temperature Nylon 4/6, UL Rated 94V-0

CAT. NO.	ON TAPE & REEL	BATTERY REFERENCE
1070	1070TR	CR2032

Tape & Reel Spec's: 44mm Wide, 24mm Pitch, 13 inch reel (400 pieces per reel)



Pad Layout



THRU HOLE (THM) & SURFACE MOUNT (SMT) 23mm COIN CELL HOLDERS



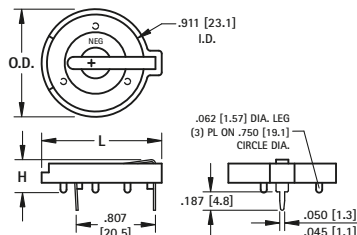
Thru Hole Mount

- Advanced air-flow design enhances air circulation around battery
- Unique notched slots assure quick and easy battery insertion and replacement

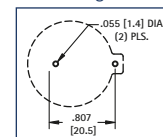
MATERIAL:

Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate
Base: PBT, UL Rated 94V-0
Operating Temperature: -60°F to +293°F (-51°C to +145°C)

CAT. NO.	H	L	O.D.	NO. OF CELLS	BATTERY REFERENCE
104	.335 (8.5)	1.150 (29.2)	1.000 (25.4)	(1) Cell (Any 23mm)	BR2320, CR2320, CL2325, DL2330, CL2354, CR2335
107	.335 (8.5)	1.219 (31.0)	1.093 (27.8)	(1) Cell (Any 23mm)	
1027	.452 (11.5)	1.219 (31.0)	1.093 (27.8)	(1) 2354 (2) 2320, (2) 2325, (2) 2330	



Mounting Detail



AVAILABLE ON TAPE AND REEL

- SMT solder tail with "Flow-Hole" design for increased joint strength
- Viewable solder tails assures reliable joint inspection
- All conductive polystyrene carrier tape meets ANSI/EIA - 481 standard

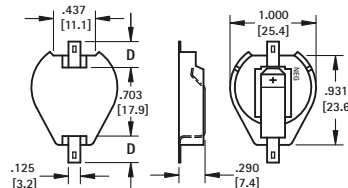


Surface Mount

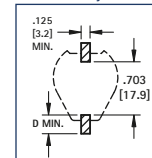
MATERIAL:

Contacts: .015 (.38) Steel
Base: High Temp Nylon 46, UL Rated 94V-0
Operating Temperature: -60°F to +293°F (-51°C to +145°C)

Tin-Nickel Plate	Gold Plate (Flash)	D	BATTERY REFERENCE
CAT. NO. ON TAPE & REEL	CAT. NO. ON TAPE & REEL	PAD SIZE	REFERENCE
1071	1071TR	.156 (4.0)	CR2320, CL2325, DL2330, CR2335
1073	1073TR	.278 (7.1)	DL2330, CR2335



Pad Layout



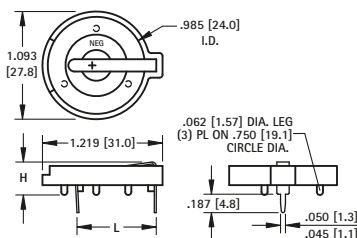
THRU-HOLE (THM) & SURFACE MOUNT (SMT) COIN CELL HOLDERS

24mm

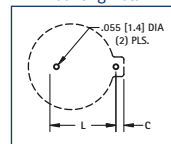


Thru Hole Mount

- Advanced air-flow design enhances air circulation around battery
- Unique notched slots assure quick and easy battery insertion and replacement



Mounting Detail



MATERIAL:

Base: PBT, UL Rated 94V-0

Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate

Operating Temperature: -60°F to +293°F (-51°C to +145°C)

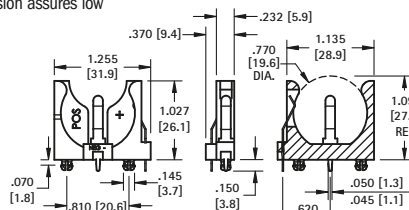
CAT. NO.	C	H	L	NO. OF CELLS	BATTERY REFERENCE
105	.074 (1.9)	.335 (8.5)	.805 (20.5)	(1) 2430	CR2430, CL2430, BR2450, CR2477
1025	.074 (1.9)	.452 (11.5)	.805 (20.5)	(2) 2430	
1025-7	.074 (1.9)	.503 (12.8)	.805 (20.5)	(1) 2477	
				(2) 2430	

24mm VERTICAL

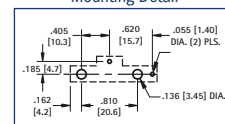


Thru Hole Mount

- Polarized holder
- Mounts securely for wave soldering
- Reliable spring tension assures low contact resistance



Mounting Detail



MATERIAL:

Base: PBT, UL Rated 94V-0

Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate

Operating Temperature: -60°F to +293°F (-51°C to +145°C)

CAT. NO.	BATTERY REFERENCE
1068	(1) CR2450, (1) CL2450

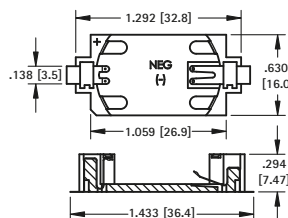
24mm TOP Loading

AVAILABLE ON TAPE AND REEL

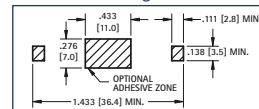


Surface Mount

- Polarized holder
- Low profile for densely packed PCB's
- Compatible with vacuum and mechanical pick & place systems
- Conductive carrier tape meets ANSA/EIA- 481 standard



Mounting Detail



MATERIAL:

Base: LCP, UL Rated 94V-0

Contacts: .006 (.15) Phosphor Bronze, Gold Plate (Flash)

Operating Temperature: -60°F to +293°F (-51°C to +145°C)

CAT. NO.	ON TAPE & REEL	BATTERY REFERENCE
1052	1052TR	(1) CR2450

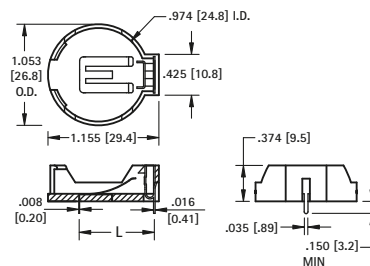
Tape & Reel Spec's: 56mm wide; 20mm pitch; 13 inch reel, (400 pieces per reel)

24mm AUTO-IN/EZ-OUT

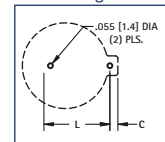


Thru Hole Mount

- Battery "Pop-in" from Top for automated assembly
- No tools required
- Finger pressure battery release



Mounting Detail



MATERIAL:

Contacts: .008 (.20) Phosphor Bronze, Nickel Plate

Base: High Temp Nylon 46, UL Rated 94V-0

Operating Temperature: -60°F to +293°F (-51°C to +145°C)

CAT. NO.	L	C	BATTERY REFERENCE
1053	.788 (20.0)	.048 (1.2)	(1) CR2450

30mm



Thru Hole Mount

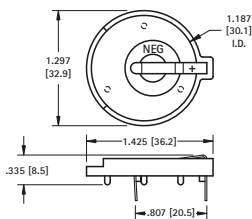
MATERIAL:

Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate

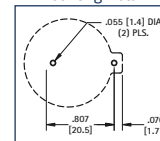
Base: PBT, UL Rated 94V-0

Operating Temperature: -60°F to +293°F (-51°C to +145°C)

CAT. NO.	BATTERY REFERENCE
301	BR3032



Mounting Detail



SURFACE MOUNT (SMT) & THRU HOLE (THM) BUTTON CELL RETAINERS

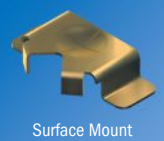
Economical and reliable SMT and THM coin cell retainers specifically designed for miniature electronic applications with limited board space.

- Available in Thru Hole Mount (THM) or Surface Mount (SMT) configurations
- Retains battery securely to withstand shock and vibration
- THM legs maintain relative position during and after soldering
- Ideally suited for High Density packaging
- Reliable spring tension assures low contact resistance
- SMT solder tail with "flow-hole" design for increased joint strength
- Solder tail located outside of retainer body which facilitates visual inspection of the solder joints

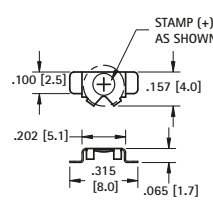
4.8mm to 10mm BUTTON CELL RETAINERS

AVAILABLE ON TAPE AND REEL

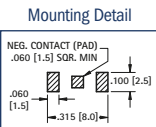
4.8mm



Surface Mount



STAMP (+) AS SHOWN




Mounting Detail

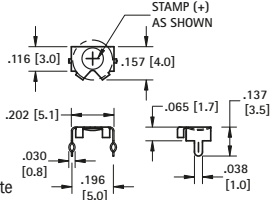
MATERIAL: .006 (.15) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
2994	2994TR	ML414

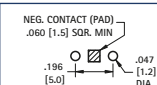
Tape & Reel Spec's: 16mm wide; 8mm pitch; 13 inch reel (1500 pieces per reel)



Thru Hole Mount



STAMP (+) AS SHOWN




Mounting Detail

MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

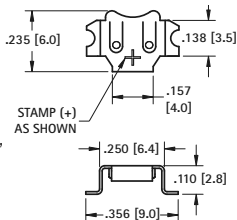
CAT. NO.	BATTERY REFERENCE
2995	ML414

AVAILABLE ON TAPE AND REEL

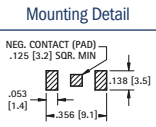
5.8mm



Surface Mount



STAMP (+) AS SHOWN




Mounting Detail

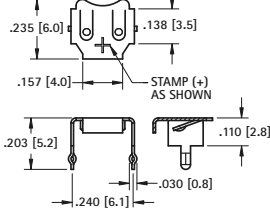
MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
2986	2986TR	379, 317

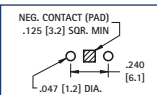
Tape & Reel Spec's: 16mm wide; 8mm pitch; 13 inch reel (1500 pieces per reel)



Thru Hole Mount



STAMP (+) AS SHOWN




Mounting Detail

MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

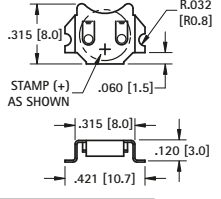
CAT. NO.	BATTERY REFERENCE
2987	379, 317

AVAILABLE ON TAPE AND REEL

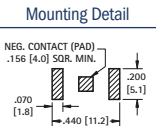
6.8mm



Surface Mount



STAMP (+) AS SHOWN




Mounting Detail

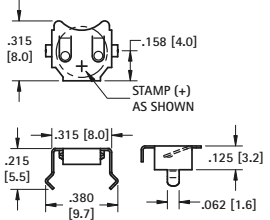
MATERIAL: .010 (.25) Phosphor Bronze

CAT. NO. BULK	ON TAPE & REEL	FINISH	BATTERY REFERENCE
2998	2998TR	Tin-Nickel	MC621, V364, SC621, DR13H, DR77, V13AT, 377
3098	3098TR	Matte Tin	

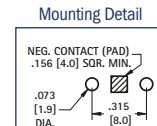
Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (1000 pieces per reel)



Thru Hole Mount



STAMP (+) AS SHOWN




Mounting Detail

MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate

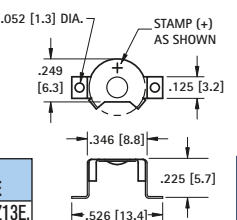
CAT. NO.	BATTERY REFERENCE
2999	MC621, V364, SC621, DR13H, DR77, V13AT, 377

AVAILABLE ON TAPE AND REEL

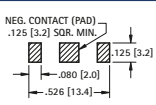
7.9mm



Surface Mount



STAMP (+) AS SHOWN




Mounting Detail

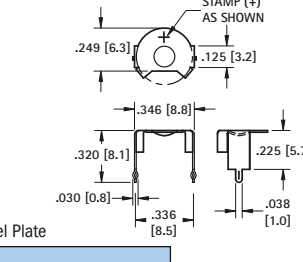
MATERIAL: .010 (.25) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
2988	2988TR	Size 13, DA13, AZ13E, 393, SR754, SR48

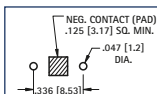
Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (800 pieces per reel)



Thru Hole Mount



STAMP (+) AS SHOWN




Mounting Detail

MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate

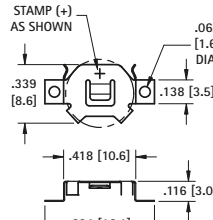
CAT. NO.	BATTERY REFERENCE
2989	Size 13, DA13, AZ13E, 393, SR754, SR48

AVAILABLE ON TAPE AND REEL

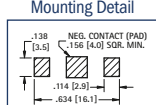
9 - 10mm



Surface Mount



STAMP (+) AS SHOWN




Mounting Detail

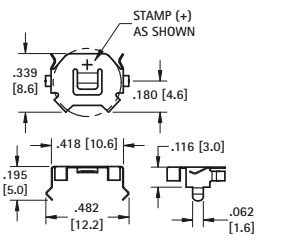
MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

CAT. NO. BULK	ON TAPE & REEL	FINISH	BATTERY REFERENCE
3030	3030TR	Tin-Nickel	CR927, CR1025
3050	3050TR	Matte Tin	

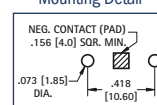
Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (1500 pieces per reel)



Thru Hole Mount



STAMP (+) AS SHOWN



Mounting Detail

MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

CAT. NO.	BATTERY REFERENCE
3031	CR927, CR1025

LOCKING COIN CELL RETAINERS

- Coin cell is secured even in shock & vibration applications
- Battery can be removed without use of tools

- Compatible with all wave and reflow soldering processes
- Tin-Nickel plating is ideal for High temperature, lead free, soldering



Toolless Battery installation:

1. Tilt battery so that top edge of battery will slide under retaining tab.
2. Level battery and slide into retainer until retaining tab snaps over battery.

SMT



Locking Retainer:

Battery will stay retained even in severe shock applications such as hand held devices. Battery can be removed by lifting retaining tab and pushing battery from back end of retainer.

THM

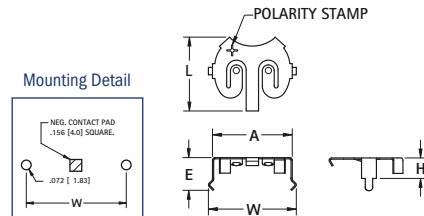
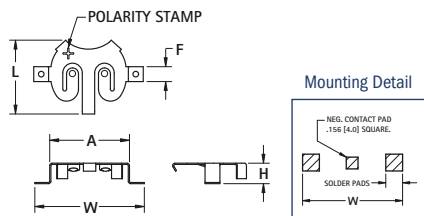
- Flow hole solder tail designed for increased joint strength
- Compatible with most vacuum and mechanical pick and place assembly systems
- All conductive polystyrene carrier tape meets ANSI/EIA-481 standard

- Snap-In legs will maintain positioning prior and during soldering
- Compatible with wave solder application

MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate



Surface Mount



Thru Hole Mount

AVAILABLE ON TAPE AND REEL

Surface Mount						Thru Hole Mount		
CAT. NO. BULK	CAT. NO. ON TAPE & REEL	A	H	L	W	CELL DIA.	BATTERY REFERENCE	CAT. NO. BULK
2894	2894TR	.520 (13.2)	.106 (2.7)	.494 (12.5)	.700 (17.8)	12mm	CR1220	2895
2896	2896TR	.670 (17.0)	.171 (4.3)	.620 (15.8)	.920 (23.4)	16mm	BR1632	2897
2898	2898TR	.830 (21.1)	.171 (4.3)	.771 (19.6)	1.210 (30.7)	20mm	CR2032	2899

SURFACE MOUNT (SMT) & THRU-HOLE (THM) INSULATED RETAINERS



Surface Mount

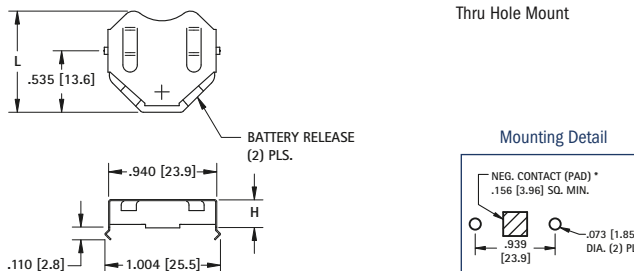
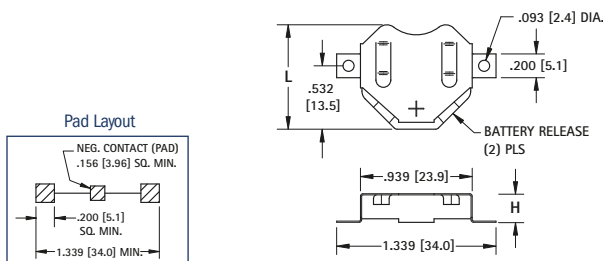
20mm CELLS

- Ideal for 6 volt or 3 volt applications
- Two coin cell batteries can be installed in series
- Plastic insulator prevents shorting of battery, within the holder, when installed improperly
- Low profile
- Battery release ports for easy battery replacement
- Refer to pages 8 & 11 for a complete offering of coin cell retainers

MATERIAL: Contacts: .010 (.25) Phosphor Bronze Insulator: High Temperature, Nylon 46, UL Rated 94V-0



Thru Hole Mount



AVAILABLE ON TAPE AND REEL

Surface Mount						BATTERY REFERENCE				Thru Hole Mount	
Tin-Nickel Plate			Matte Tin Plate			6 VOLT (2) CELLS		3 VOLT (1) CELL		Tin-Nickel Plate	
CAT. NO. LOOSE*	CAT. NO. BULK	CAT. NO. ON TAPE & REEL	CAT. NO. LOOSE*	CAT. NO. BULK	CAT. NO. ON TAPE & REEL	L	H	L	H	CAT. NO. LOOSE*	CAT. NO. BULK
3020-2	3020	3020TR	3070-2	3070	3070TR	.890 (22.6)	.156 (4.0)	2012, 2016	2020, 2025	.890 (22.6)	.156 (4.0)
3022-2	3022	3022TR	3072-2	3072	3072TR	.877 (22.3)	.240 (6.1)	2020, 2025	2032	.877 (22.3)	.240 (6.1)
3024-2	3024	3024TR	3074-2	3074	3074TR	.877 (22.3)	.295 (7.5)	2032	Not Applicable	.877 (22.3)	.295 (7.5)

* Supplied Unassembled

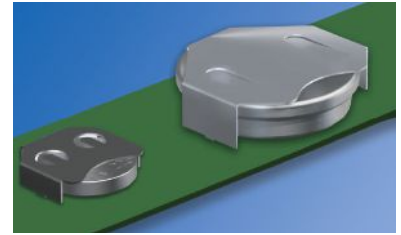
Tape & Reel Specs: 56mm wide; 28mm pitch; 13 inch reel: 3020TR, 3070TR 400 pieces per reel; 3022TR, 3072TR 250 pieces per reel; 3024TR, 3074TR 250 pieces per reel

THRU HOLE (THM) COIN CELL RETAINERS

11.6mm to 30mm COIN CELL RETAINERS



- Snap-In legs maintain relative positioning prior and during soldering
- Compatible with wave soldering processes
- Thru hole solder legs provides excellent mechanical strength
- Lowest profile mounting as compared to coin cell holders
- Economical design allows for PCB pads to be used as negative contacts
- Tin Nickel plating provides low contact resistance and will hold up to high temperature lead free soldering
- Battery can be easily replaced without any tools



MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate

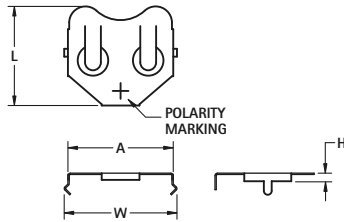
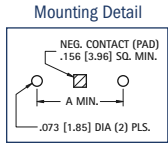


FIG. 1 - Compact

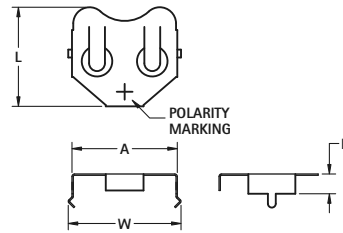
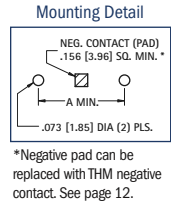


FIG. 2 - Low Profile



CAT. NO.	FIG.	A	H	L	W	CELL DIA.	BATTERY REFERENCE
2997	2	.520 (13.2)	.235 (6.0)	.475 (12.1)	.585 (14.9)	11.6mm	SR43, 186, 386, A76, LR44, 357, MS76, PX76A, G-13, 303, V313
3001	2	.520 (13.2)	.118 (3.0)	.475 (12.1)	.585 (14.9)	12mm	CR1216, BR1220, CL1225, SR1120, D381, 391, 191
3013	2	.664 (16.9)	.156 (4.0)	.594 (15.1)	.723 (18.4)	16mm	BR1616, CR1612, CR1616, CR1620, CR1632
3027	1	.831 (21.1)	.085 (2.2)	.782 (19.9)	.890 (22.6)	20mm	BR2016, CR2016, DL2016
3003	2	.831 (21.1)	.156 (4.0)	.782 (19.9)	.890 (22.6)	20mm	BR2320, CL2330, CR2320, BR2325, CR2325, DL2325
3005	2	.939 (23.9)	.156 (4.0)	.832 (21.1)	1.004 (25.5)	23mm	BR2320, CL2330, CR2320, BR2325, CR2325, DL2325
3011	2	.939 (23.9)	.240 (6.1)	.819 (20.8)	1.004 (25.5)	23mm	CR2354, DL2354
3007	1	1.000 (25.4)	.156 (4.0)	.918 (23.3)	1.055 (26.8)	24mm	CR2430, DL2430
3009	2	1.000 (25.4)	.230 (5.8)	.890 (22.6)	1.059 (26.9)	24mm	CR2450, DL2450
3039	2	1.000 (25.4)	.336 (8.5)	.890 (22.6)	1.059 (26.9)	24mm	CR2477, DL2477
3047	2	1.227 (31.2)	.167 (4.2)	1.020 (25.9)	1.340 (34.0)	30mm	CR3032

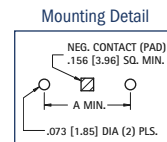
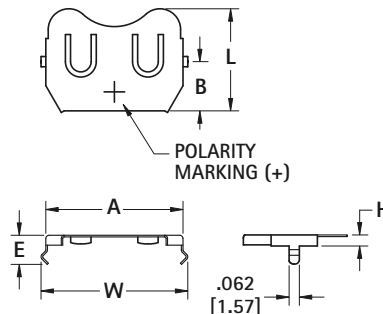
THRU HOLE (THM) ULTRA LOW PROFILE COIN CELL RETAINER



The Ultra Low Profile Coin Cell retainers are designed specifically for the most popular 20mm & 24mm coin cells. It will provide reliable contact as well as retain the coin cell with the minimum space needed. Ideal for small applications such as remote controls or active RFID tags.

- Slim design - saves valuable board space
- Narrow face allows for quick and easy battery replacement
- Designed for specific batteries - lowest height design

MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate



CAT. NO.	A	H	L	W	CELL DIA.	BATTERY REFERENCE
3029	.831 (21.1)	.067 (1.7)	.618 (15.7)	.890 (22.6)	20mm	CR2012, DL2012
3035*	.835 (21.2)	.170 (4.3)	.600 (15.2)	.880 (22.3)	20mm	CR2032 also CR2025, CR2020
3033	1.000 (25.4)	.067 (1.7)	.681 (17.3)	1.055 (26.8)	24mm	CR2412, BR2412

* Nickel Plate

SURFACE MOUNT (SMT) COIN CELL RETAINERS

- Compatible with reflow soldering processes
- Solder tails located outside of retainer which facilitates visual inspection of solder joint
- Compatible with most vacuum and mechanical pick & place assembly system
- All conductive carrier tape meets ANSA/EIA-481 standards
- Economical design allows for PCB pads to be used as negative contacts
- Matte Tin Plate for lower soldering temperatures. Ideal when other temperature sensitive components are being used

- Tin Nickel plating provides low contact resistance and will hold up to high temperature lead free soldering
- Dual spring contact assures battery will have proper contact with PCB
- Battery can be easily replaced without any tools

SURFACE MOUNT (SMT)

AVAILABLE ON TAPE AND REEL

- All conductive polystyrene carrier tape meets ANSI/EIA-481 standards

MATERIAL: .010 (.25) Phosphor Bronze

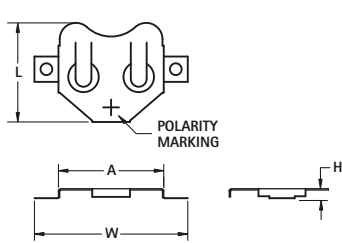
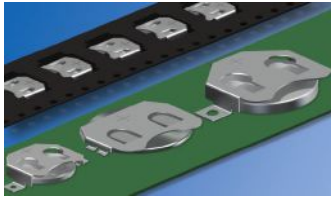
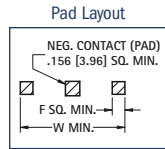
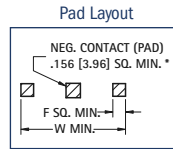


FIG. 1 - Compact



*SMT negative contact pads not recommended for compact retainers.



*Negative pad can be replaced with SMT negative contact. See page 12.

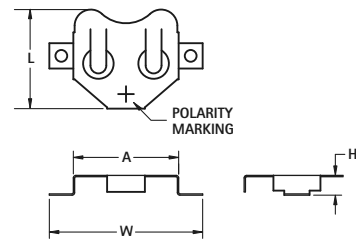


FIG. 2 - Low Profile

TIN-NICKEL PLATE		MATTE TIN PLATE		FIG.	A	H	L	W	CELL DIA.	BATTERY REFERENCE	TAPE & REEL SPEC'S
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL								
2996	2996TR	3096	3096TR	2	.520 (13.2)	.235 (6.0)	.475 (12.1)	.700 (17.8)	11.6mm	SR43, 186, 386, A76, LR44, 357, MS76, PX76A, G-13, 303, V313	32mm wide; 16mm pitch; 600/reel
3000	3000TR	3080	3080TR	2	.520 (13.2)	.125 (3.2)	.475 (12.1)	.745 (18.9)	12mm	CR1216, BR1220, CL1225, SR1120, D381, 391, 191	32mm wide; 16mm pitch; 1000/reel
3012	3012TR	3092	3092TR	2	.664 (16.9)	.156 (4.0)	.594 (15.1)	.914 (23.2)	16mm	BR1612, CR1616, CR1620, DL1632	44mm wide; 24mm pitch; 600/reel
3026	3026TR	3078	3078TR	1	.831 (21.1)	.085 (2.2)	.782 (19.9)	1.210 (30.7)	20mm	BR2016, CR2016, DL2016	44mm wide; 24mm pitch; 1000/reel
3002	3002TR	3082	3082TR	2	.831 (21.1)	.156 (4.0)	.782 (19.9)	1.210 (30.7)	20mm	BR2016, DL2020, CR2025, CR2032	44mm wide; 24mm pitch; 500/reel
3004	3004TR	3084	3084TR	2	.939 (23.9)	.156 (4.0)	.832 (21.1)	1.339 (34.0)	23mm	BR2320, CL2325, CR2330, DL2335	56mm wide; 32mm pitch; 400/reel
3010	3010TR	3090	3090TR	2	.939 (23.9)	.240 (6.1)	.819 (20.8)	1.339 (34.0)	23mm	CR2354, DL2354	56mm wide; 32mm pitch; 200/reel
3006	3006TR	3086	3086TR	1	1.000 (25.4)	.156 (4.0)	.918 (23.3)	1.400 (35.6)	24mm	CR2430, DL2430	56mm wide; 32mm pitch; 400/reel
3008	3008TR	3088	3088TR	2	1.000 (25.4)	.230 (5.8)	.890 (22.6)	1.400 (35.6)	24mm	CR2450, DL2450	56mm wide; 32mm pitch; 200/reel
3046	3046TR	—	—	2	1.227 (14.3)	.167 (4.2)	1.020 (25.9)	1.627 (41.3)	30mm	CR3032	56mm wide; 32mm pitch; 400/reel

SURFACE MOUNT (SMT) ULTRA LOW PROFILE COIN CELL RETAINER



AVAILABLE ON TAPE AND REEL

Ultra Low Profile Coin Cell Retainers are designed specifically for the most popular coin cells. It will provide reliable contact as well as retain the coin cell with the minimum space needed. Ideal for small applications such as remote controls or active RFID tags.

- Slim design - saves valuable board space
- Narrow face allows for quick and easy battery replacement
- Designed for specific batteries - lowest height design

MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate

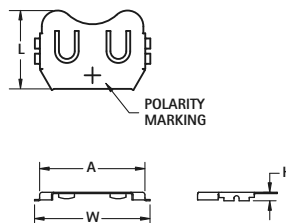
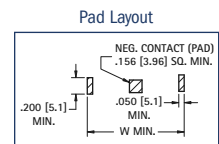


FIG. 3 - Ultra Low



*SMT negative contact pads not recommended for Ultra Low Profile retainers.

TIN-NICKEL PLATE		MATTE TIN PLATE		FIG.	A	H	L	W	CELL DIA.	BATTERY REFERENCE	TAPE & REEL SPEC'S
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL								
3028	3028TR	3038	3038TR	3	.831 (21.1)	.067 (1.7)	.618 (15.7)	.911 (23.1)	20mm	BR2012, CR2012, DL2012	44mm wide; 24mm pitch; 1000/reel
3034*	3034TR*	3044*	3044TR*	3	.835 (21.2)	.160 (4.1)	.635 (16.1)	0.915 (23.1)	20mm	BR2016, DL2020, CR2025, CR2032	44mm wide; 24mm pitch; 1000/reel
3032	3032TR	3042	3042TR	3	1.000 (25.4)	.067 (1.7)	.681 (17.3)	1.080 (27.4)	24mm	BR2412, CR2412	44mm wide, 24mm pitch, 1000/reel

*Nickel Plate

SURFACE MOUNT (SMT) COIN CELL ENCLOSURE CONTACTS

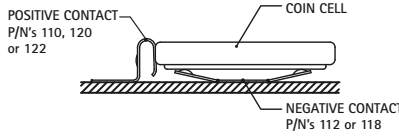
- Contacts for Enclosure cases with self contained battery compartments
- Design facilitates easy battery access, removal & installation

- Suitable for industrial and consumer product applications
- Spring contacts adjust to variations in battery diameter for a dependable connection

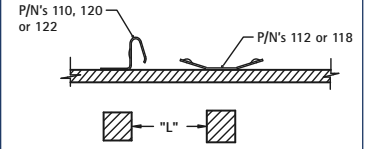
- Positive and Negative contacts can be used as a design pair or individually on a PCB
- Accommodates cell diameters from 12mm to 30mm

AVAILABLE ON TAPE AND REEL

MATERIAL: .006 (.15) Stainless Steel, Gold Plate (Flash)



Refer to page 38 for Mounting Details



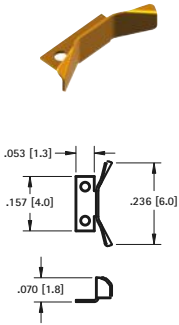
CONTACT SELECTION GUIDE

BATTERY DIAMETER	BATTERY REFERENCE	CAT. NO. REFERENCE	MOUNTING DETAIL
Accommodates 12mm to 16mm	CR1212, CR1216, CR1220, CR1612, CR1616, CR1620	120 (Pos) & 118 (Neg)	See page 38
	CR1225, CR1625, CR1632	110 (Pos) & 118 (Neg)	See page 38
Accommodates 20mm to 30mm	CR2012, CR2016, CR2020, CR2320, CR2412	120 (Pos) & 112 (Neg)	See page 38
	CR2025, CR2032, CR2325, CR2330, CR2430, CR3032	110 (Pos) & 112 (Neg)	See page 38
	CR2050, CR2335, CR2354, CR2430, CR2440, CR2450, CR2477, CR3048	122 (Pos) & 112 (Neg)	See page 38

12mm to 30mm COIN CELL CONTACTS

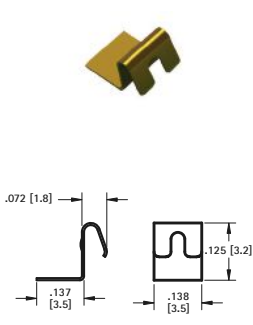
POSITIVE

LOW BATTERY HEIGHT
1.2mm to 2.0mm



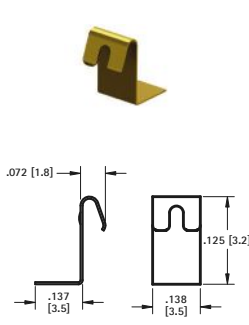
CAT. NO. 120 Bulk
CAT. NO. 120TR Tape & Reel
Tape & Reel Spec's: 16mm wide, 8mm pitch, 13 inch reel, 3000 pieces per reel

MEDIUM BATTERY HEIGHT
2.0mm to 3.2mm



CAT. NO. 110 Bulk
CAT. NO. 110TR Tape & Reel
Tape & Reel Spec's: 16mm wide, 8mm pitch, 13 inch reel, 2000 pieces per reel

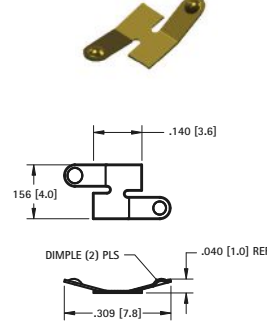
TALL BATTERY HEIGHT
3.5mm to 7.7mm



CAT. NO. 122 Bulk
CAT. NO. 122TR Tape & Reel
Tape & Reel Spec's: 16mm wide, 8mm pitch, 13 inch reel, 1000 pieces per reel

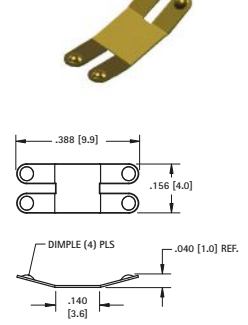
NEGATIVE

BATTERY DIAMETER
12mm to 16mm



CAT. NO. 118 Bulk
CAT. NO. 118TR Tape & Reel
Tape & Reel Spec's: 24mm wide, 8mm pitch, 13 inch reel, 5000 pieces per reel

BATTERY DIAMETER
20mm to 30mm



CAT. NO. 112 Bulk
CAT. NO. 112TR Tape & Reel
Tape & Reel Spec's: 24mm wide, 8mm pitch, 13 inch reel, 5000 pieces per reel

SURFACE MOUNT (SMT) & THRU-HOLE (THM) NEGATIVE BATTERY CONTACTS

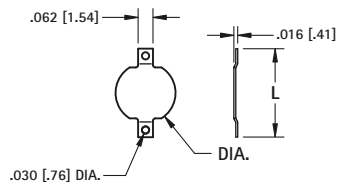
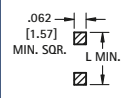
AVAILABLE ON TAPE AND REEL

SMT COMPACT*



- Assures proper contact

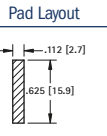
Pad Layout



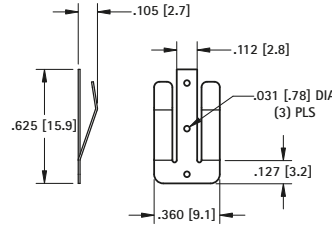
DWG. 1 MATERIAL: .008 (.20) Brass



- Assures proper contact



SMT SPRING CONTACT*

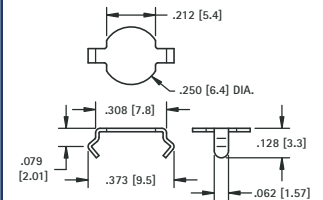


DWG. 2 MATERIAL: .010 (.25) Phosphor Bronze

THM SNAP IN*

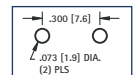


- Assures proper contact



MATERIAL: .008 (.20) Phosphor Bronze, Tin-Nickel Plate

Mounting Detail



CAT. NO. 2990

TIN-NICKEL PLATE		MATTE TIN PLATE		DWG.	L	DIA.	TAPE & REEL SPECS
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL				
2991	2991TR	2981	2981TR	1	.368 (9.4)	.250 (6.4)	16mm wide, 8mm pitch, 1500/7 reel
2992	2992TR	2982	2982TR	1	.289 (7.4)	.186 (4.7)	16mm wide, 12mm pitch, 1000/7 reel
2993	2993TR	2983	2983TR	2	.625 (15.9)	-	24mm wide, 16mm pitch, 1000/13 reel

*Note: Cannot be used with Cat. No. 3028, 3029, 3032, 3038, 3042, 3026, 3078.

THRU HOLE MOUNT (THM) BATTERY CLIPS



- Mounts securely to the PC board with advanced Snap-In design for thru hole mounting
- Reliable spring tension assures low contact resistance
- Low profile, economical design
- Retains battery securely to withstand shock and vibration



Refer to page 40 for Battery Contact Layout & Mounting Details

MATERIAL: Spring Steel, Tin-Nickel Plate

"AAAA" • "A27"

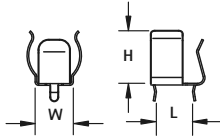


FIG. 1

"AAA" • "N" • "A23" • "AA" • "CR2"

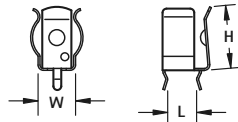


FIG. 2

"A" • "17500" • "18350"
• "18650" • "20700" • "21700"

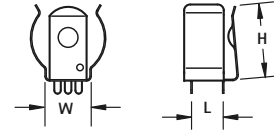


FIG. 3

CAT. NO.	FIG.	BATTERY SIZE	BATTERY DIAMETER	H	L	W
51	1	"AAAA" • "A27"	.300 - .350 (7.6 - 8.9)	.320 (8.1)	.194 (4.9)	.226 (5.7)
82	2	"AAA" • "N" • "A23"	.375 - .460 (9.5 - 11.7)	.525 (13.3)	.228 (5.8)	.296 (7.5)
52*	2	"AA" • "CR2"	No Ears	.525 (13.3)	.228 (5.8)	.250 (6.4)*
92	2	"AA" • "CR2"	.531 - .665 (13.5 - 16.9)	.593 (15.1)	.228 (5.8)	.369 (9.4)
2915**	2	"AA" • "CR2"	.531 - .665 (13.5 - 16.9)	.593 (15.1)	.228 (5.8)	.375 (9.5)
54	3	"A" • 17500 • 18350 • 18650	.630 - 748 (16.0 - 19.0)	.653 (16.6)	.300 (7.6)	.438 (11.1)
247	3	20700 • 21700	.787 - .827 (20.0 - 21.0)	.703 (17.9)	.378 (9.6)	.516 (13.1)

* No Ears to hold battery
** Heavy Duty Clip; .015 (.38) thick material

SURFACE MOUNT (SMT) BATTERY CLIPS/CONTACTS



Refer to page 39 for Battery Contact Layout & Mounting Details

AVAILABLE ON TAPE AND REEL

- Flow-Hole SMT solder tail design for increased joint strength
- Tin-Nickel plating is ideal for lead free, high temperature soldering
- Matte Tin Plate for lower soldering temperatures ideal where other temperature sensitive components are being used



MATERIAL: Spring Steel, Tin-Nickel Plate

"AAAA" • "A27"

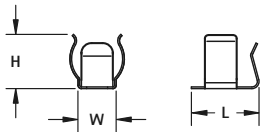


FIG. 4

"AAA" • "N" • "A23" • "AA" • "CR2"

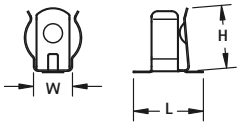


FIG. 5

"A" • "17500" • "18350"
• "18650" • "20700" • "21700"

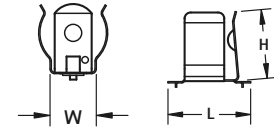


FIG. 6

TIN-NICKEL PLATE		MATTE TIN PLATE		FIG.	BATTERY SIZE	BATTERY DIAMETER	H	L	W
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL						
50	50TR	550	550TR	4	"AAAA" • "A27"	.300 - .350 (7.6 - 8.9)	.320 (8.1)	.400 (10.2)	.226 (5.7)
55	55TR	555	555TR	5	"AAA" • "N" • "A23"	.375 - .460 (9.5 - 11.7)	.498 (12.7)	.671 (17.0)	.296 (7.5)
56*	56TR	556	556TR	5	"AA" • "CR2"	No Ears	.396 (10.1)	.613 (15.6)	.250 (6.4)*
53	53TR	553	553TR	5	"AA" • "CR2"	.531 - .665 (13.5 - 16.9)	.593 (15.1)	.662 (16.8)	.369 (9.4)
57*	57TR	557	557TR	5	"AA" • "CR2"	No Ears	.466 (11.87)	.613 (15.6)	.250 (6.4)*
254	254TR	—	—	6	"A" • 17500 • 18350 • 18650	.630 - 748 (16.0 - 19.0)	.653 (16.6)	.783 (19.9)	.438 (11.1)
246	246TR	—	—	6	20700 • 21700	.787 - .827 (20.0 - 21.0)	.703 (17.9)	.969 (24.6)	.516 (13.1)

* No Ears to hold battery

PC BUTTON & SPRING CONTACTS



- Space saving design installs directly onto the PC board
- Suitable for .062 (1.57) to .093 (2.36) PC boards
- Reliable spring tension assures low contact resistance
- Ideal for self-contained battery compartments

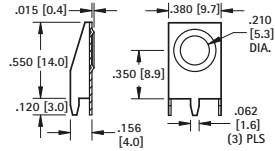


Refer to page 40 for Battery Contact Layout & Mounting Details

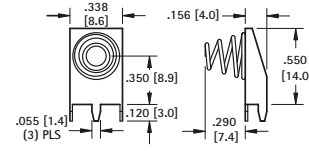
COIL SPRING

"AA" - "CR2" - "A"

(+) POSITIVE BUTTON



(-) NEGATIVE SPRING



MATERIAL:
Frame: .015 (.38)
Steel, Tin-Nickel Plate

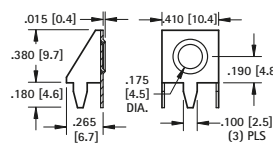
CAT. NO. 595

MATERIAL:
Frame: .015 (.38) Steel,
Matte Tin Plate

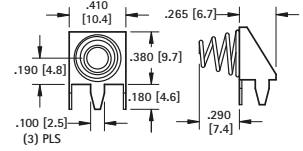
CAT. NO. 628

"AAA" - "N" - "A23"

(+) POSITIVE BUTTON



(-) NEGATIVE SPRING



MATERIAL:
Frame: .015 (.38) Steel,
Tin-Nickel Plate

CAT. NO. 637

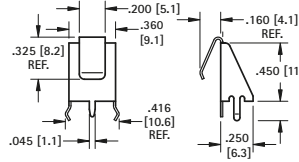
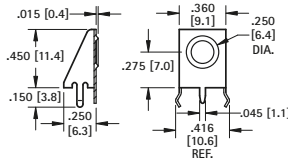
MATERIAL:
Frame: .015 (.38)
Steel, Matte Tin Plate

CAT. NO. 629

LEAF SPRING

MATERIAL: .012 (.30) Spring Steel, Tin-Nickel Plate

"AA" - "CR2" - "A"

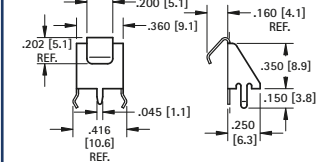
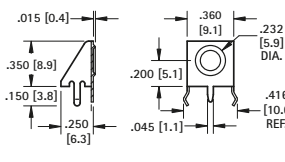


CAT. NO. 596

CAT. NO. 590

MATERIAL: .010 (.25) Spring Steel, Tin-Nickel Plate

"AAA" - "N" - "A23"



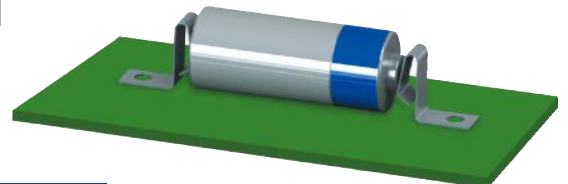
CAT. NO. 597

CAT. NO. 591

SURFACE MOUNT LEAF-SPRING CONTACTS

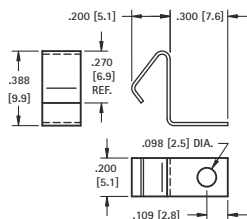
AVAILABLE ON TAPE AND REEL

- Economical & reliable contacts are ideal for surface mount applications
- Unique spring tension contacts adjust to variations in battery length
- Reliable spring tension contacts assure low contact resistance
- SMT solder tail with "flow-hole" design for increased joint strength



Refer to page 39 for Battery Contact Layout & Mounting Details

"AAA" - "AAAA" - "A23" - "N"

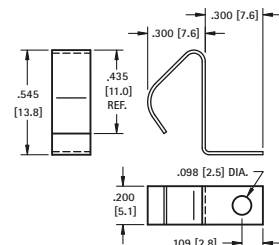


MATERIAL: .010 (.25) Spring Steel

TIN-NICKEL PLATE	MATTE TIN PLATE
CAT. NO. ON TAPE	CAT. NO. ON TAPE
BULK & REEL	BULK & REEL
5230 5230TR	5330 5330TR

Tape and Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (400 pieces per reel)

"AA" - "CR2" - "A" - "9V"



MATERIAL: .010 (.25) Spring Steel

TIN-NICKEL PLATE	MATTE TIN PLATE
CAT. NO. ON TAPE	CAT. NO. ON TAPE
BULK & REEL	BULK & REEL
5231 5231TR	5331 5331TR

Tape and Reel Spec's: 32mm wide; 16mm pitch; 13 inch reel (250 pieces per reel)

SLIDE-IN PC MOUNT CONTACTS



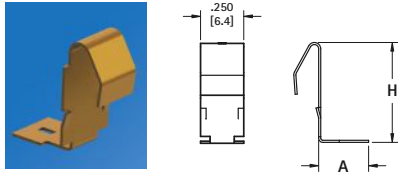
- Reliable spring tension assure low contact resistance and dependable connection
- Symmetrical design allows these contacts to function both as a positive and negative contacts
- Economical and reliable contacts
- Designed for direct placement onto PCB, no wire leads required
- Unique spring tension adjusts to variations in battery length
- Stainless Steel contacts provide superior corrosion resistance

MATERIAL: .012 (.30) Stainless Steel

Refer to pages 39 & 41 for Battery Contact Layout & Mounting Details

SURFACE MOUNT

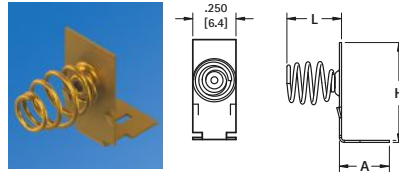
LEAF SPRING



Finish: Gold Plate (Flash)

CAT. NO.	BATTERY SIZE	H	A
1020-1	"AAA"	.435 (11.1)	.250 (6.4)
1016-1	"AA"	.578 (14.9)	.289 (7.3)

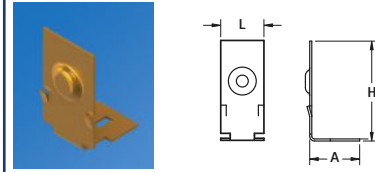
COIL SPRING



Finish: Gold Plate (Flash)

CAT. NO.	BATTERY SIZE	H	L	A
1076-2	"AAA"	.435 (11.1)	.325 (8.3)	.250 (6.4)
1088-2	"AA"	.578 (14.9)	.313 (8.0)	.289 (7.3)

BUTTON CONTACT

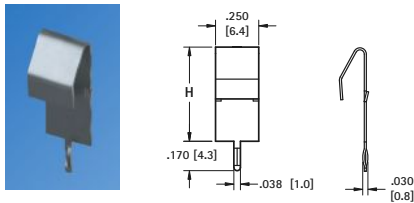


Finish: Gold Plate (Flash)

CAT. NO.	BATTERY SIZE	H
1076-1	"AAA"	.395 (10.0)
1088-1	"AA"	.545 (13.8)

THRU HOLE MOUNT

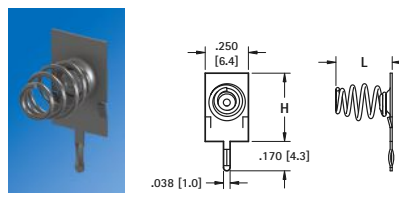
LEAF SPRING



Finish: Tin-Nickel Plate

CAT. NO.	BATTERY SIZE	H
1021-1	"AAA"	.405 (10.3)
1017-1	"AA"	.545 (13.8)

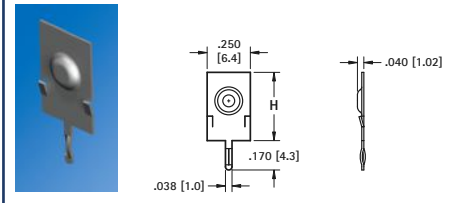
COIL SPRING



Finish: Tin-Nickel Plate

CAT. NO.	BATTERY SIZE	H	L
1075-2	"AAA"	.395 (10.0)	.326 (8.3)
1087-2	"AA"	.545 (13.8)	.313 (8.0)

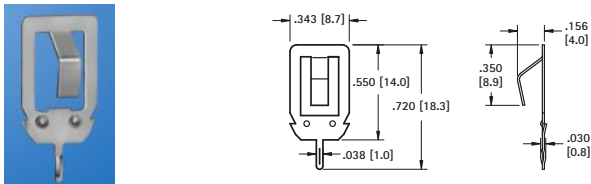
BUTTON CONTACT



Finish: Tin-Nickel Plate

CAT. NO.	BATTERY SIZE	H	A
1075-1	"AAA"	.435 (11.1)	.250 (6.4)
1087-1	"AA"	.578 (14.9)	.289 (7.3)

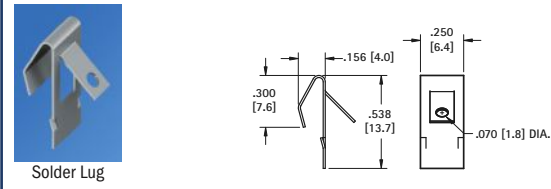
"AAA" · "N" · "AA" · "CR2" · "A"



Finish: Tin-Nickel Plate

CAT. NO. 108-2

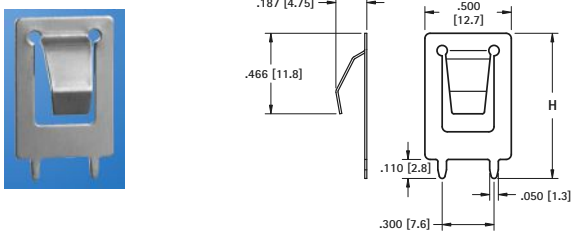
"AA" · "A" · "17500" · "18350" · "18650" · "C" · "D"



Solder Lug

Finish: Tin-Nickel Plate

CAT. NO. 1107-1

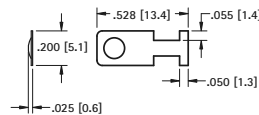


MATERIAL: .012 (.30) Spring Steel, Nickel Plate

CAT. NO.	(H) Height	BATTERY REFERENCE
109-2	.840 (21.3)	"AA" · "A" · "17500" · "18350" · "18650" · "C"
109-3	1.000 (25.4)	"20700" · "21700" · "D"

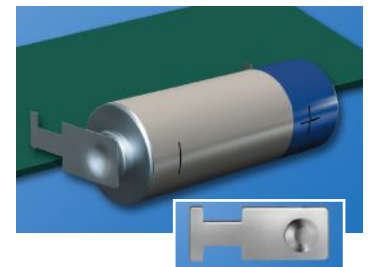
"AAA" · "AAAA" · "N" · "12V"

"Off-Board" edge mounting design frees up valuable board space



CAT. NO. 230-1

MATERIAL: .008 (.20) Spring Steel, Nickel Plate

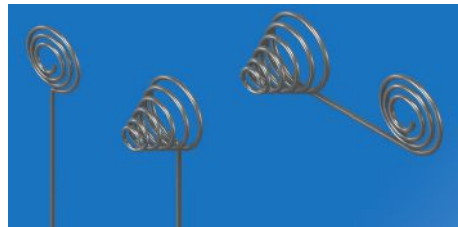


SLIDE-IN PC MOUNT CONTACTS

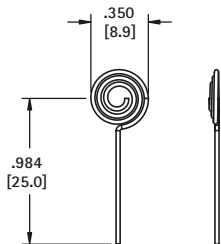


- Economical and reliable contacts
- Designed for direct placement onto PCB, no wire leads required
- Unique spring tension adjusts to variations in battery length
- Reliable spring tension assure low contact resistance and dependable connection

Refer to page 41 for Battery Contact Layout & Mounting Details



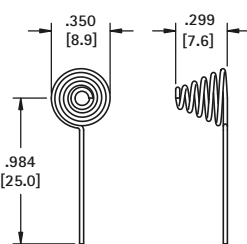
“AA” - “CR2” - “A” - “17500” - “18350” - “18650”



CAT. NO. 242

MATERIAL: .024 (.60) Music Wire, Nickel Plate

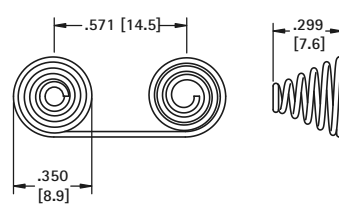
“AA” - “CR2” - “A” - “17500” - “18350” - “18650”



CAT. NO. 243

MATERIAL: .024 (.60) Music Wire, Nickel Plate

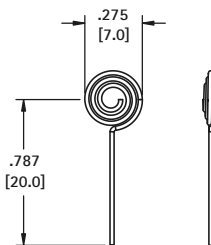
“AA”



CAT. NO. 244

MATERIAL: .024 (.60) Music Wire, Nickel Plate

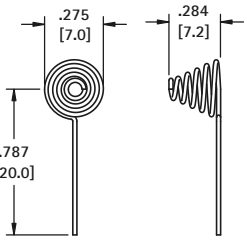
“AAAA” - “A23” - “A27” - “AAA” - “N”



CAT. NO. 179

MATERIAL: .024 (.60) Music Wire, Nickel Plate

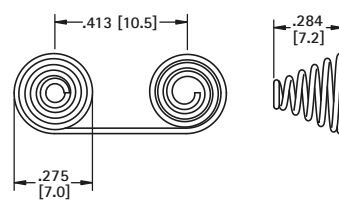
“AAAA” - “A23” - “A27” - “AAA” - “N”



CAT. NO. 180

MATERIAL: .024 (.60) Music Wire, Nickel Plate

“AAA”

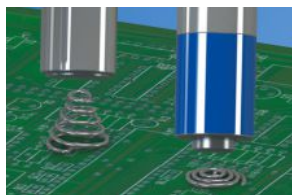


CAT. NO. 181

MATERIAL: .024 (.60) Music Wire, Nickel Plate

BATTERY SPRING CONTACTS

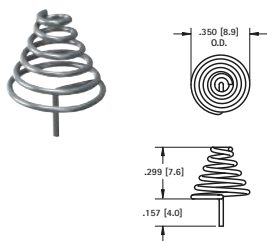
THRU-HOLE MOUNT - “AA” - “CR2”



Solders directly to PCB, no wiring required

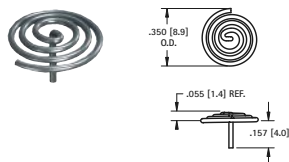
MATERIAL: .024 (.60) Dia Spring Steel, Nickel Plate

NEGATIVE



CAT. NO. 240

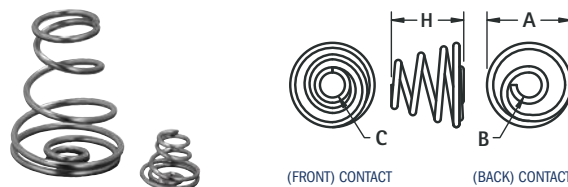
POSITIVE



CAT. NO. 241

RIVET MOUNT

Easy to assemble with eyelets or rivets. Refer to page 146.



CAT. NO.	H	A	B	C	MATERIAL	CELL SIZE
211	.290 (7.4)	.335 (8.5)	.100 (2.5)	.140 (3.6)	.025 (.64) Dia. Spring Steel, Nickel Plate	“213 A” - “AA”
211-C	.550 (14.0)	.490 (12.4)	.118 (3.0)	.256 (6.5)	.040 (1.0) Dia. Spring Steel, Nickel Plate	“C”
211-D	.850 (21.6)	.650 (16.5)	.162 (4.1)	.300 (7.6)	.040 (1.0) Dia. Spring Steel, Nickel Plate	“D”

SPRING & BUTTON CONTACTS

- Economical and reliable contacts are ideal for molded cases with self-contained battery compartments
- "Solder Tab" design for either wire lead or PC mounting
- Unique spring contacts adjust to variations in battery lengths
- Reliable spring contacts assure low contact resistance and a dependable connection
- Space saving, economical, excellent mechanical construction

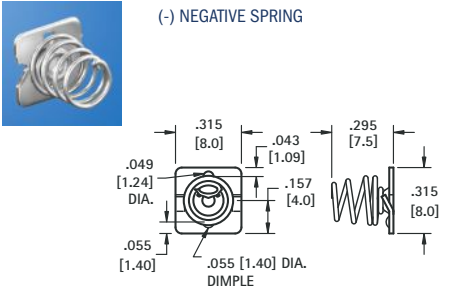


MATERIAL:

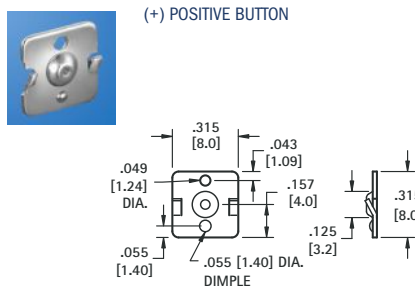
Plate: .020 (.51) Steel, Nickel Plate **Spring:** Spring Steel, Nickel Plate

Refer to page 42 for Battery Contact Layout & Mounting Details

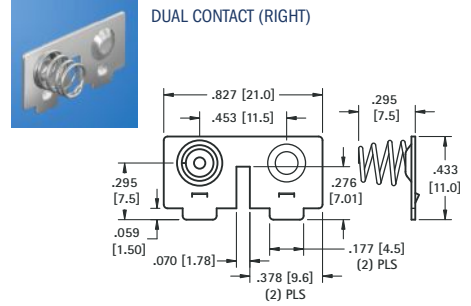
"AAA" • "AAAA" • "N" • "12V"



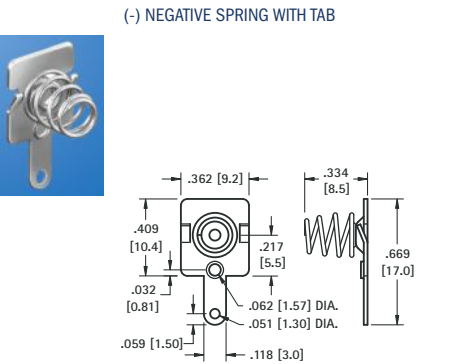
CAT. NO. 5203



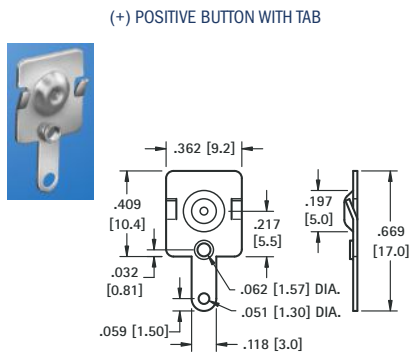
CAT. NO. 5225



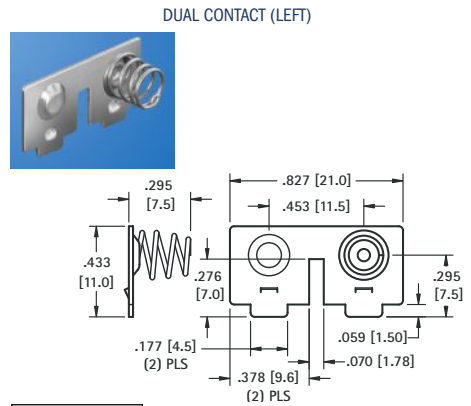
CAT. NO. 5213



CAT. NO. 5204

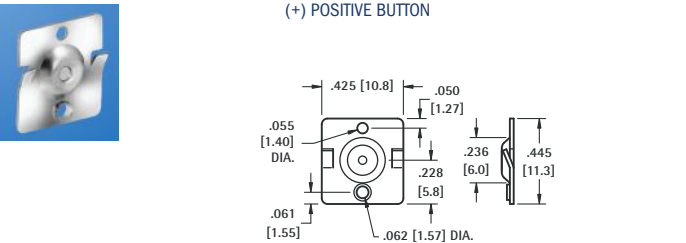


CAT. NO. 5226

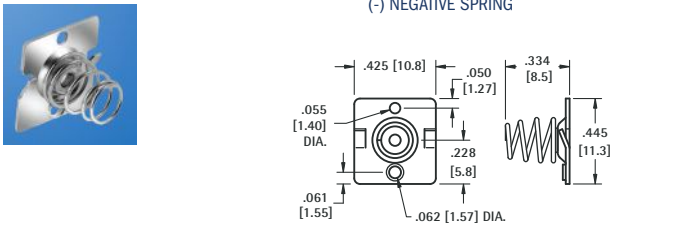


CAT. NO. 5214

"AA" • "CR2" • "A" • "17500" • "18350" • "18650"

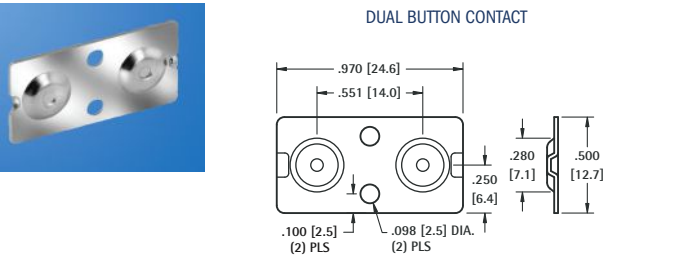


CAT. NO. 5224

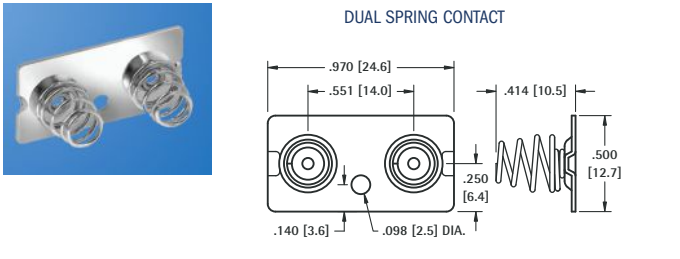


CAT. NO. 5202

"AA"



CAT. NO. 5227



CAT. NO. 5228



- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- "Solder Tab" design for either wire lead or PC mounting
- Unique spring contacts adjust to variations in battery lengths
- Reliable spring contacts assure low contact resistance and a dependable connection
- Space saving, economical, excellent mechanical construction

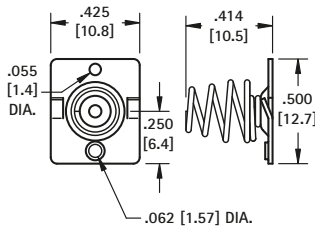
MATERIAL:

Plate: .020 (.51) Steel, Nickel Plate **Spring:** Spring Steel, Nickel Plate

Refer to page 42 for Battery Contact Layout & Mounting Details

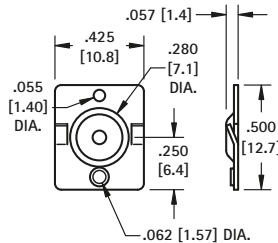
"AA" - "CR2" - "A" - "17500" - "18350" - "18650"

(-) NEGATIVE SPRING



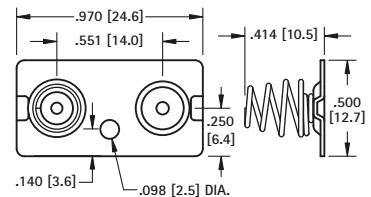
CAT. NO. 5222

(+) POSITIVE BUTTON



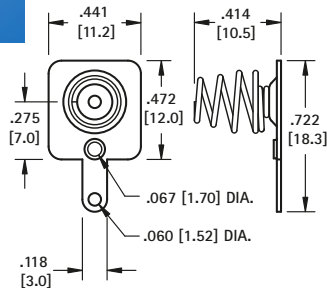
CAT. NO. 5221

DUAL CONTACT ("AA" ONLY)



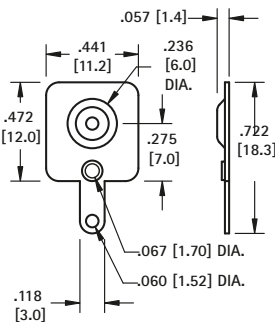
CAT. NO. 5212 Left or Right

(-) NEGATIVE SPRING WITH TAB



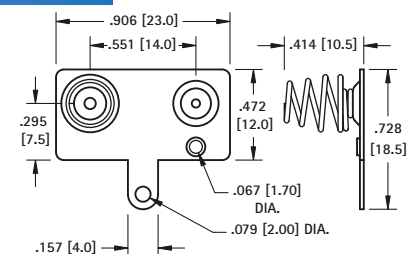
CAT. NO. 5201

(+) POSITIVE BUTTON WITH TAB



CAT. NO. 5223

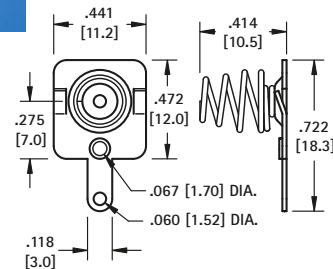
DUAL CONTACT ("AA" ONLY)



CAT. NO. 5210 Left

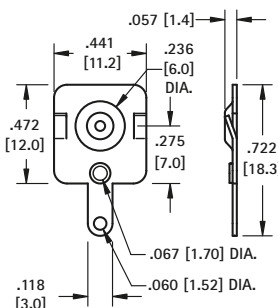
CAT. NO. 5211 Right (Shown)

(-) NEGATIVE SPRING WITH TAB/LANCE



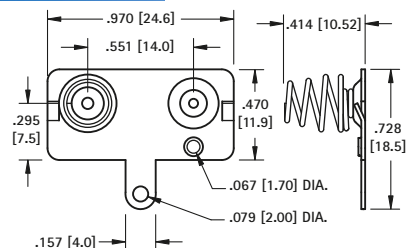
CAT. NO. 5220

(+) POSITIVE BUTTON WITH TAB/LANCE



CAT. NO. 5219

DUAL CONTACT WITH TAB ("AA" ONLY)



CAT. NO. 5218 Left

CAT. NO. 5217 Right (Shown)

SPRING & BUTTON CONTACTS

- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- "Spring Tab" design for either wire lead or PC mounting
- Unique spring contacts adjust to variations in battery lengths
- Reliable spring contacts assure low contact resistance and a dependable connection
- Space saving, economical, excellent mechanical construction

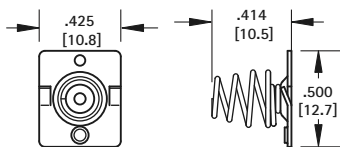


MATERIAL:

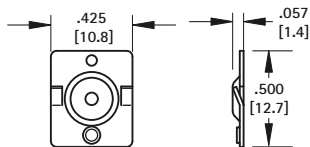
Plate: .020 (.51) Steel, Nickel Plate **Spring:** Spring Steel, Nickel Plate

Refer to page 42 for Battery Contact Layout & Mounting Details

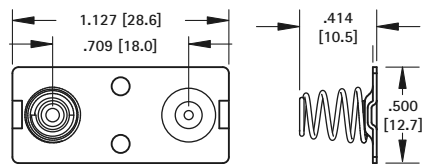
"A" CELL



CAT. NO. 5222



CAT. NO. 5221

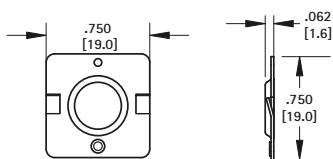


CAT. NO. 5207

"C" CELL



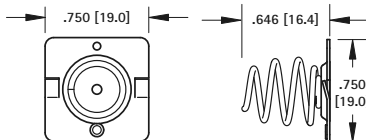
(+) POSITIVE BUTTON



CAT. NO. 5240



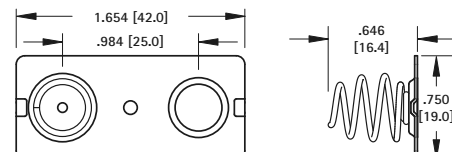
(-) NEGATIVE SPRING



CAT. NO. 5241



DUAL CONTACT

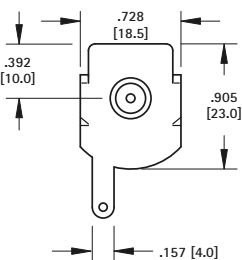


CAT. NO. 5242

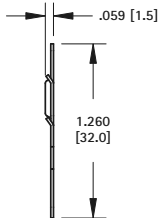
"D" CELL



(+) POSITIVE BUTTON

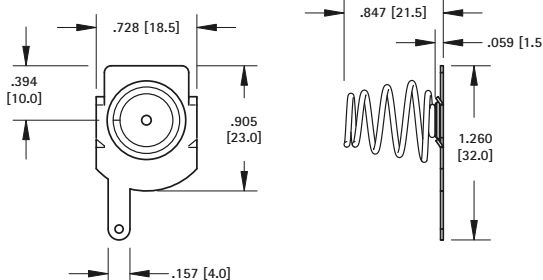


CAT. NO. 5250



CAT. NO. 5251

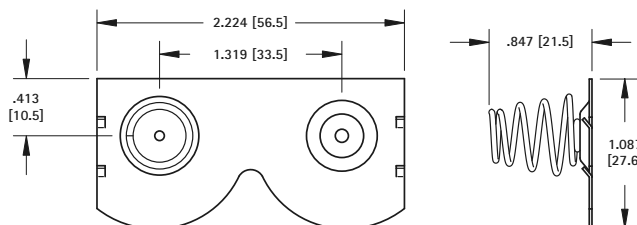
(-) NEGATIVE SPRING



CAT. NO. 5253 Left

CAT. NO. 5252 Right (Shown)

DUAL CONTACT



SNAP-ON CONTACTS



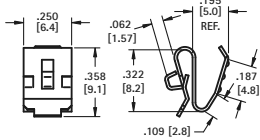
- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- Solder "ear" to facilitate soldering of wire lead
- Unique spring tension contact adjusts to variations in battery length
- Reliable spring tension contacts assure low contact resistance
- Clips easily onto .060 (1.52) to .070 (1.78) wall
- Sharp barbs securely anchor contact in place

Refer to page 42 for Battery Contact Layout & Mounting Details

"AAA" • "N" • "A23" • "A27"



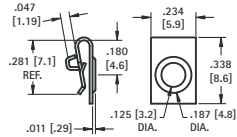
CAT. NO. 204



MATERIAL: .010 (.25) Spring Steel, Nickel Plate



CAT. NO. 238

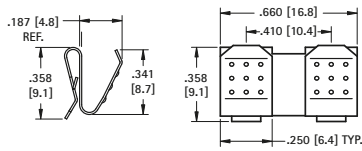


MATERIAL: .010 (.25) Stainless Steel, Nickel Plate

"AAA"



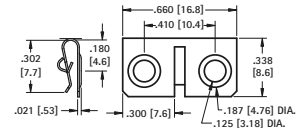
CAT. NO. 202



MATERIAL: .010 (.25) Spring Steel, Nickel Plate



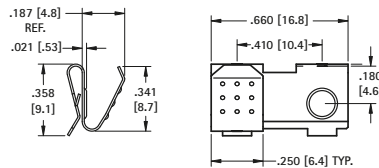
CAT. NO. 294



MATERIAL: .010 (.25) Stainless Steel, Nickel Plate



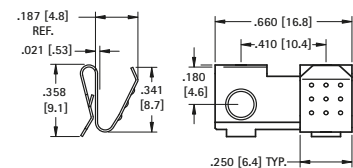
CAT. NO. 295



MATERIAL: .010 (.25) Spring Steel, Nickel Plate



CAT. NO. 296

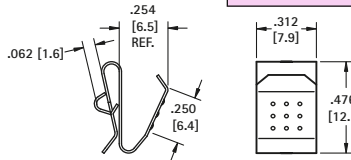


MATERIAL: .010 (.25) Spring Steel, Nickel Plate

"AA" • "CR2" • "A" • "17500" • "18350" • "18650"



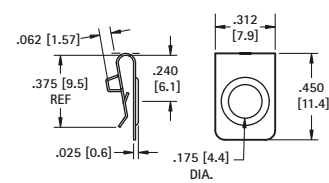
CAT. NO. 209



MATERIAL: 012 (.30) Spring Steel, Nickel Plate



CAT. NO. 228



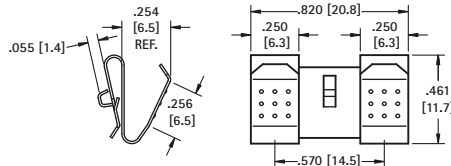
MATERIAL: 010 (.25) Stainless Steel, Nickel Plate

"AA"

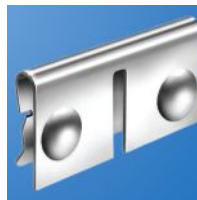


CAT. NO. 288

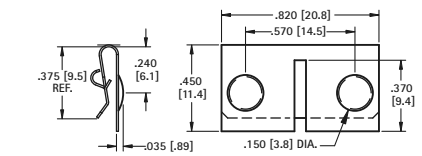
The (2) two leaf contacts are separate, allowing a divider between the batteries.



MATERIAL: 012 (.30) Spring Steel, Nickel Plate



CAT. NO. 292

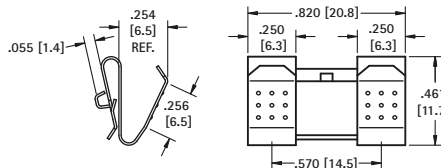


MATERIAL: 010 (.25) Stainless Steel, Nickel Plate



CAT. NO. 210

The (2) two leaf contacts are held together by a web. This design offers greater stability.

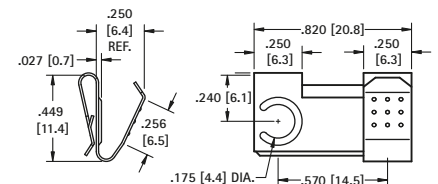


MATERIAL: .012 (.30) Spring Steel, Nickel Plate



CAT. NO. 291 Right

CAT. NO. 290 Left (shown)



MATERIAL: 012 (.30) Spring Steel, Nickel Plate

SNAP-ON COIL SPRING CONTACTS

- Ideal for applications that have a self contained battery compartment
- Coil Springs will rebound after drop
- Reliable tension against battery help to assure low contact assistance

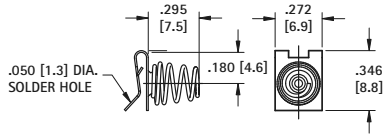
- Sharp barbs securely anchor contact in place
- Clips easily over .060 (1.5) to 0.70 (1.8) wall
- Long spring will accommodate variations in battery lengths



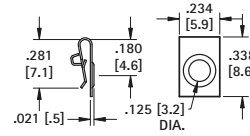
MATERIAL: Steel, Nickel Plate

Refer to page 42 for Battery Contact Layout & Mounting Details

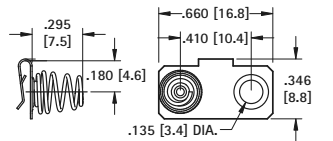
“AAA”



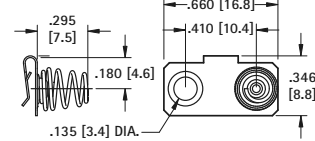
CAT. NO. 267



CAT. NO. 238

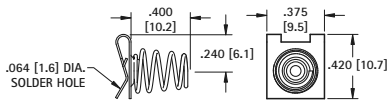


CAT. NO. 299

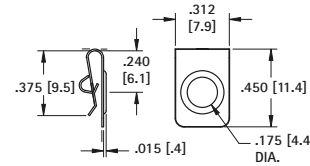


CAT. NO. 287

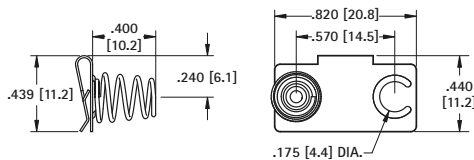
“AA”



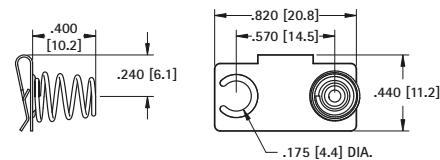
CAT. NO. 289



CAT. NO. 228



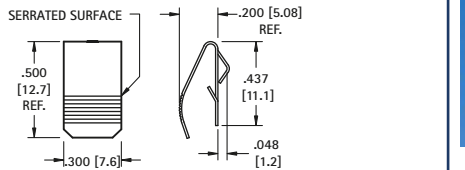
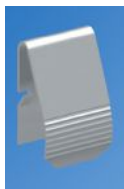
CAT. NO. 297



CAT. NO. 293

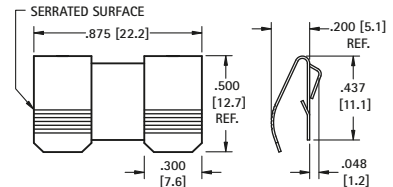
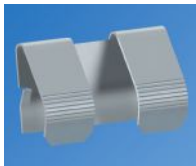
SLIDE-IN MOUNT CONTACTS

“AA” - “CR2” - “A” - “9V” - “17500” - “18350” - “18650”



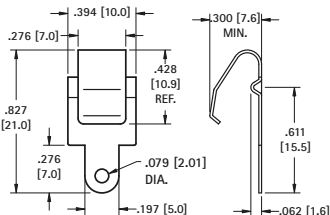
CAT. NO. 5205

MATERIAL: .012 (.30) Spring Steel, Nickel Plate



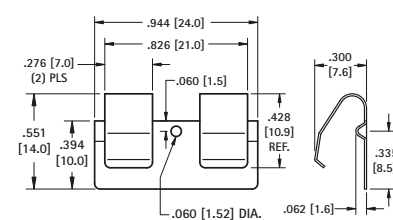
CAT. NO. 5206

MATERIAL: .012 (.30) Spring Steel, Nickel Plate



CAT. NO. 5209

MATERIAL: .012 (.30) Phosphor Bronze, Nickel Plate



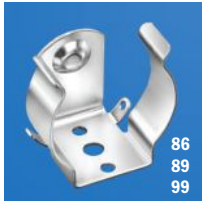
CAT. NO. 5208

MATERIAL: .012 (.30) Phosphor Bronze, Nickel Plate

RUGGED STEEL BATTERY CLIPS

"AA" - "C" - "D"

Refer to page 41 for Battery Contact Layout & Mounting Details



Non-Insulated

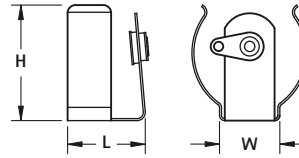
Base: Steel, Nickel Plate
Contacts: Brass, Nickel Plate

- Available with and without insulated contact
- Non-Insulated contact will ground battery connection
- Insulated Contacts supplied with brass solder lug
- Ideal for creating custom battery holders



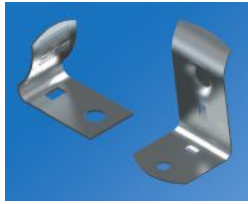
Insulated

CAT. NO.	FIGURE	L	W	H	CELL SIZE
99	Non-Insulated	.703 (17.9)	.359 (9.1)	.609 (15.5)	"AA"
100	Insulated				
86	Non-Insulated	.703 (17.9)	.606 (15.4)	.953 (24.2)	"C"
87	Insulated				
89	Non-Insulated	.780 (19.8)	.606 (15.4)	1.160 (29.5)	"D"
88	Insulated				



ECONOMY CONTACTS

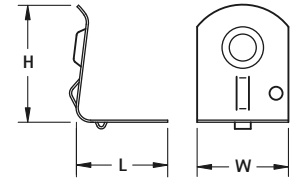
"AA" - "C" - "D"



Refer to page 41 for Battery Contact Layout & Mounting Details

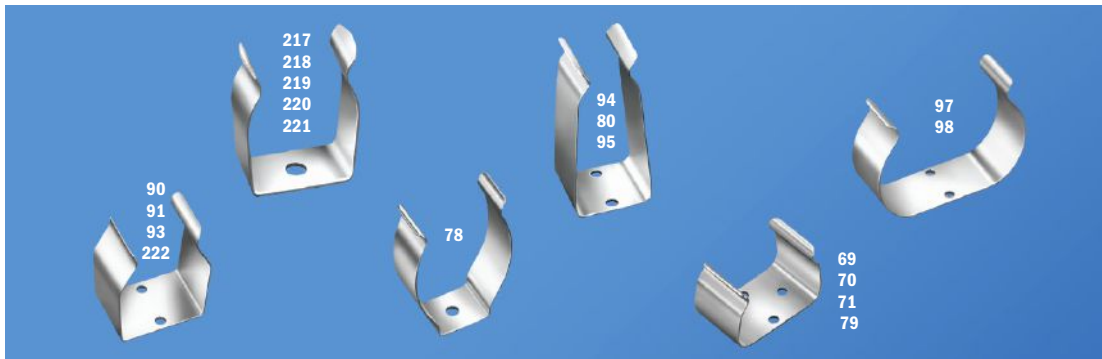
- Designed for mounting in self-contained, non-metallic battery compartments
- Reliable spring tension assures low contact resistance
- Recessed contact holds battery in place
- All clips have anti-rotation tab

CAT. NO.	L	W	H	CELL SIZE
206	.625 (15.9)	.375 (9.5)	.500 (12.7)	"AA"
207	.687 (17.4)	.375 (9.5)	.875 (22.2)	"C"
208	.750 (18.1)	.687 (17.5)	1.260 (32.0)	"D"



MATERIAL: .016 (.41) Spring Steel, Nickel Plate

ALUMINUM & STEEL CLIPS



MATERIAL: Steel Clips: Spring Steel, Nickel Plate Aluminum Clips: 2024-T3

CAT. NO.	DESCRIPTION	MATERIAL
"AAAA" Cell (7.5 - 8.5mm Dia)		
251	One cell	Steel
"AAA" Cell (9.5 - 12mm Dia)		
90	One cell	Aluminum
"AA", "CR2" Cell (13.5 - 17.0mm Dia)		
91	One cell	Aluminum
69	Two Cell	Steel
"A" Cell (16.0 - 18.0mm Dia)		
70	Two Cell	Aluminum

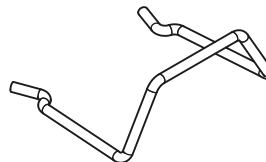
CAT. NO.	DESCRIPTION	MATERIAL
Sub C Cell (22.0 - 23.0mm Dia)		
221	One cell	Steel
C Cell (22.0 - 29.0mm Dia)		
222	One cell	Steel
93	One cell	Aluminum
97	Two Cell	Aluminum
D Cell (30.0 - 35.0mm Dia)		
94	One cell	Aluminum
78	One cell	Steel
98	Two Cell	Aluminum

CAT. NO.	DESCRIPTION	MATERIAL
NiCd Cell		
217	One cell, 35-38mm Dia.	Steel
218	One cell, 36-43mm Dia.	Steel
219	One cell, 51-64mm Dia.	Steel
9V Cell		
71	Horizontal, Low Profile	Steel
79	Horizontal	Steel
80	Vertical	Steel
95	Vertical	Aluminum
66	Horizontal, Lithium-Ion	Steel

BATTERY RETAINER CLIPS

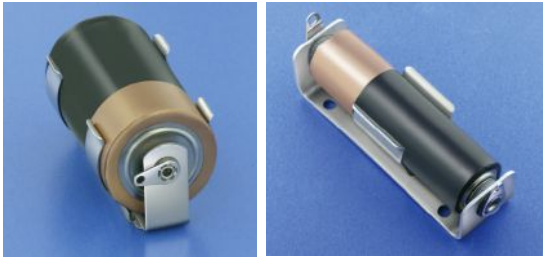


- Prevents battery from loosening in battery holder
- Retainer clip slips on the ears of the battery holder clip



CAT. NO.	CELL	CAN BE USED WITH CAT. NO.s
61	"AA", "CR2"	91, 92, 95, 99, 100, 2915
62	"C"	86, 87, 93, 222
63	"D"	78, 88, 89, 94

RUGGED BATTERY HOLDERS



An established design that has gained wide acceptance for commercial and military applications. Batteries are held under constant spring tension assuring low contact resistance. Retainer clips are available to lock batteries in place and prevent shifting or loosening. Refer to page 22. Recommended for use where shock or severe vibration is encountered. Special fabrication for more than four batteries or variations from standard stock parts can be assembled to meet your requirements.

SPECIFICATIONS:

Base: Stainless Steel, Phenolic, Aluminum
Contacts: Brass, Nickel Plate
Solder Lugs: Brass, Tin Plate

STEEL



FIG. 1 STEEL



FIG. 2 STEEL, PHENOLIC BASE

ALUMINUM



FIG. 1 ALUMINUM



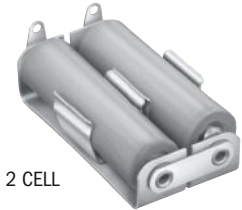
FIG. 2 ALUMINUM

CONNECTED IN SERIES

Features pre-connected jumper strap insulated from the Aluminum base. Batteries held in series circuit without need of additional wiring.

SPECIFICATIONS:

Base: Aluminum
Contacts: Brass, Nickel Plate
Solder Lugs: Brass, Tin Plated Jumper, Brass, Nickel Plate



2 CELL



3 CELL

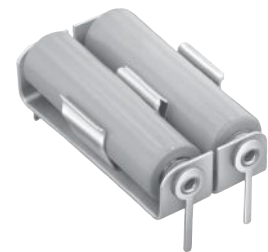
CAT. NO.	HOLDS NO. OF CELLS
"AA" CELL	
146	1
147	2
148	3
"C" CELL	
149	1
150	2
151	3
"D" CELL	
152	1
153	2
158	3

WITH PC LUGS

For printed circuitry we have standardized our most popular holders with PC Lugs. Choice of single or multiple holders "AA" assembled with PC solder lugs.

SPECIFICATIONS:

Base: Steel, Phenolic or Aluminum
Contacts: Brass, Nickel Plate
Solder Lugs: Brass, Tin Plate Jumper, Brass, Nickel Plate



ALUMINUM



STEEL

ALUMINUM HOLDERS	HOLDS NO. OF CELLS	STEEL HOLDERS
CAT. NO.		CAT. NO.
"AA" CELL		
2222	1	2228
2223	2	2229
"C" CELL		
2224	1	2230
2225	2	2231
"D" CELL		
2226	1	2232
2227	2	2233
"1/2AA" CELL		
—	1	2103
"2/3A" CELL		
131	1	—
DL223A - 6 Volt		
224	1	—

*Dual cell, Steel holders will have Phenolic base

STEEL HOLDERS		HOLDS NO. OF CELLS	FIG. NO.	ALUMINUM HOLDERS	
ONE CONTACT INSULATED	ALL CONTACTS INSULATED			ALL CONTACTS INSULATED	
CAT. NO.	CAT. NO.			CAT. NO.	
"AAA" CELL					
—	—	1	1	137	
—	—	2	1	138	
—	—	3	1	169	
—	—	4	1	170	
"AA" CELL					
1139	2139	1	1	139	
1189	2189	2	1	140	
—	2140*	2	2	189	
1191	2191	3	1	171	
—	2171*	3	2	—	
1194	2194	4	1	182	
—	2182*	4	2	192	
—	—	6	2	193	
"C" CELL					
1173	2173	1	1	173	
1185	2185	2	1	174	
—	2174*	2	2	185	
1195	2195	3	1	187	
—	2187*	3	2	—	
1198	2198	4	1	—	
—	2188*	4	2	196	
—	—	6	2	197	
"D" CELL					
1175	2175	1	1	175	
1186	2186	2	1	176	
—	2176*	2	2	186	
1199	2199	3	1	190	
—	2190*	3	2	—	
1162	2162	4	1	—	
—	2192*	4	2	200	
—	—	6	2	201	
"1/2 AA" LITHIUM CELL					
—	1103	1	1	—	
LITHIUM "2/3 A" OR "CR123" BATTERY					
—	—	1	1	132	

THM LOW PROFILE LITHIUM-ION & ALKALINE CELL HOLDERS

"1/3N" · "AAA" · "1/2AA" · "CR2" · "AA" · "2/3A"

FEATURES

- Snap-In PC contact holds firmly in position for wave soldering
- Tin Nickel contacts for excellent solderability and durability
- Polarity clearly marked for orientation
- Snap-on retainer cover (optional) retains battery securely to withstand shock and vibration. Helps protect against shorting

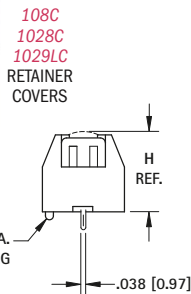
APPLICATIONS

- Computer memory, power backup systems
- Telecommunications
- Residential, industrial and commercial security systems
- PLC and industrial controls

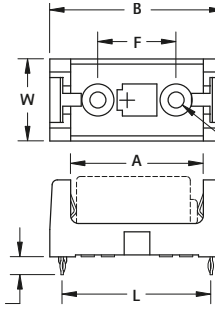
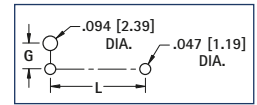
RETAINER COVERS



THM LOW PROFILE



Mounting Detail



SPECIFICATIONS

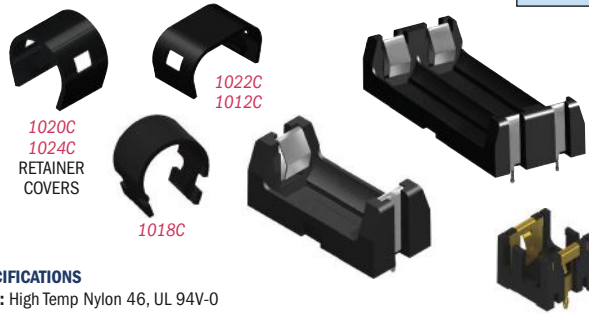
Base/Retainer Cover: PBT, UL 94V-0

Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate

Operating Temp Range: -60°F to +293°F (-51°C to +145°C)

HOLDER	COVER										CELL SIZE	PACKAGING SPECS	BATTERY CROSS REFERENCE
CAT. NO.	CAT. NO.	L	W	H (Ref. Dim)	A	B	F	G					
108	108C	1.160 (29.5)	.640 (16.3)	.633 (16.1)	1.030 (26.2)	1.360 (34.5)	.610 (15.5)	.279 (7.1)		"1/2 AA" "CR2"	50 pieces per tray	Energizer 544, CR2, Duracell PX28L, CR2, Kodak K28A & KS28, CR2, Panasonic CR14250, CR2, Saft LCP3, Maxell 4LR44, CR2, Sanyo CR14250SE, CR2	
1028	1024C 1028C	2.160 (54.9)	.640 (16.3)	.633 (16.1)	2.040 (51.8)	2.360 (59.9)	1.610 (40.9)	.279 (7.1)		"AA"	50 pieces per tray	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran	
1029	1029C 1029LC	1.500 (38.1)	.720 (18.3)	.712 (18.1)	1.375 (34.9)	1.700 (43.2)	.950 (24.1)	.320 (8.1)		"2/3 A"	50 pieces per tray	Duracell DL2/3A, Kodak K123L, Panasonic CR123A, Saft 450SC & VR0450, Sanyo CR17335SE	

THM ULTRA LOW PROFILE



SPECIFICATIONS

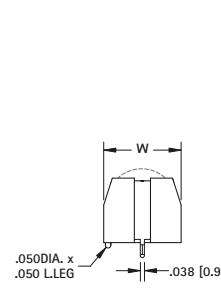
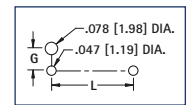
Base: High Temp Nylon 46, UL 94V-0

Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate

Operating Temp Range: -60°F to +293°F (-51°C to +145°C)

SINGLE

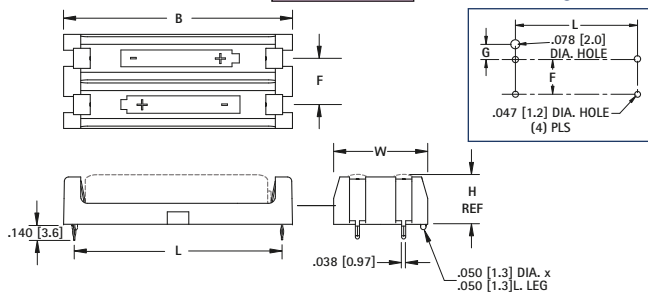
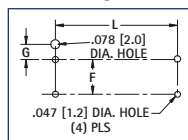
Mounting Detail



DWG. 1

DUAL

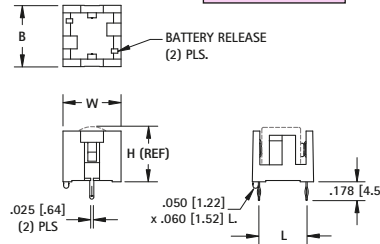
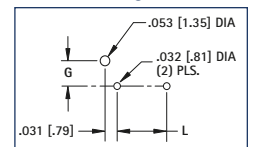
Mounting Detail



DWG. 2

"1/3N"

Mounting Detail



Contacts: .012 (.30) Phosphor Bronze, Gold Plate

DWG. 3

HOLDER	COVER	DWG NO.	L	W	H (Ref. Dim)	B	F	G	CELL SIZE	PACKAGING SPECS	BATTERY CROSS REFERENCE
1021	1020C	1	1.933 (49.1)	.500 (12.7)	.445 (11.3)	2.140 (54.4)	-	.209 (5.3)	"AAA"	50 pieces per tray	All Major Manufacturers
1023	1022C	2	1.933 (49.1)	.875 (22.2)	.445 (11.3)	2.140 (54.4)	.430 (10.9)	.182 (4.6)	"AAA"	25 pieces per tray	
1015	1024C	1	2.161 (54.9)	.612 (15.5)	.603 (15.3)	2.359 (59.9)	-	.265 (6.7)	"AA"	50 pieces per tray	
1013*	1012C	2	2.161 (54.9)	1.180 (30.0)	.603 (15.3)	2.359 (59.9)	.568 (14.4)	.265 (6.7)	"AA"	25 pieces per tray	All Major Manufacturers
1017	1024C	1	1.156 (29.4)	.612 (15.5)	.603 (15.3)	1.360 (34.5)	-	.265 (6.7)	"1/2 AA"	50 pieces per tray	Energizer 544, Duracell PX28L, Kodak K28A & KS28, Saft LCP3, Maxell 4LR44, Sanyo CR14250SE
1019*	1018C	1	1.487 (37.8)	.720 (18.3)	.682 (17.3)	1.690 (42.9)	-	.319 (8.1)	"2/3 A"	50 pieces per tray	Duracell DL2/3A, Kodak K123L, Saft 450SC & VR0450, Sanyo CR17335SE
1099*	-	2	1.487 (37.8)	1.440 (36.6)	.682 (17.3)	1.690 (42.9)	.720 (18.3)	.319 (8.1)	"2/3 A"	25 pieces per tray	Sanyo CR17335SE
503	-	3	.450 (11.4)	.540 (13.7)	.506 (12.9)	.570 (14.5)	-	.240 (6.1)	"1/3 N"	300 pieces per tray	Duracell DL1/3N, Sanyo K58L, Energizer CR1/3N

*Base Material: PBT UL 94V-0

THM BATTERY HOLDERS

SMT LOW PROFILE LITHIUM-ION & ALKALINE CELL HOLDERS

"1/3N" · "AAA" · "1/2AA" · "AA" · "2/3A"

FEATURES

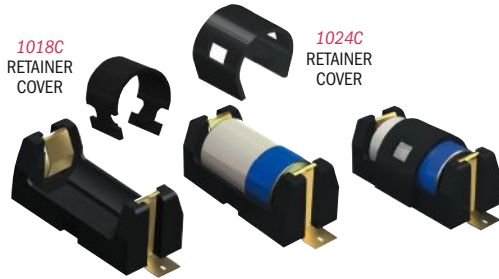
- Low profile surface mount holders for Cylindrical Lithium and Alkaline batteries
- UL 94V-0 Heat resistant Nylon Housings well suited for reflow soldering
- Designed for vacuum pick and place assembly
- Gold-plated Phosphor Bronze contacts assure low contact resistance and are readily solderable

- Ideal for both lead free solder and traditional solder process
- Battery installation and removal does not require tools
- Securely holds battery in place
- Polarity clearly marked for orientation
- Operating temp range: -60°F to +293°F (-51°C to +145°C)

APPLICATIONS

- Computer memory, power backup systems
- Telecommunications
- Residential, industrial and commercial security systems
- PLC and industrial controls

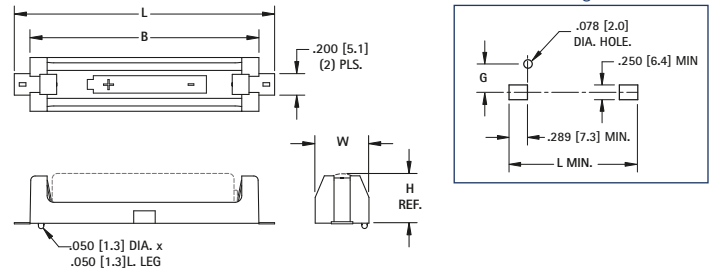
SMT ULTRA LOW PROFILE



SPECIFICATIONS

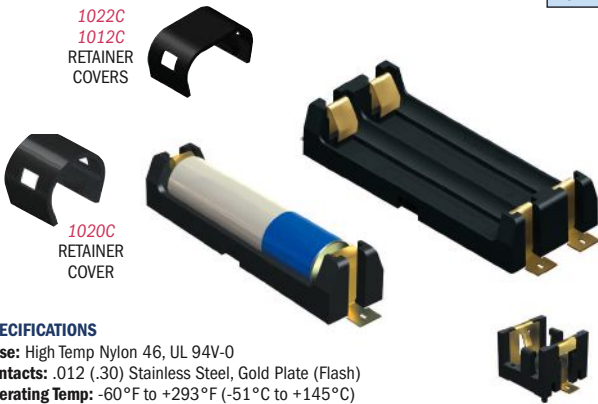
Base: High Temp Nylon 46, UL 94V-0

Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash)



CAT. NO.	COVER	L	W	H (REF)	B	G	CELL SIZE	PACKAGING SPECS	BATTERY CROSS REFERENCE
1016	1024C	1.723 (43.8)	.612 (15.5)	.603 (15.3)	1.360 (34.5)	.265 (6.7)	"1/2AA"	50 pieces per tray	Energizer 544, Duracell PX28L, Kodak K28A & KS28, Panasonic CR14250, Saft LCP3, Maxell
1024	1024C	2.711 (68.9)	.612 (15.5)	.603 (15.3)	2.359 (59.9)	.265 (6.7)	"AA"	50 pieces per tray	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran,
1018	1018C	2.062 (52.3)	.720 (18.3)	.682 (17.3)	1.690 (42.9)	.319 (8.1)	"2/3A"	50 pieces per tray	Duracell DL2/3A, Kodak K123L, Saft 450SC & VR0450, Sanyo CR17335SE

SMT ULTRA LOW PROFILE



SPECIFICATIONS

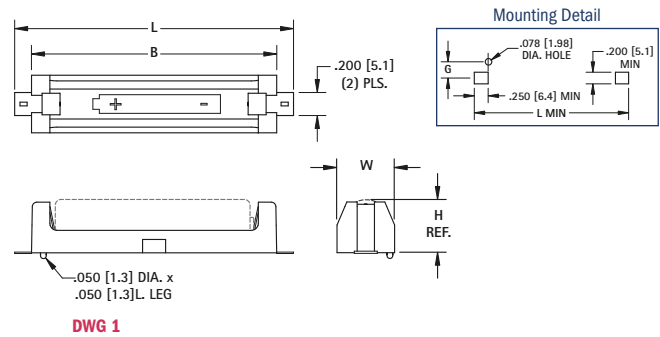
Base: High Temp Nylon 46, UL 94V-0

Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash)

Operating Temp: -60°F to +293°F (-51°C to +145°C)

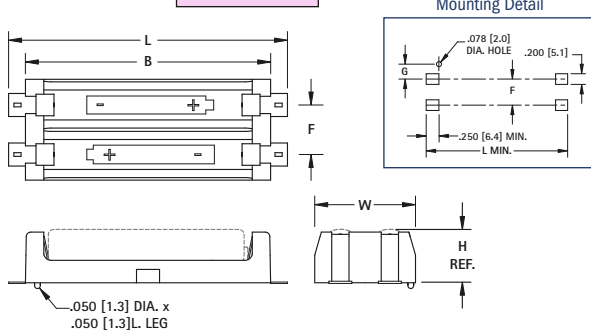
Packaging Spec's: Supplied in trays

SINGLE



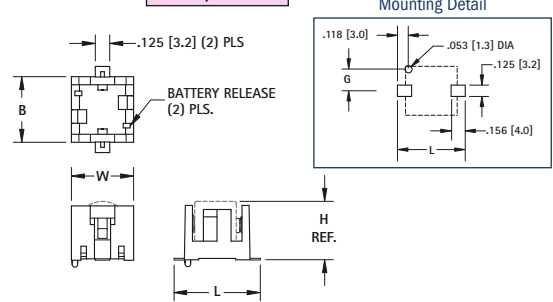
DWG 1

DUAL



DWG 2

"1/3N"



Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)

DWG 3

CAT. NO.	COVER	DWG NO.	L	W	H (REF)	B	F	G	CELL SIZE	PACKAGING SPECS	BATTERY CROSS REFERENCE
1020	1020C	1	2.421 (61.5)	.500 (12.7)	.445 (11.3)	2.140 (54.4)	-	.209 (5.3)	"AAA"	50 pieces per tray	All Major Manufacturers
1022	1022C	2	2.421 (61.5)	.875 (22.2)	.445 (11.3)	2.140 (54.4)	.430 (10.9)	.182 (4.6)	"AAA"	25 pieces per tray	
1024	1024C	1	2.711 (68.9)	.612 (15.5)	.603 (15.3)	2.359 (59.9)	-	.265 (6.7)	"AA"	50 pieces per tray	All Major Manufacturers
1012	1012C	2	2.711 (68.9)	1.180 (30.0)	.603 (15.3)	2.359 (59.9)	.568 (14.4)	.265 (6.7)	"AA"	25 pieces per tray	
1018	1018C	1	2.062 (52.3)	.720 (18.3)	.682 (17.3)	1.690 (42.9)	-	.319 (8.1)	"2/3A"	50 pieces per tray	Duracell DL2/3A, Kodak K123L, Saft 450SC & VR0450 Sanyo CR17335SE
1100	-	2	2.062 (52.3)	1.440 (36.6)	.682 (17.3)	1.690 (42.9)	.720 (18.3)	.319 (8.1)	"2/3A"	25 pieces per tray	
498	-	3	.748 (19.0)	.540 (13.7)	.506 (12.9)	.570 (14.5)	-	.240 (6.1)	"1/3N"	300 pieces per tray	Duracell DL1/3N, Sanyo K58L, Energizer CR1/3N

SMT & THM POLARIZED LITHIUM-ION & ALKALINE CELL HOLDERS

SMT & THM COIL SPRING BATTERY HOLDERS

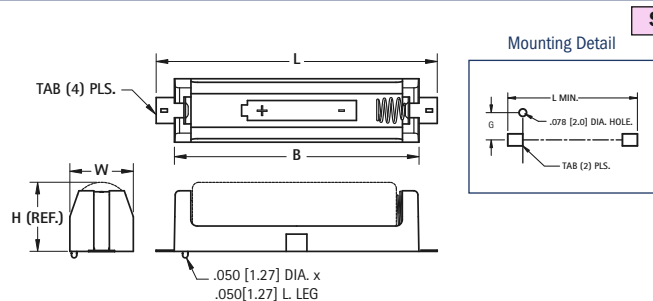


FEATURES

- UL 94V-0 Heat resistant nylon housing well suited for reflow and wave soldering operations
- Coil Spring will rebound after severe shock load
- Polarized holder offers circuit protection against improper battery installation
- Ideal for both lead free and traditional solder processes
- Operating temp range: -60°F to 293°F (-51°C to 145°C)

APPLICATIONS:

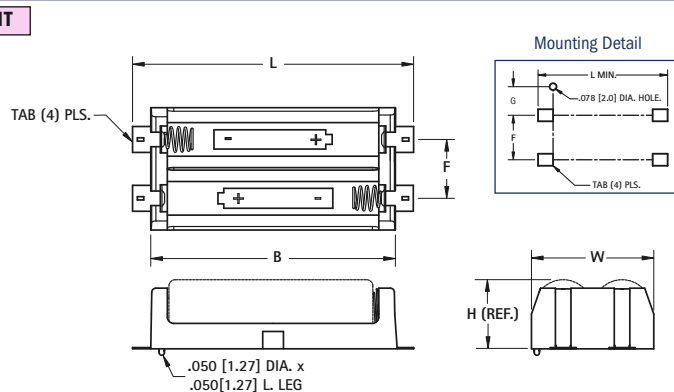
- Computer memory, power backup systems
- Telecommunications
- Residential, Industrial and commercial security systems
- PLC and industrial controls



DWG. 1

SPECIFICATIONS

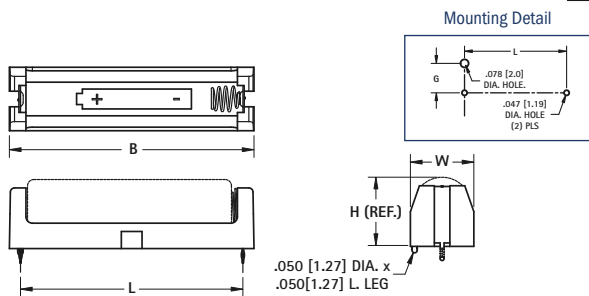
Base: High Temp Nylon 46 - UL94V-0
Contacts: .012 (.30) Stainless Steel .020 (0.50) Dia. Music Wire - Gold Plate (Flash)
Operating Temp Range: -60°F to 293°F (-51°C to 145°C)
Packaging Spec's: Supplied in trays



DWG. 2

HOLDER	COVER	DWG NO.	L	W	H (Ref. Dim)	B	F	G	CELL SIZE	PACKAGING SPECS	BATTERY CROSS REFERENCE
1076	1020C	1	2.421 (61.5)	.500 (12.7)	.445 (11.3)	2.140 (54.4)	-	.209 (5.3)	"AAA"	50 pieces per tray	All Major Manufacturers
1078	1022C	2	2.421 (61.5)	.875 (22.2)	.445 (11.3)	2.140 (54.4)	.430 (10.9)	.182 (4.6)	"AAA"	25 pieces per tray	All Major Manufacturers
1088	1024C	1	2.711 (68.9)	.612 (15.5)	.603 (15.3)	2.359 (59.9)	-	.265 (6.7)	"AA"	50 pieces per tray	All Major Manufacturers
1090	1012C	2	2.711 (68.9)	1.180 (30.0)	.603 (15.3)	2.359 (59.9)	.568 (14.4)	.265 (6.7)	"AA"	25 pieces per tray	All Major Manufacturers
1126	1024C	1	1.723 (43.8)	.612 (15.5)	.603 (15.3)	1.360 (34.5)	-	.265 (6.7)	"1/2 AA"	50 pieces per tray	Energizer 544, Duracell PX28L, Kodak K28A & KS28, Saft LCP3, Maxell 4LR44, Sanyo CR14250SE
1128	1018C	1	2.062 (52.3)	.720 (18.3)	.682 (17.3)	1.690 (42.9)	-	.319 (8.1)	"CR123A"	50 pieces per tray	Duracell DL2/3A, Kodak K123LA, Panasonic CR123A, Saft 450SC & VR0450, Sanyo CR17335SE
1014	-	2	2.062 (52.3)	1.440 (36.6)	.682 (17.3)	1.690 (42.9)	.720 (18.3)	.319 (8.1)	"CR123A"	25 pieces per tray	Sanyo CR17335SE

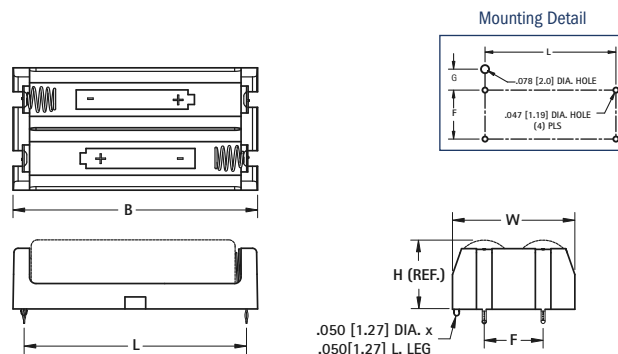
THM



DWG. 3

SPECIFICATIONS

Base: High Temp Nylon 46 - UL94V-0
Contacts: .012 (.30) Stainless Steel .020 (0.50) Dia. Music Wire - Nickel Plate
Packaging Spec's: Supplied in trays



DWG. 4

HOLDER	COVER	DWG NO.	L	W	H (Ref. Dim)	B	F	G	CELL SIZE	PACKAGING SPECS	BATTERY CROSS REFERENCE
1075	1020C	3	1.933 (49.1)	.500 (12.7)	.445 (11.3)	2.140 (54.4)	-	.209 (5.3)	"AAA"	50 pieces per tray	All Major Manufacturers
1077	1022C	4	1.933 (49.1)	.875 (22.2)	.445 (11.3)	2.140 (54.4)	.430 (10.9)	.182 (4.6)	"AAA"	25 pieces per tray	All Major Manufacturers
1087	1024C	3	2.145 (54.5)	.612 (15.5)	.603 (15.3)	2.359 (59.9)	-	.265 (6.7)	"AA"	50 pieces per tray	All Major Manufacturers
1089*	1012C	4	2.145 (54.5)	1.180 (30.0)	.603 (15.3)	2.359 (59.9)	.568 (14.4)	.265 (6.7)	"AA"	25 pieces per tray	All Major Manufacturers
1127	1024C	3	1.156 (29.4)	.612 (15.5)	.603 (15.3)	1.360 (34.5)	-	.265 (6.7)	"1/2 AA"	50 pieces per tray	Energizer 544, Duracell PX28L, Kodak K28A & KS28, Saft LCP3, Maxell 4LR44, Sanyo CR14250SE
1129*	1018C	3	1.487 (37.8)	.720 (18.3)	.682 (17.3)	1.690 (42.9)	-	.319 (8.1)	CR123A	50 pieces per tray	Duracell DL123A, Kodak K123LA, Panasonic CR123A, Varta CR1213A, Sanyo CR123A
1055*	-	4	1.487 (37.8)	1.440 (36.6)	.682 (17.3)	1.690 (42.9)	.720 (18.3)	.319 (8.1)	CR123A	25 pieces per tray	Varta CR1213A, Sanyo CR123A

*Base Material: PBT UL 94V-0

THM & SMT POLARIZED "CR2" • "CR123A" CELL HOLDERS

FEATURES

- Battery installation and removal does not require tools
- UL 94V-0 Heat resistant Nylon Housings well suited for reflow or wave soldering
- Securely holds battery in place
- Polarized holder offers circuit protection against improper battery installation

APPLICATIONS

- Computer memory, power backup systems
- Telecommunications/Security Systems
- PLC and industrial controls

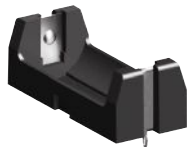
SPECIFICATIONS

Base: High Temp Nylon 46, UL Rated 94V-0
 Operating temp range: -60°F to 293°F (-51°C to 145°C)

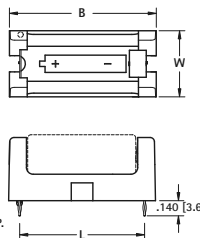
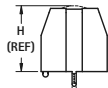
Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash) - SMT
 Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate - THM

THM

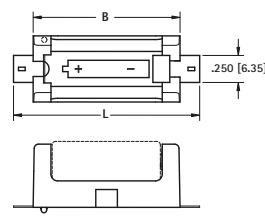
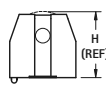
SMT



Thru-Hole Mount (THM)

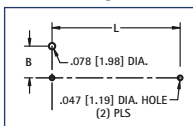


1018C
RETAINER
COVER
FITS ALL
HOLDERS



Surface Mount (SMT)

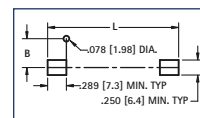
Mounting Detail



CAT. NO.	MOUNTING STYLE	L	W	H (Ref)	B	G	CELL SIZE	PACKAGING SPEC'S
1010	SMT	1.723 (43.8)	.612 (15.5)	.661 (16.8)	1.360 (34.5)	.265 (6.7)	CR2	50 pieces per tray
1011	THM	1.156 (29.4)	.720 (18.3)	.712 (18.1)	1.690 (42.9)	.319 (8.1)	CR2	
1050	SMT	2.062 (52.4)	.720 (18.3)	.712 (18.1)	1.690 (42.9)	.319 (8.1)	CR123A	
1051*	THM	1.487 (37.8)	.720 (18.3)	.712 (18.1)	1.690 (42.9)	.319 (8.1)	CR123A	

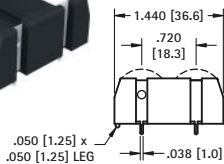
*Base material: PBT UL 94V-0

Mounting Detail

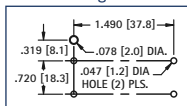


THM DUAL CR123A

SMT DUAL CR123A

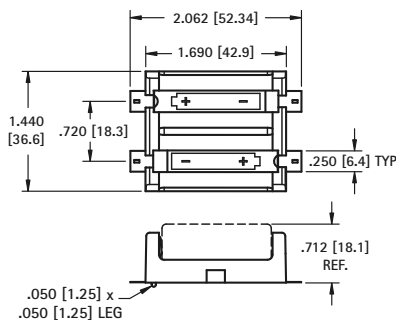
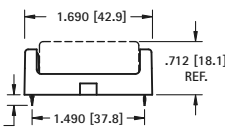


Mounting Detail

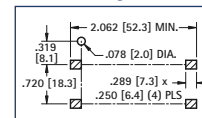


CAT. NO. 1079*

*Base material: PBT UL 94V-0



Mounting Detail



CAT. NO. 1080

Packaging Spec's: 25 pieces per tray

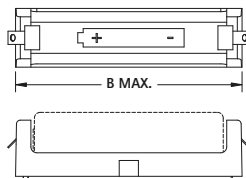
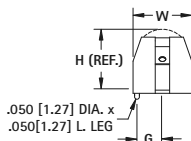
IN-LINE LITHIUM-ION & ALKALINE HOLDERS

SINGLE

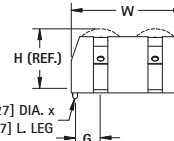
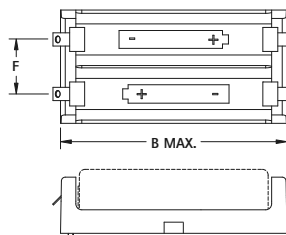
SPECIFICATIONS

Contacts: .012 (.30) Phosphor Bronze, Tin-Nickel Plate

DUAL



DWG. 1



DWG. 2

HOLDER	COVER	CAT. NO.	COVER	DWG NO.	W	H	B	F	G	CELL SIZE	BATTERY CROSS REFERENCE
1115	1024C	1	.612 (15.5)	.603 (15.3)	2.359 (59.9)		.265 (6.7)		"AA"	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran	
1114*	1012C	2	1.180 (30.0)	.603 (15.3)	2.359 (59.9)	.568 (14.4)	.265 (6.7)		"AA"	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran	
1117	1024C	1	.612 (15.5)	.603 (15.3)	1.360 (34.5)		.265 (6.7)		"1/2 AA"	Energizer 544, Duracell PX28L, Kodak K28A & KS28, Saft LCP3, Maxell 4LR44, Sanyo CR14250SE	
1119*	1018C	1	.720 (18.3)	.682 (17.3)	1.690 (42.9)		.319 (8.1)		"2/3 A"	Duracell DL2/3A, Kodak K123L, Saft 450SC & VRO450	
1120*	—	2	1.440 (36.6)	.682 (17.3)	1.690 (42.9)	.720 (18.3)	.319 (8.1)		"2/3 A"	Sanyo CR17335SE	

*Base material: PBT UL 94V-0

"18350" LITHIUM-ION BATTERY HOLDERS

Leaf Springs



1095*

Leaf Spring Polarized



1095P*

Leaf Spring Solder Lugs



1101*

Coil Spring Polarized



1110*

FEATURES

- Low profile surface mount holder for Cylindrical Lithium and alkaline batteries
- UL 94V-0 heat resistant nylon housing well suited for reflow soldering
- Battery installation and removal does not require tools
- Securely holds battery in place

- Accommodates cells with or without built-in PCB protection circuits
- Polarity clearly marked for orientation
- Polarized holders available for protection against improper battery installation

*Dual Cell Not Shown

SPECIFICATIONS

Operating Temp Range:
-60°F to +293°F (-51°C to +145°C)
Base: High Temp Nylon 46, UL 94V-0
Contacts: Stainless Steel/Music Wire
SMT - Gold Plate (Flash)
THM - Tin-Nickel Plate

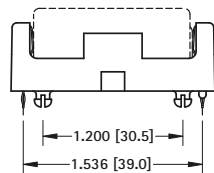
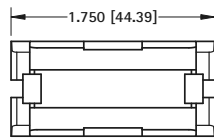
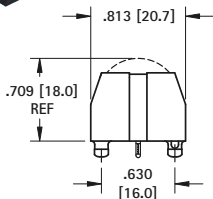
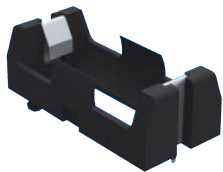


PC Battery Clip Available See Page 13.

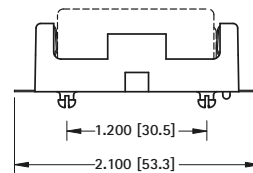
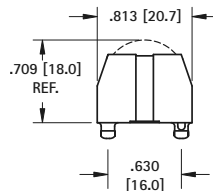
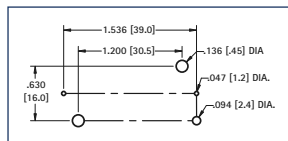
THRU HOLE MOUNT

SURFACE MOUNT

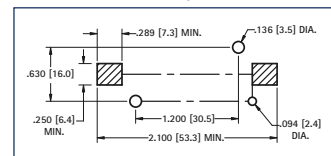
SINGLE CELL



Mounting Detail



Pad Layout



SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate

CAT. NO. 1095 Leaf Springs

CAT. NO. 1095P Leaf Spring Polarized

CAT. NO. 1111 Coil Spring Polarized

CAT. NO. 1101 Solder Lugs

Packaging Spec's: 50 pieces per tray

SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash)

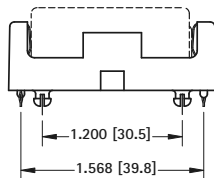
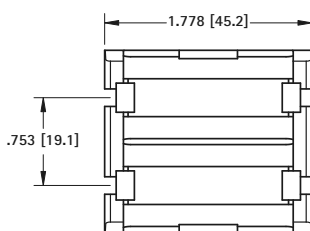
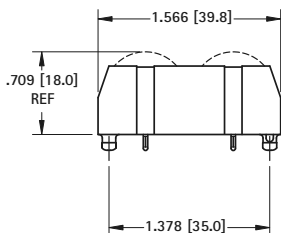
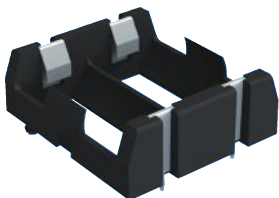
CAT. NO. 1096 Leaf Springs

CAT. NO. 1096P Leaf Spring Polarized

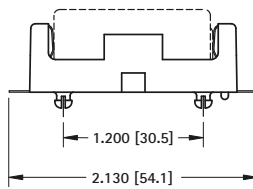
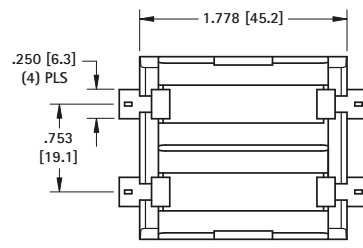
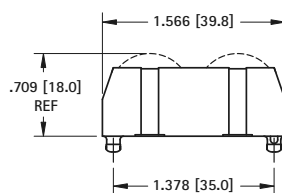
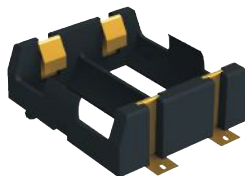
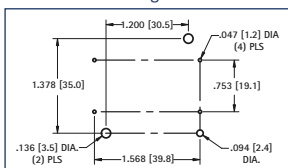
CAT. NO. 1110 Coil Spring Polarized

Packaging Spec's: 50 pieces per tray

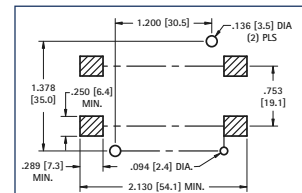
DUAL CELL



Mounting Detail



Pad Layout



SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate

CAT. NO. 1097 Leaf Springs

CAT. NO. 1097P Leaf Spring Polarized

CAT. NO. 1137 Coil Spring Polarized

CAT. NO. 1102 Solder Lugs

Packaging Spec's: 25 pieces per tray

SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash)

CAT. NO. 1098 Leaf Springs

CAT. NO. 1098P Leaf Spring Polarized

CAT. NO. 1136 Coil Spring Polarized

Packaging Spec's: 25 pieces per tray

"18350" LITHIUM-ION BATTERY HOLDERS

"18650" LITHIUM-ION BATTERY HOLDERS

Leaf Springs



1043*

Leaf Spring Polarized



1043P*

Leaf Spring Solder Lugs



1044*

Coil Spring Polarized



1042*

FEATURES

- Low profile surface mount holder for Cylindrical Lithium and alkaline batteries
- UL 94V-0 heat resistant nylon housing well suited for reflow soldering
- Battery installation and removal does not require tools
- Securely holds battery in place

- Accommodates cells with or without built-in PCB protection circuits
- Polarity clearly marked for orientation
- Polarized holders available for protection against improper battery installation

*Dual Cell Not Shown

SPECIFICATIONS

Operating Temp Range: -60°F to +293°F (-51°C to +145°C)
Base: High Temp Nylon 46, UL 94V-0
Contacts: Stainless Steel/Music Wire
 SMT - Gold Plate (Flash)
 THM - Tin-Nickel Plate

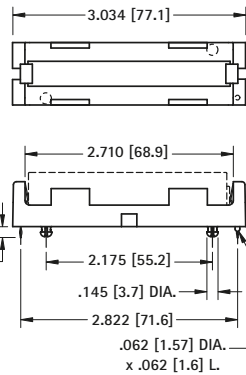
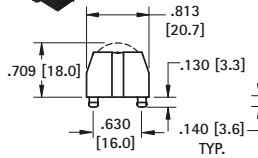


PC Battery Clip Available See Page 13.

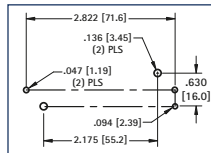
THRU HOLE MOUNT

SURFACE MOUNT

SINGLE CELL



Mounting Detail



SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate

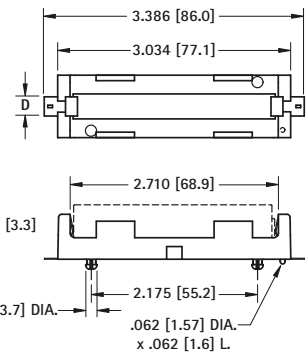
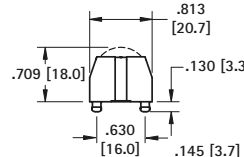
CAT. NO. 1043 Leaf Springs

CAT. NO. 1043P Leaf Spring Polarized

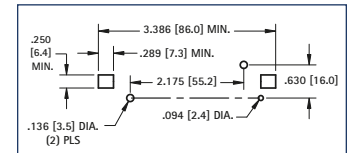
CAT. NO. 1131 Coil Spring Polarized

CAT. NO. 1044 Solder Lugs

Packaging Spec's: 50 pieces per tray



Pad Layout



SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash)

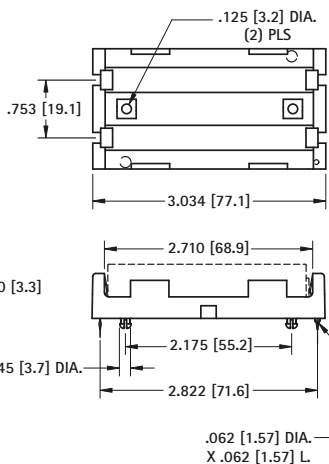
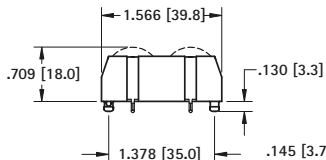
CAT. NO. 1042 Leaf Springs

CAT. NO. 1042P Leaf Spring Polarized

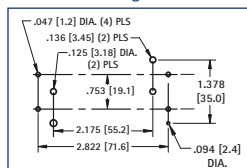
CAT. NO. 1130 Coil Spring Polarized

Packaging Spec's: 50 pieces per tray

DUAL CELL



Mounting Detail



SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate

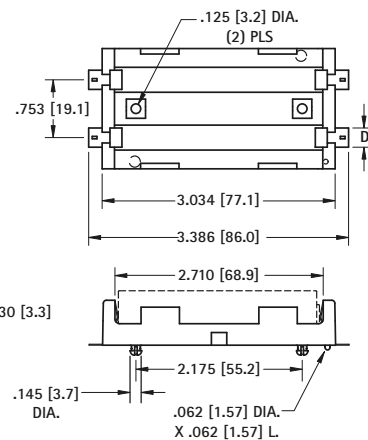
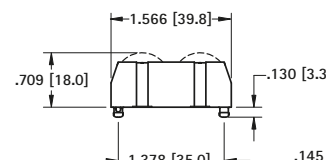
CAT. NO. 1049 Dual Springs

CAT. NO. 1049P Leaf Spring Polarized

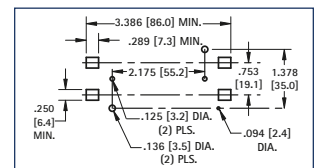
CAT. NO. 1135 Coil Spring Polarized

CAT. NO. 1047 Solder Lugs

Packaging Spec's: 25 pieces per tray



Pad Layout



SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash)

CAT. NO. 1048 Dual Springs

CAT. NO. 1048P Leaf Spring Polarized

CAT. NO. 1134 Coil Spring Polarized

Packaging Spec's: 25 pieces per tray

POLARIZED 20700 & 21700 CELL HOLDERS

FEATURES

- Battery installation and removal does not require tools
- UL 94V-0 Heat resistant Nylon Housings well suited for reflow or wave soldering
- Securely holds battery in place
- Polarized holder offers circuit protection against improper battery installation

APPLICATIONS

- Computer memory, power backup systems
- Telecommunications/Security Systems
- PLC and industrial controls

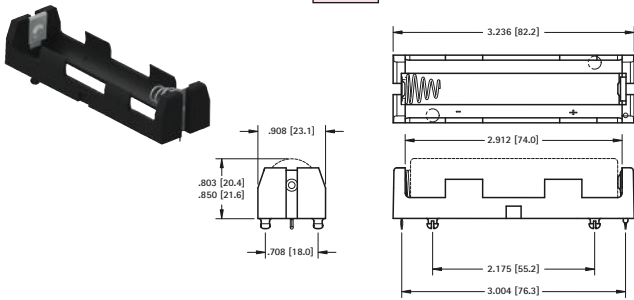
SPECIFICATIONS

Base: High Temp Nylon 46, UL Rated 94V-0
Operating temp range: -60°F to 293°F (-51°C to 145°C)

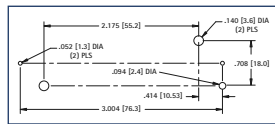
Contacts: .012 (.30) Stainless Steel, Gold Plate (Flash) - SMT

Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate - THM

THM

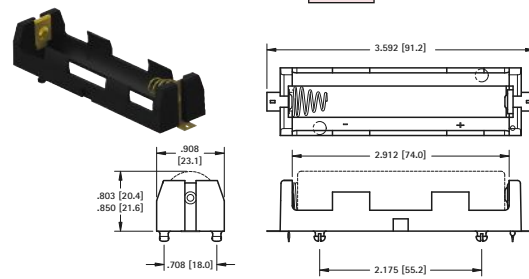


Mounting Detail

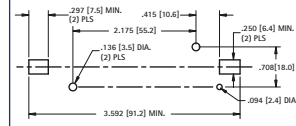


CAT. NO. 1121 Polarized

SMT

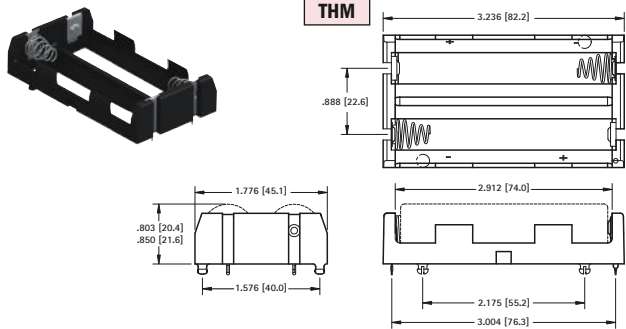


Mounting Detail

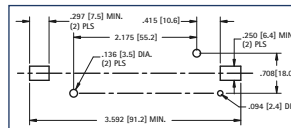


CAT. NO. 1122 Polarized

THM

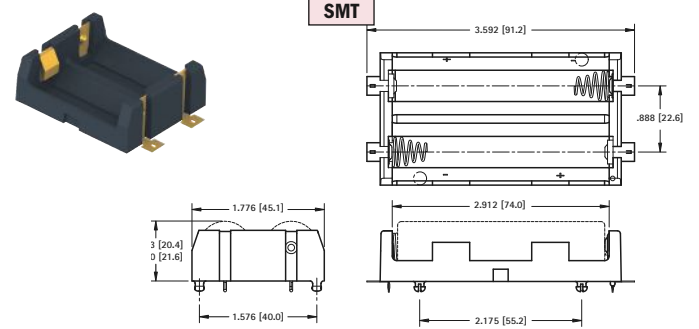


Mounting Detail

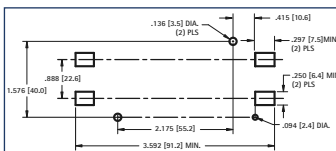


CAT. NO. 1123 Polarized

SMT



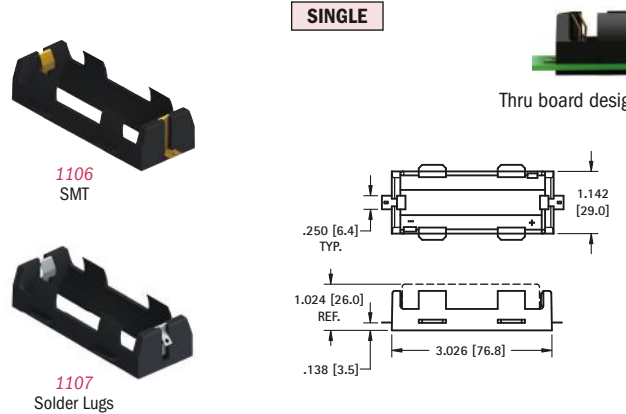
Mounting Detail



CAT. NO. 1124 Polarized

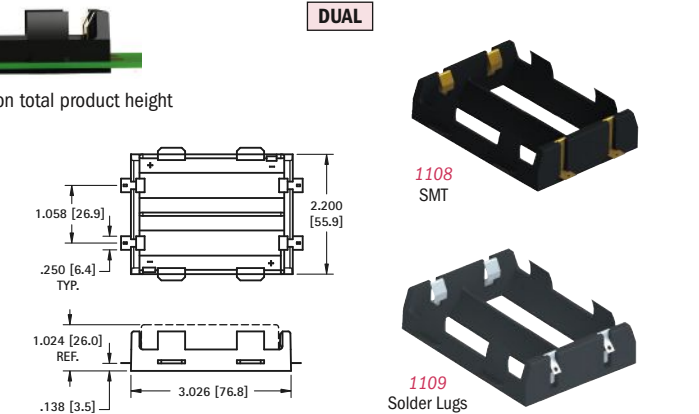
SMT & IN-LINE "26650" LITHIUM-ION HOLDERS

SINGLE



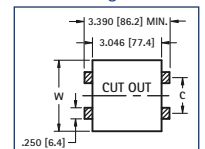
DWG. 1 SMT version shown

DUAL



DWG. 2 SMT version shown

Mounting Detail



SPECIFICATIONS

SMT Base: High Temperature Nylon 4/6, UL Rated 94V-0
SMT Contacts: .012 (03) Stainless Steel, Gold Plate (Flash)
In-line Base: PBT, UL Rated 94V-0
In-line Solder Lugs: .012 (.3) Stainless Steel, Nickel Plate

CAT. NO.	MTG.	FIG. NO.	HOLDS NO. OF CELLS	SMT MOUNTING PAD LAYOUT	
				W	C
1107	Solder Lugs	1	1	-	-
1109		2	2	-	-
1106	SMT	1	1	1.142 (29.0)	On Center
1108		2	2	2.200 (55.9)	1.058 (26.9)

LITHIUM-ION BATTERY HOLDERS

IP65 WATER & DUST RESISTANT DENSI-PAK® BATTERY HOLDERS

- Water and dust resistant to IP65 standards
- Sealed on/off switch included
- Ideal for outdoor use such as holiday lighting or automotive emergency markers or harsh manufacturing environments
- Batteries securely held in place to assure a positive connection and low contact resistance
- Coil springs accommodate variations in battery lengths
- Withstands shock and vibration

SUPPLIED WITH
ON/OFF SWITCH

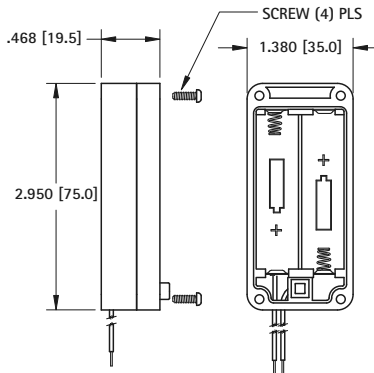


SPECIFICATIONS

Holder: ABS Plastic
Springs: Spring Steel, Nickel Plate
Wires: 6.0 (152) long, #26 AWG Stripped and pretinned ends, UL/CSA 1007
Temperature Range: 50°F to 194°F (10°C to 90°C)

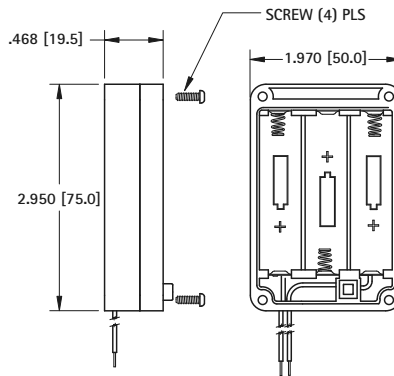
“AA”

Two (2) Cells - In Series



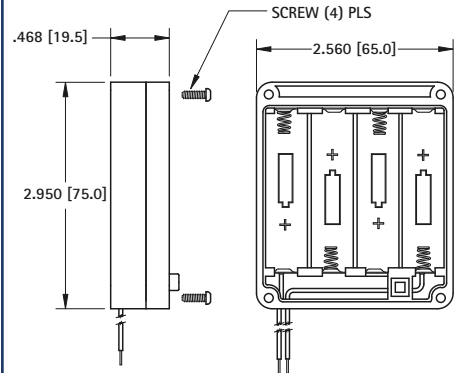
CAT. NO. 2438 Wire Leads with On/Off Switch

Three (3) Cells - In Series



CAT. NO. 2439 Wire Leads with On/Off Switch

Four (4) Cells - In Series



CAT. NO. 2440 Wire Leads with On/Off Switch

DENSI-PAK® BATTERY HOLDERS

- Supports high density packaging
- Batteries securely held in place to assure a positive connection and maintain a low contact resistance
- Contact springs self-adjust to variations in battery length
- Snap-on cover protects and secures batteries
- Withstands shock and vibration

ON/OFF SWITCH
OPTIONAL



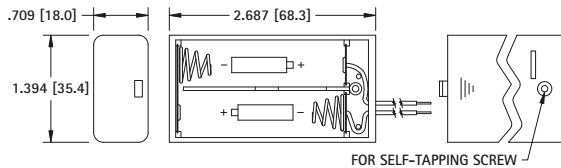
See page 33 for
Mating PC Jacks

SPECIFICATIONS

Holder: ABS
Springs: Spring Steel, Nickel Plate
Wires (Red & Black): 6.0 (152) long, #26 AWG, Stripped and pretinned ends, UL/CSA1007
3 Pin Locking PC Connector:
Housing: Nylon 6/6
Contacts: Phosphor Bronze, Tin Plate

“AA”

Two (2) Cells - In Series

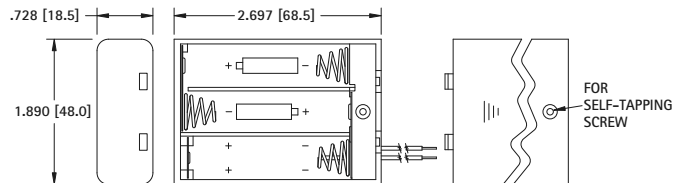


CAT. NO. 2490 Wire Leads Only

CAT. NO. 2490CN Wire Leads w/PC Connector

CAT. NO. 2490SW Wire Leads with On/Off Switch

Three (3) Cells - In Series



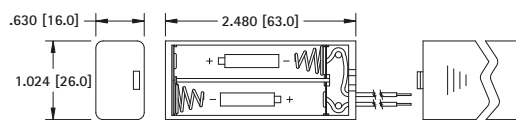
CAT. NO. 2487 Wire Leads Only

CAT. NO. 2487CN Wire Leads w/PC Connector

CAT. NO. 2487SW Wire Leads with On/Off Switch

“AAA”

Two (2) Cells - In Series

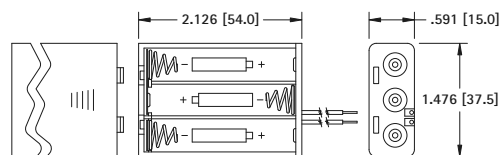


CAT. NO. 2489 Wire Leads Only

CAT. NO. 2489CN Wire Leads w/PC Connector

CAT. NO. 2489SW Wire Leads with On/Off Switch

Three (3) Cells - In Series



CAT. NO. 2484 Wire Leads Only

CAT. NO. 2484CN Wire Leads w/PC Connector

CAT. NO. 2484SW Wire Leads with On/Off Switch

ECONOMICAL PLASTIC BATTERY HOLDERS



PC Mount

PC pins eliminate wiring. Solders directly to PC for compact applications.



PC Mount with Ribbon (RB)

Ribbon wraps under batteries during battery installation. For easy battery removal, pulling up on ribbon will dislodge batteries from holder.



6" Wire Leads

Allows battery holder to be placed remotely from PC freeing up valuable board space.



6" Wire Leads with 3 Pin Locking PC Connector (CN)

PC connector eliminates hand soldering of wire leads to PC. Battery holder can be quickly added or removed from PC.

PLASTIC BATTERY HOLDERS

- Coil spring contacts will adjust to different battery lengths
- Batteries securely held in place to assure a positive connection and low contact resistance
- Withstands shock and vibration
- Holders for multiple cell are wired in series
- Custom designs welcome, Ex: Parallel wiring, custom wiring, combining any of the available options

SPECIFICATIONS

Base: Polypropylene

Spring: Spring Steel, Nickel Plate

PC Pins: Brass, Nickel Plate

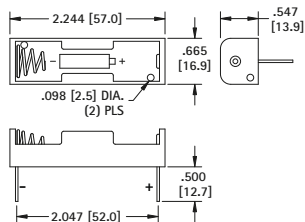
Wire Leads: 6.0 (152), #26 AWG Stripped and Tinned, UL/CSA 1007

Ribbon: Woven Nylon, Red

PC Connector: Nylon 6/6, Phosphor Bronze, Tin Plate

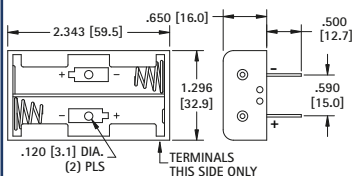
"AA"

One (1) Cell



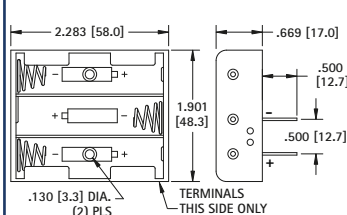
CAT. NO. 2460	PC Mount
CAT. NO. 2460RB	PC Mount w/Ribbon
CAT. NO. 2461	Wire Leads Only
CAT. NO. 2461CN	Leads w/PC Connector

Two (2) Cells - In Series



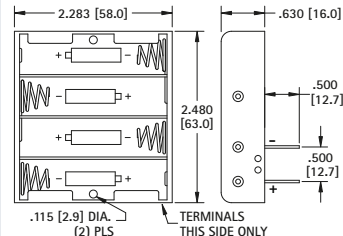
CAT. NO. 2462	PC Mount
CAT. NO. 2462RB	PC Mount w/Ribbon
CAT. NO. 2463	Wire Leads Only
CAT. NO. 2463CN	Leads w/PC Connector

Three (3) Cells - In Series



CAT. NO. 2464	PC Mount
CAT. NO. 2464RB	PC Mount w/Ribbon
CAT. NO. 2465	Wire Leads Only
CAT. NO. 2465CN	Leads w/PC Connector

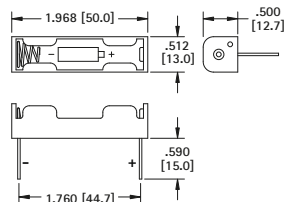
Four (4) Cells - In Series



CAT. NO. 2477	PC Mount
CAT. NO. 2477RB	PC Mount w/Ribbon
CAT. NO. 2478	Wire Leads Only
CAT. NO. 2478CN	Leads w/PC Connector

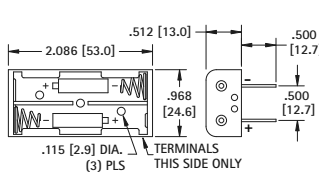
"AAA"

One (1) Cell



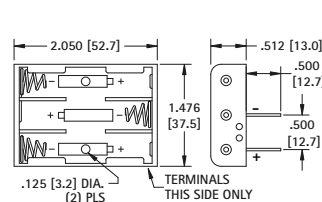
CAT. NO. 2466	PC Mount
CAT. NO. 2466RB	PC Mount w/Ribbon
CAT. NO. 2467	Wire Leads Only
CAT. NO. 2467CN	Leads w/PC Connector

Two (2) Cells - In Series



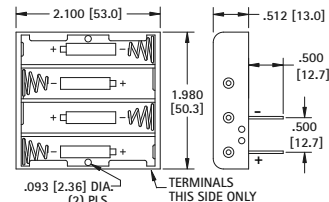
CAT. NO. 2468	PC Mount
CAT. NO. 2468RB	PC Mount w/Ribbon
CAT. NO. 2469	Wire Leads Only
CAT. NO. 2469CN	Leads w/PC Connector

Three (3) "AAA" Cells - In Series



CAT. NO. 2479	PC Mount
CAT. NO. 2479RB	PC Mount w/Ribbon
CAT. NO. 2480	Wire Leads Only
CAT. NO. 2480CN	Leads w/PC Connector

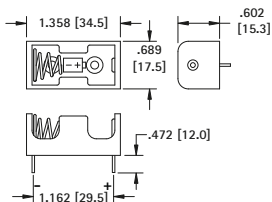
Four (4) Cells - In Series



CAT. NO. 2481	PC Mount
CAT. NO. 2481RB	PC Mount w/Ribbon
CAT. NO. 2482	Wire Leads Only
CAT. NO. 2482CN	Leads w/PC Connector

ECONOMICAL PLASTIC BATTERY HOLDERS (CONT'D)

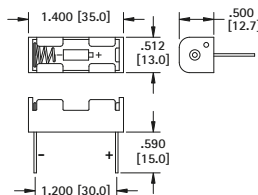
"1/2 AA" Cell -or- "CR2" Cell



CAT. NO. 2485	PC Mount
CAT. NO. 2485RB	PC Mount w/Ribbon
CAT. NO. 2486	6" Wire Leads
CAT. NO. 2486CN	Wire Leads w/PC Connector

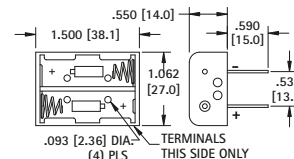
"1/2AA" - "CR2" - "N" - "12V"

"N" Cell - 1.5V or "12V" Cell



CAT. NO. 2470	PC Mount
CAT. NO. 2470RB	PC Mount w/Ribbon
CAT. NO. 2471	6" Wire Leads
CAT. NO. 2471CN	Wire Leads w/PC Connector

Two (2) "N" or Two (2) "12V" Cells - In Series



CAT. NO. 2472	PC Mount
CAT. NO. 2472RB	PC Mount w/Ribbon
CAT. NO. 2473	6" Wire Leads
CAT. NO. 2473CN	Wire Leads w/PC Connector

PLASTIC BATTERY HOLDERS WITH SNAP-ON CONNECTORS

- Same quality features as our wired & PC mount battery holders
- Features separable "Snap-On/Snap-Off" battery connector (9 Volt type) to assure reliable connections
- Easily disconnect battery holder from your device - no tools required
- Batteries securely held in place to maintain a positive contact and a low contact resistance

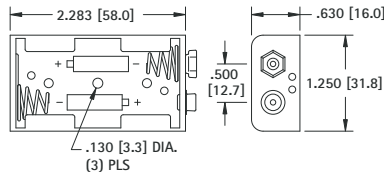
- Battery contact springs self adjust to variations in battery length
- Mates with Keystone 9 Volt battery straps and connectors (Refer to pages 36)

SPECIFICATIONS

Holder: Polypropylene
Male/Female Contacts: Brass, Nickel Plate
Springs: Spring Steel, Nickel Plate

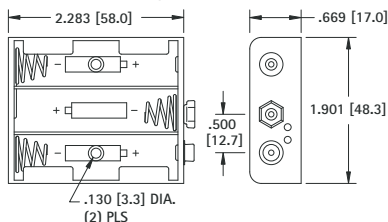
"AA"

Two Cells - in Series



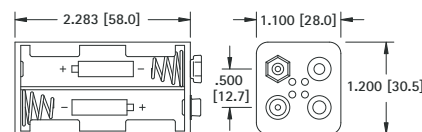
CAT. NO. 2474

Three (3) Cells - in Series



CAT. NO. 2475

Four (4) Cells - in Series



CAT. NO. 2476

PC BATTERY HOLDER CONNECTOR JACKS

- Available in SMT and THM versions
- Vertical and horizontal entry options
- SMT version supplied on tape and reel for vacuum pick and place assembly
- Used to connect any battery holder with PC connector (CN suffix)
- Wiring harness locks onto jack for assured connectivity

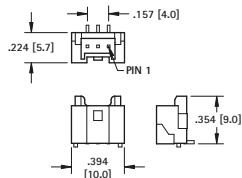
SPECIFICATIONS

Body: Nylon 6/6, UL94V-0
Pins: Brass, Tin Plate
Current Rating: 3 Amps, 100V max
Temperature Range: -13°F (-25°C) to 185°F (85°C)

SMT

SUPPLIED ON TAPE AND REEL

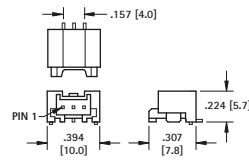
VERTICAL



CAT. NO. 974

Tape and Reel Spec's: 13 inch reel (500 pieces per reel)

HORIZONTAL

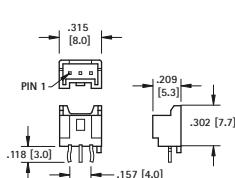


CAT. NO. 976

Tape and Reel Spec's: 13 inch reel (1000 pieces per reel)

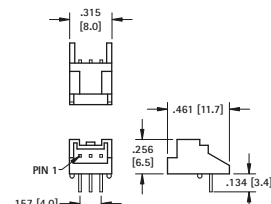
THM

VERTICAL



CAT. NO. 975

HORIZONTAL

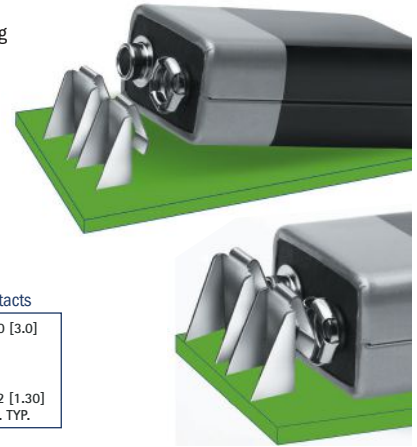
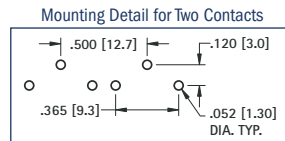
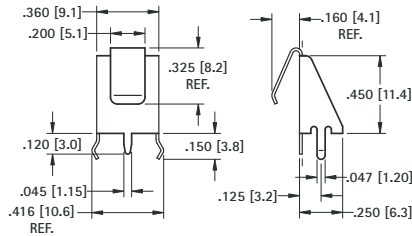


CAT. NO. 977

HORIZONTAL 9 VOLT PC LEAF-SPRING CONTACT

- Ideal "Slide-In" contact for easy installation and removal of 9 Volt batteries
- Space saving design installs directly onto the PC board
- Suitable for .062 (1.57) to .093 (2.36) PC boards
- Reliable leaf-spring assures low contact resistance
- Ideal for self-contained battery compartments
- Snap-in mounting legs holds contact secure during wave soldering

MATERIAL: .012 (.30) Spring Steel, Tin-Nickel Plate



CAT. NO. 590

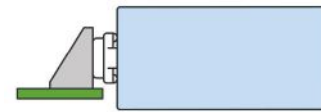
HORIZONTAL 9 VOLT PC SNAP-ON CONTACTS

Mounts Directly to Printed Circuit Board

- Space saving design installs directly onto the PC board
- Suitable for .062 (1.57) to .093 (2.36) PC boards
- Ideal for self-contained battery compartments



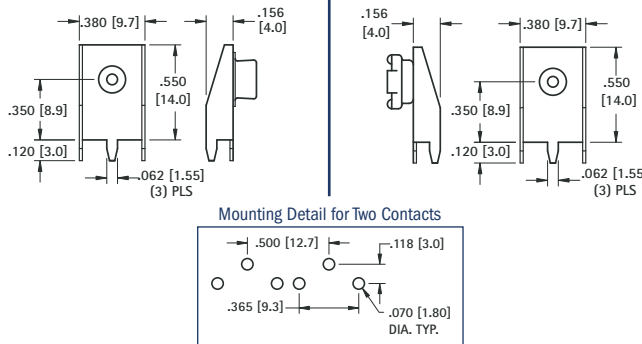
To Mount Battery "On" PC Board
Use Cat. No. 593 and Cat. No. 594



To Mount Battery "Off" PC Board
Use Cat. No. 635 and Cat. No. 636

MATERIAL: Frame: .015 (.38) Steel, Tin Plate; **Contacts:** Steel, Nickel Plate

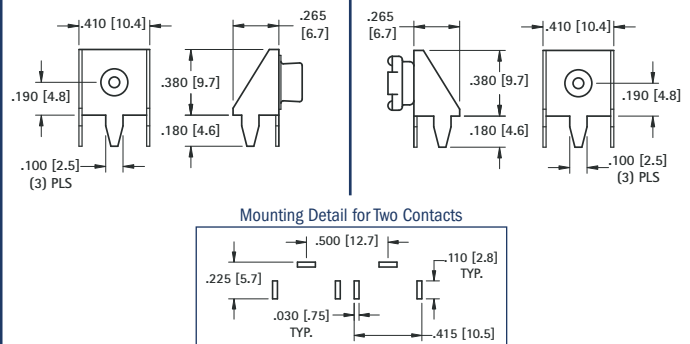
"On-Board"



CAT. NO. 593 (Male)

CAT. NO. 594 (Female)

"Off-Board"



CAT. NO. 635 (Male)

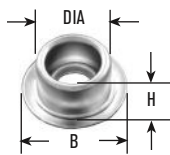
CAT. NO. 636 (Female)

BATTERY SNAP-ONS

For most electronic applications requiring a quick connect and disconnect of circuit. Commonly used with 9 Volt or other batteries designed with snap fasteners. Ideal for temporary or permanent means of connecting without soldering. Can be cascaded together for multiple connections.

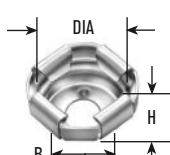
SOCKET OR STUD ONLY

FIG. 1



Stud only

FIG. 2



Socket only

SOCKET OR STUD W/CRIMP LUG

FIG. 3



Stud w/Crimp Lug

FIG. 4



Socket w/Crimp Lug

CAT. NO.	FIG. NO.	DIA	H	B	HOLE	SIZE	MATERIAL
261*	1	.224 (5.7)	.135 (3.4)	.312 (7.9)	.097 (2.5)	Junior*	Steel, Nickel Plate
269*	2	.210 (5.3)	.150 (3.8)	.250 (6.4)	.096 (2.4)		
262	1	.283 (7.2)	.143 (3.6)	.423 (10.7)	.125 (3.2)	Senior	Brass, Nickel Plate
270	2	.261 (6.6)	.145 (3.7)	.312 (7.9)	.125 (3.2)		

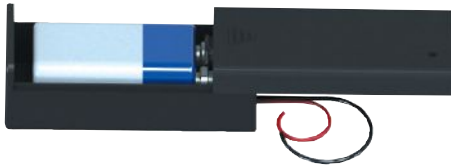
CAT. NO.	FIG. NO.	DIA	H	L	SIZE	MATERIAL
263*	3	.225 (5.7)	.170 (4.3)	.790 (20.1)	Junior*	Stud: Steel, Nickel Plate Lug: Brass, Tin Plate
271*	4	.205 (5.2)	.200 (5.1)	.790 (20.1)		
264	3	.283 (7.2)	.185 (4.7)	.840 (21.3)	Senior	Stud: Brass, Nickel Plate Lug: Brass, Tin Plate
272	4	.265 (6.7)	.185 (4.7)	.835 (21.2)		

*Use Jr. Socket and stud for standard 9 Volt Battery

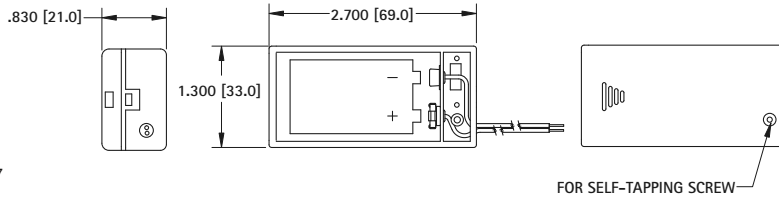
DIMENSIONS ARE FOR REFERENCE ONLY

*Use Jr. Socket and stud for standard 9 Volt Battery

DENSI-PAK® 9 VOLT BATTERY HOLDER



- Positions anywhere for easy access to battery
- Battery held securely in place
- Snap-on cover protects and secures battery against shorting
- Economical design
- Battery contacts provide reliable low resistance connection



Materials:

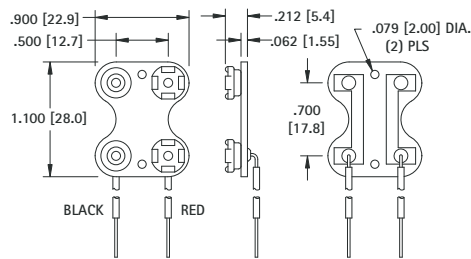
Body: ABS plastic
Contacts: Brass, Nickel Plate
Wire Leads: 6.0 (152), #26 AWG, Tinned and stripped, UL/CSA 1007

CAT. NO. 245

DUAL 9 VOLT BATTERY STRAP

This dual battery strap is pre-wired for connecting two 9 Volt batteries. Base made from fibre material with steel, nickel plated contacts. Wires have tinned copper conductors, PVC insulation and the ends are stripped for easy connection. Wires meet UL/CSA #1061 requirements.

PARALLEL



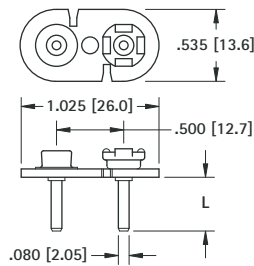
SPECIFICATIONS

Contacts: Steel, Nickel Plate
Wire: 7.0 (177.8)#22 AWG, UL/CSA #1061
End Strip: .375 (9.5) Long, Tinned

CAT. NO. 227

VERTICAL 9 VOLT PC SNAP-ON CONTACT

- Space saving, economical
- Excellent mechanical strength
- Low contact resistance
- Durable fibre base
- Wave solderable
- Anti-Wicking Design

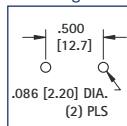


SPECIFICATIONS

Base: .062 (1.57) Fibre
Contacts: Steel, Nickel Plate
Pins: Brass, Tin Plate

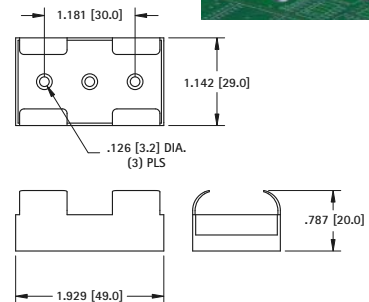
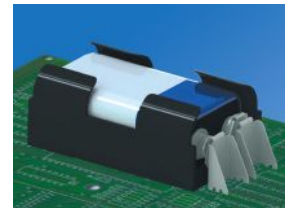
CAT. NO.	L LENGTH
967 (with PC Pins)	.120 (3.0)
968 (with PC Pins)	.400 (10.2)
68 (without PC Pins)	-

Mounting Detail



9 VOLT BATTERY RETAINER

- Holds battery securely in place
- Positions anywhere for easy access to battery
- Clearance on end for 9 Volt battery strap



CAT. NO. 239

MATERIAL: Polypropylene

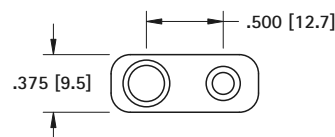
PROTECTIVE BATTERY CAP

- Protects 9 Volt batteries and battery packs when they are not in use
- Snap-fits onto battery contacts
- Protects the battery contacts from damage due to dust, dirt and contamination

MATERIAL:

Impact Resistant Polypropylene, Black

CAT. NO. 96



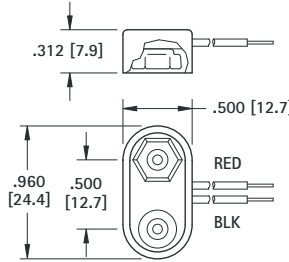
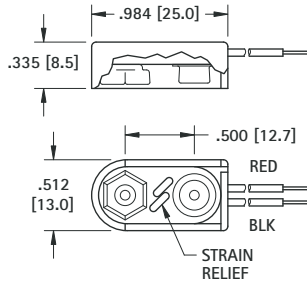
SHIELDED 9 VOLT BATTERY STRAPS

- Insulates and shields 9 Volt battery snap-on connector contacts
- Assures safe secure use, reduces the potential of short circuits and prevents tampering with battery contacts
- Protects circuits, prevents unwanted electrical discharge due to unintended grounding
- Protects battery contacts from dust, dirt, and physical damage
- Ideal for rugged applications, made of high impact molded plastic with integral wire lead strain relief

Modifications available with different wire lengths.

SPECIFICATIONS

Base: ABS
Male/Female Contacts: Brass, Nickel Plate
Wires (Red & Black): #26 AWG, Tinned, .187 (4.8) end strip, UL/CSA 1007
 *Tolerance on lead length +/- .250 (6.4)



I STYLE		T STYLE	
MOLDED		MOLDED	
CAT. NO.	*LEAD LENGTH	CAT. NO.	*LEAD LENGTH
84-4	4.00 (102)	81-4	4.00 (102)
84-6	6.00 (152)	81-6	6.00 (152)
84-8	8.00 (203)	81-8	8.00 (203)

PREMIUM 9 VOLT BATTERY STRAPS

- Fully Assembled
- Rigid Assembly
- Ideal for rugged applications, made of high impact molded plastic with integral wire lead strain relief

Rigidly constructed. Nickel plate, male and female contacts. Female contacts are spring temper. Accepts numerous insertions to meet U.L. approved standards. Provides excellent mechanical strength and low contact resistance. Wires have tinned copper conductors, PVC insulation and the ends are stripped for easy connection.

Wires are rated to +176°F (+80°C) and 300V and meet UL/CSA 1007 requirements.

Modifications available with different wire lengths.

SPECIFICATIONS

Contacts: Phosphor Bronze, Nickel Plate
Wire: #26 AWG, UL/CSA 1007
End Strip: .250 (6.4) Long, Tinned
Base: Polyethylene
 *Tolerance on lead length +/- .250 (6.4)



Base Size:
1.062 (27.0) x .512 (13.0)

I STYLE		T STYLE	
MOLDED		MOLDED	
CAT. NO.	*LEAD LENGTH	CAT. NO.	*LEAD LENGTH
2238	4.00 (102)	2241	4.00 (102)
2239	6.00 (152)	2242	6.00 (152)
2240	8.00 (203)	2243	8.00 (203)



Base Size:
1.00 (25.4) x .512 (13.0)

ECONOMY 9 VOLT BATTERY STRAPS

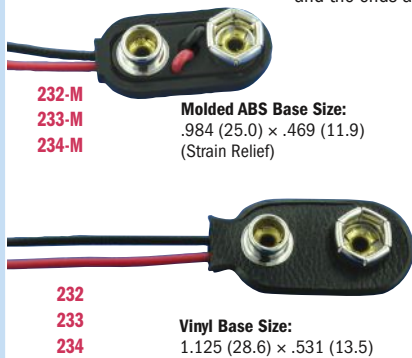
- Fully Assembled
- Rigid Assembly

When product cost is of the utmost importance these economy battery straps will suit your needs. Brass contacts, nickel plated with vinyl or ABS covering. Wires have tinned copper conductors, PVC insulation and the ends are stripped for easy connection. Wires meet UL/CSA 1007 requirements.

Modifications available with different wire lengths

SPECIFICATIONS

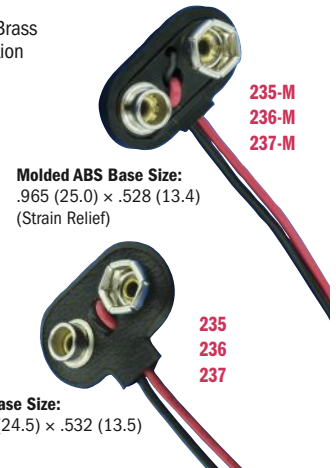
Contacts: Brass, Nickel Plate
Wire: #26 AWG, UL/CSA 1007
End Strip: .250 (6.4) Long, Tinned
 *Tolerance on lead length +/- .250 (6.4)



Molded ABS Base Size:
.984 (25.0) x .469 (11.9)
(Strain Relief)

Vinyl Base Size:
1.125 (28.6) x .531 (13.5)

I STYLE			T STYLE		
MOLDED	VINYL	*LEAD LENGTH	MOLDED	VINYL	CAT. NO.
CAT. NO.	CAT. NO.		CAT. NO.	CAT. NO.	
232-M	232	4.00 (102)	235-M	235	235
233-M	233	6.00 (152)	236-M	236	
234-M	234	8.00 (203)	237-M	237	



Molded ABS Base Size:
.965 (25.0) x .528 (13.4)
(Strain Relief)

Vinyl Base Size:
1.000 (24.5) x .532 (13.5)

MOLDED 9 VOLT BATTERY HOLDERS



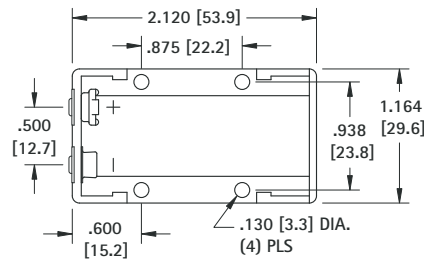
1294



1295

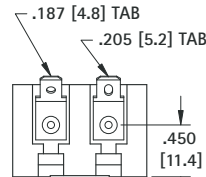
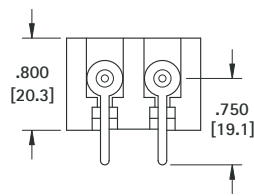
SPECIFICATIONS

Body: Molded from high impact, Glass Filled Nylon
Terminals: Brass, Tin Plate
Contacts: Steel, Nickel Plate



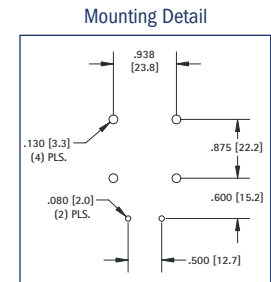
CAT. NO. 1294

PC Terminals



CAT. NO. 1295

Quick-Fit Terminals

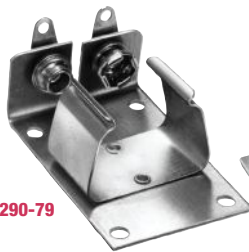


Holds any size, any shape, standard 9 Volt battery. Eliminates need to specify an exact battery brand, size or shape. Ideal for power source or memory back-up use in PLC, telecommunications, data processing, security systems, clocks, radios, toys and appliances.

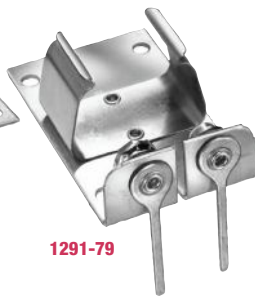
- Male-female snap-in terminals assure positive contact and proper polarity
- Durable, rugged construction
- Excellent spring retention – holds battery in place
- Withstands severe shock and vibration
- Operating temperature range: -40°F to +266°F (-40°C to +130°C)
- Impervious to most industrial solvents

ALUMINUM 9 VOLT BATTERY HOLDERS

For use with standard 9 Volt battery. Battery snaps in place to insure positive contact. Ideal where severe shock and vibration are encountered. Available with standard solder lugs or printed circuit lugs.



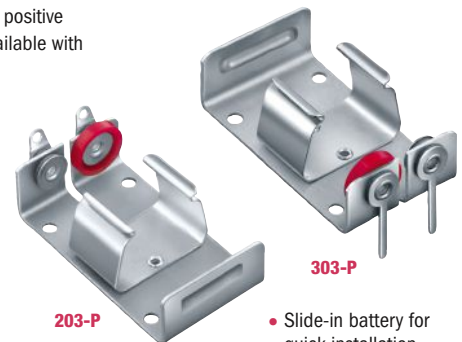
1290-79



1291-79

SPECIFICATIONS

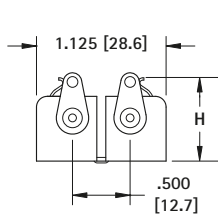
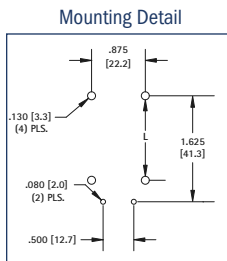
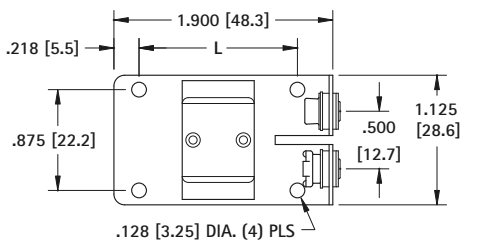
Frame: Aluminum
Solder Terminals: Brass, Tin Plate
PC Terminals: Brass, Tin Plate
Contacts & Clips: Steel, Nickel Plate
Insulation: Resin Impregnated
Polarizing Washer: Polyethylene



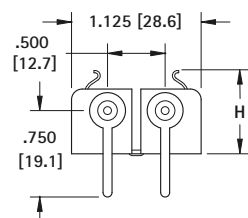
203-P

303-P

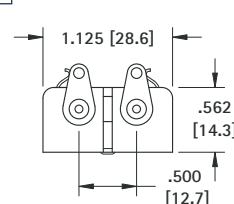
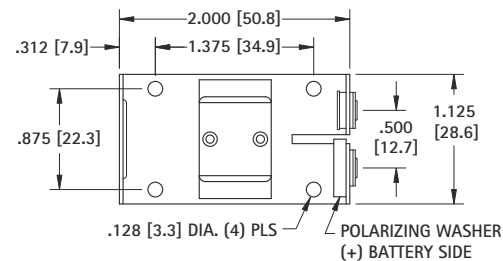
- Slide-in battery for quick installation and replacement
- Polarity clearly marked



1290

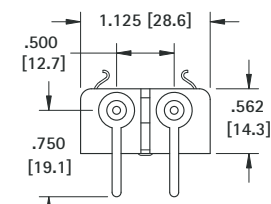


1291



CAT. NO. 203-P

Solder Terminals

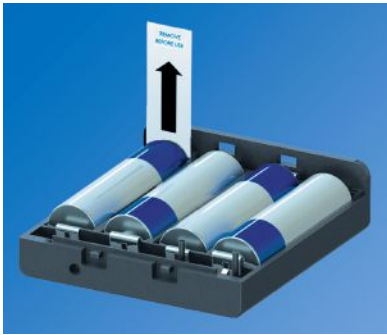


CAT. NO. 303-P

PC Terminals

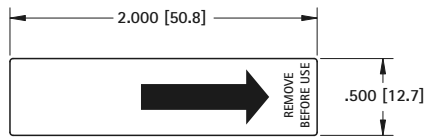
CAT. NO.	CAT. NO.	H	L	BATTERY REFERENCE	DESCRIPTION
1291	1290	.718 (18.2)	1.375 (34.9)	Alkaline	Low Profile
1291-79	1290-79	.812 (20.6)	1.375 (34.9)	Alkaline	Snap Fit
1291-66	1290-66	.857 (21.8)	1.250 (31.8)	Lithium-Ion	Snap Fit

BATTERY INSULATORS (PULL TABS)



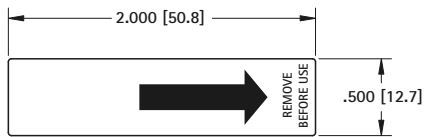
- Battery insulator will protect battery and circuitry during shipping and storage
- Insulator to be pulled out from product when it is time to activate

"AA" & LARGER



MATERIAL: .007 Mineral Reinforced Polypropylene, white

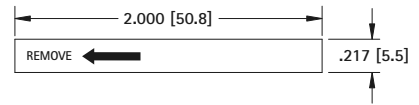
CAT. NO. 117 1000 pieces per roll



MATERIAL: .005 Polyester, clear

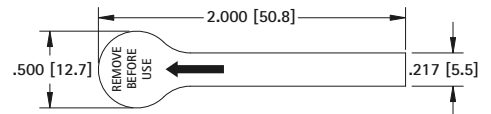
CAT. NO. 121 (Bulk)

BUTTON CELL & "AAA"



MATERIAL: .007 Mineral Reinforced Polypropylene, white

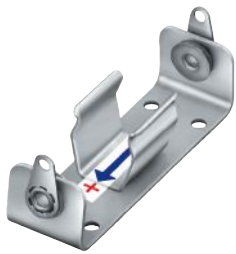
CAT. NO. 111 1000 pieces per roll



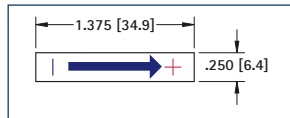
MATERIAL: .005 Polyester, clear

CAT. NO. 119 (Bulk)

POLARITY INDICATING LABEL



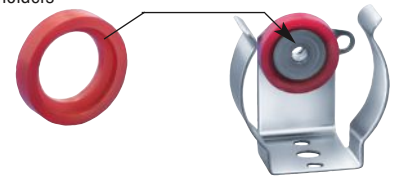
- No gluing or wetting needed
- Pressure sensitive adhesive back
- Economical
- Adheres to all surfaces



CAT. NO. 58

INSULATED POLARIZING WASHERS

- Prevents improper connection of battery which may cause damage to electronic equipment
- Washers hold securely when snapped over eyelets
- Used on our standardized battery holders
- For "AA", "C" & "D" cells.

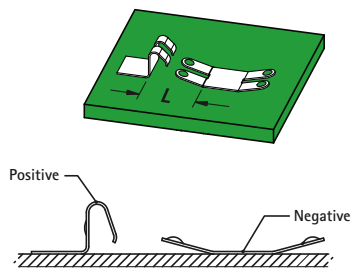


MATERIAL: Molded Polyethylene

CAT. NO. 59 (RED)

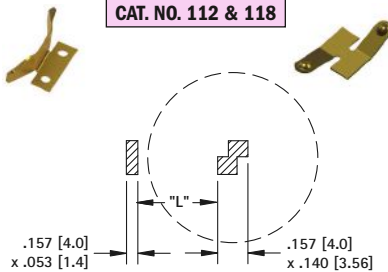
CAT. NO. 60 (BLACK)

COIN CELL ENCLOSURE CONTACT LAYOUTS



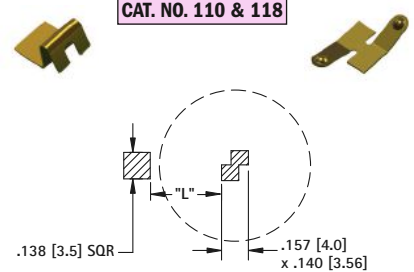
Refer to page 12 for Part Details

CAT. NO. 112 & 118



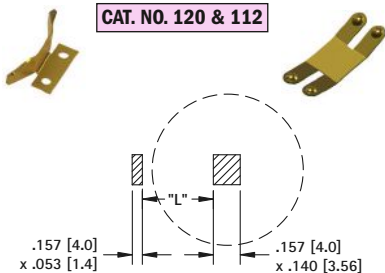
CAT. NO.	BATTERY REFERENCE	L
120 & 118	CR1216, CR1220	.178 (4.5)
	CR1612, CR1616, CR1620	.256 (6.35)

CAT. NO. 110 & 118



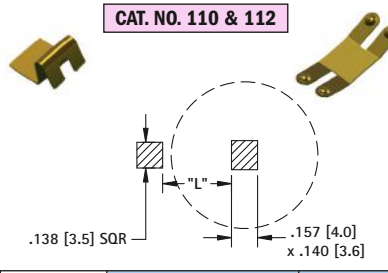
CAT. NO.	BATTERY REFERENCE	L
110 & 118	CR1225	.213 (5.4)
	CR1632	.291 (7.4)

CAT. NO. 120 & 112



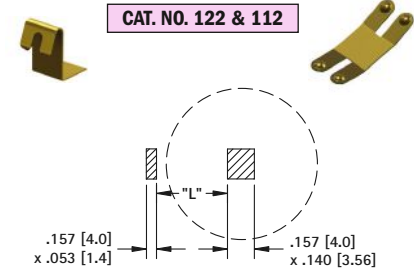
CAT. NO.	BATTERY REFERENCE	L
120 & 112	CR2012, CR2016, CR2020	.336 (8.5)
	CR2320	.395 (10.0)
	CR2412	.414 (10.5)

CAT. NO. 110 & 112



CAT. NO.	BATTERY REFERENCE	L
110 & 112	CR2025, CR2032	.370 (9.4)
	CR2325, CR2330	.429 (10.9)
	CR2430	.448 (11.4)
	CR2032	.567 (14.4)

CAT. NO. 122 & 112



CAT. NO.	BATTERY REFERENCE	L
120 & 112	CR2354	.429 (10.9)
	CR2450, CR2477	.448 (11.4)
	CR3032	.567 (14.4)

SMT BATTERY CONTACT & PAD LAYOUTS

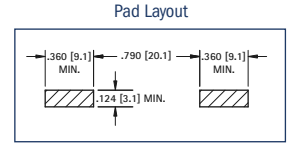
NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.



50
550

CAT. NO.	"L" DIMENSION	
	For "AAAA"	For "A27"
50	0.33 (8.4) × 1.67 (42.4)	0.30 (7.6) × 1.10 (28.0)
550	0.89 (22.6)	0.32 (8.1)

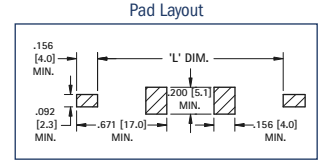
Refer to page 13 for Part Details



55
555

CAT. NO.	"L" DIMENSION		
	For "AAA"	For "N"	For "A23"
55	0.41 (10.4) × 1.75 (44.5)	0.45 (11.4) × 1.14 (29.0)	0.40 (10.2) × 1.10 (27.9)
555	1.76 (44.7)	1.15 (29.2)	1.11 (28.2)

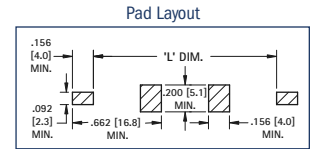
Refer to page 13 for Part Details



53
553

CAT. NO.	"L" DIMENSION		
	For "AA"	For "2/3 A"	For "CR2"
53	0.56 (14.2) × 1.98 (50.3)	0.67 (17.0) × 1.36 (34.5)	0.60 (15.2) × 1.05 (26.7)
553	2.05 (52.1)	1.38 (35.1)	1.04 (26.4)

Refer to page 13 for Part Details

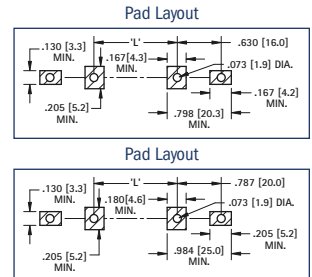


254
246

CAT. NO.	"L" DIMENSION		
	For "2/3 A"	For "18350"	For "18650"
254	0.67 (17.0) × 1.36 (34.5)	0.71 (18.0) × 1.38 (35.0)	0.71 (18.0) × 2.56 (65.0)
246	.270 (6.9)	.324 (8.2)	1.58 (40.2)

CAT. NO.	"L" DIMENSION		
	For "20600"	For "20700"	For "21700"
246	0.79 (20.0) × 2.36 (60.0)	0.79 (20.0) × 2.76 (70.0)	0.83 (21.0) × 2.76 (70.0)
246	1.10 (28.0)	1.50 (38.0)	1.49 (38.0)

Refer to page 13 for Part Details

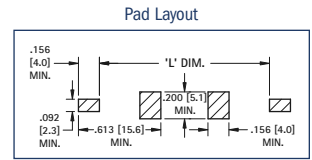


56
556
57
557

CAT. NO.	"L" DIMENSION		
	For "AAA"	For "N"	For "A23"
56	0.41 (10.4) × 1.75 (44.5)	0.45 (11.4) × 1.14 (29.0)	0.4 (10.2) × 1.10 (27.9)
556	1.67 (42.4)	1.07 (27.2)	1.02 (25.9)

CAT. NO.	"L" DIMENSION		
	For "AA"	For "2/3 A"	For "CR2"
57	0.56 (14.2) × 1.98 (50.3)	0.67 (17.0) × 1.36 (34.5)	0.60 (15.2) × 1.05 (26.7)
557	1.90 (48.3)	1.23 (31.2)	0.97 (24.6)

Refer to page 13 for Part Details

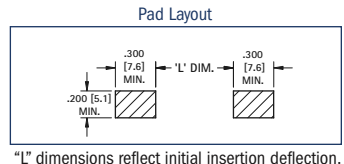


5231
5331
5230
5330

CAT. NO.	"L" DIMENSION		
	For "AA"	For "2/3 A"	For "CR2"
5231	0.56 (14.2) × 1.98 (50.3)	0.67 (17.0) × 1.36 (34.5)	0.60 (15.2) × 1.05 (26.7)
5331	2.38 (60.5)	1.71 (43.4)	1.53 (24.6)

CAT. NO.	"L" DIMENSION				
	For "AAA"	For "N"	For "A23"	For "A27"	For "AAAA"
5230	0.41 (10.4) × 1.75 (44.5)	0.45 (11.4) × 1.14 (29.0)	0.40 (10.2) × 1.10 (27.9)	0.30 (7.6) × 1.10 (27.9)	0.33 (8.4) × 1.67 (42.4)
5330	1.96 (49.8)	1.35 (34.3)	1.31 (33.3)	1.31 (33.3)	1.86 (47.2)

Refer to page 14 for Part Details



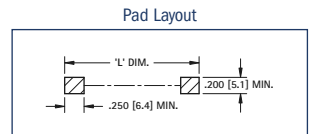
"L" dimensions reflect initial insertion deflection.



1016-1
1020-1

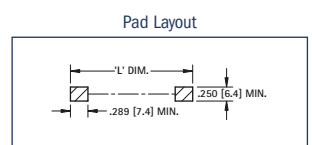
CAT. NO.	"L" DIMENSION				
	For "AAA"	For "N"	For "A27"	For "A23"	For "AAAA"
1020-1	0.41 (10.4) × 1.75 (44.5)	0.45 (11.4) × 1.14 (29.0)	0.30 (7.6) × 1.10 (27.9)	0.33 (8.4) × 1.67 (42.4)	0.33 (8.4) × 1.67 (42.4)
1076-1	2.42 (61.5)	1.81 (46.0)	1.77 (44.9)	2.34 (59.4)	2.34 (59.4)
1076-2					

Refer to page 15 for Part Details



1076-2
1088-2

CAT. NO.	"L" DIMENSION		
	For "AA"	For "2/3 A"	For "CR2"
1016-1	0.56 (14.2) × 1.98 (50.3)	0.67 (17.0) × 1.36 (34.5)	0.60 (14.2) × 1.05 (26.7)
1088-1	2.72 (69.1)	2.10 (53.3)	1.79 (45.5)
1088-2			



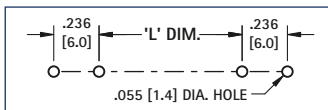
THM BATTERY CLIP & CONTACT LAYOUTS AND MOUNTING DETAILS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.

BATTERY CONTACT LAYOUTS & MOUNTING DETAILS

Refer to page 13 for Part Details

Mounting Detail



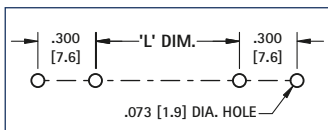
CAT. NO.	"L" DIMENSION	
	For "AAA"	For "A27"
51	0.33 (8.4) × 1.67 (42.4)	0.300 (7.6) × 1.10 (27.9)



51

Refer to page 13 for Part Details

Mounting Detail



CAT. NO.	"L" DIMENSION		
	For "AAA"	For "N"	For "A23"
82	0.41 (10.4) × 1.75 (44.5)	0.45 (11.4) × 1.14 (29.0)	0.40 (10.2) × 1.10 (27.9)



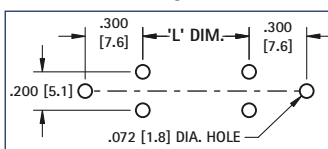
82
92
2915



52

Refer to page 13 for Part Details

Mounting Detail



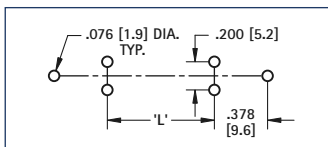
CAT. NO.	"L" DIMENSION			
	For "18650"	For "18350"	For "2/3 A"	For "17500"
54	0.71 (18.4) × 2.56 (65.0)	0.73 (18.5) × 1.38 (35.0)	0.67 (17.0) × 1.36 (34.5)	0.67 (17.0) × 1.97 (50.0)



54

Refer to page 13 for Part Details

Mounting Detail



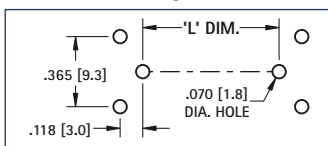
CAT. NO.	"L" DIMENSION		
	For "20600 A"	For "20700"	For "21700"
247	0.79 (20.0) × 2.36 (60.0)	0.79 (20.0) × 2.76 (70.0)	0.83 (21.0) × 2.76 (70.0)



247

Refer to page 14 for Part Details

Mounting Detail



CAT. NO.	"L" DIMENSION		
	For "2/3 A"	For "CR2"	For "AA"
595 with 628	0.67 (17.0) × 1.36 (34.5)	0.60 (15.2) × 1.05 (26.7)	0.56 (14.2) × 1.98 (50.3)



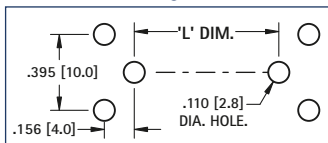
595



628

Refer to page 14 for Part Details

Mounting Detail



CAT. NO.	"L" DIMENSION		
	For "AAA"	For "N"	For "A23"
637 with 629	0.41 (10.4) × 1.75 (44.5)	0.45 (11.4) × 1.14 (29.0)	0.40 (10.2) × 1.10 (27.9)



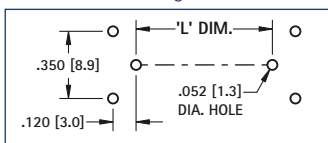
637



629

Refer to page 14 for Part Details

Mounting Detail



CAT. NO.	"L" DIMENSION		
	For "AA"	For "2/3 A"	For "CR2"
596 with 590	0.56 (14.2) × 1.98 (50.3)	0.67 (17.0) × 1.36 (34.5)	0.60 (15.2) × 1.05 (26.7)
590 with 590	2.07 (52.6)	N/A	1.14 (29.0)



596
597



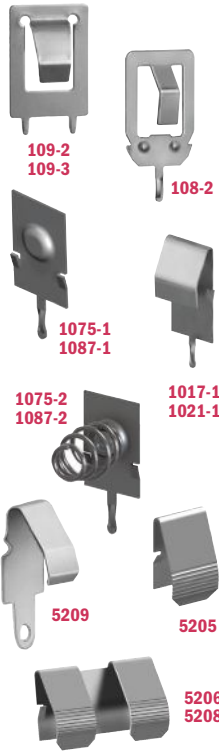
590
591

"L" dimensions reflect initial insertion deflection.

BATTERY CONTACT LAYOUTS AND MOUNTING DETAILS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.

Refer to page 15 & 21 for Part Details



CAT. NO.	FIG. NO.	L DIMENSION					
		For "AA" 0.56 (14.2) × 1.98 (50.3)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)	For "17500"* 0.67 (17.0) × 1.97 (50.0)	For "18350"* 0.71 (18.0) × 1.38 (35.0)	For "18650"* 0.71 (18.0) × 2.56 (65.0)
5205	3	2.28 (57.9)	1.35 (34.3)	1.66 (42.1)	2.27 (57.7)	1.68 (42.7)	2.86 (72.6)
5205 with 5206	3	2.28 (57.9)	N/A	N/A	N/A	N/A	N/A
5209	3	2.34 (59.4)	1.41 (35.8)	1.72 (43.6)	2.33 (59.2)	1.74 (44.2)	2.92 (74.2)
5209 with 5208	3	2.34 (59.4)	N/A	N/A	N/A	N/A	N/A
1017-1 1087-1 1087-2	3	2.19 (55.6)	1.26 (32.0)	1.57 (39.8)	2.18 (55.4)	1.59 (40.4)	2.77 (70.4)

*Built in circuit protection may increase length of battery, check battery specifications for exact battery length

CAT. NO.	FIG. NO.	L DIMENSION				
		For "AAAA" 0.33 (8.4) × 1.67 (42.4)	For "A27" 0.30 (7.6) × 1.10 (27.9)	For "A23" 0.40 (10.2) × 1.10 (27.9)	For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)
1021-1 1075-1 1075-2	3	1.88 (47.8)	1.31 (33.3)	1.31 (33.3)	1.96 (49.8)	1.35 (34.3)

CAT. NO.	FIG. NO.	L DIMENSION				
		For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	For "AA" 0.56 (14.2) × 1.98 (50.3)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "2/3A" 0.67 (17.0) × 1.24 (31.5)
108-2	3	1.99 (50.5)	1.38 (35.0)	2.22 (56.4)	1.29 (32.8)	1.55 (39.4)

CAT. NO.	FIG. NO.	L DIMENSION									
		For "AA" 0.56 (14.2) × 1.98 (50.3)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "2/3 A" 0.67 (17.0) × 1.24 (31.5)	For "17500"* 0.67 (17.0) × 1.97 (50.0)	For "18350"* 0.71 (18.0) × 1.38 (35.0)	For "18650"* 0.71 (18.0) × 2.56 (65.0)	For "C" 0.99 (25.0) × 1.97 (50.0)	For "26650" 1.02 (26.0) × 2.56 (65.0)	For "D" 1.30 (33.0) × 2.24 (56.9)	
1107-1	3	2.19 (55.6)	1.26 (32.0)	1.52 (38.6)	2.18 (55.4)	1.59 (40.4)	2.77 (70.4)	2.18 (55.4)	2.77 (70.4)	2.45 (62.2)	
109-2	3	2.22 (56.4)	1.29 (32.8)	1.55 (39.4)	2.21 (56.1)	1.62 (41.1)	2.80 (71.1)	N/A	N/A	N/A	
109-3	3	N/A	N/A	N/A	N/A	N/A	N/A	2.21 (56.1)	1.62 (41.1)	2.48 (63.0)	

*Built in circuit protection may increase length of battery, check battery specifications for exact battery length

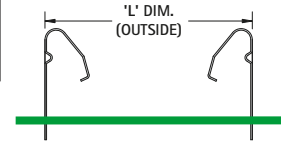


Fig. 3 PC Mount
L dimensions reflect initial insertion deflection.

Refer to page 15 for Part Details



CAT. NO.	FIG. NO.	L DIMENSION				
		For "AAAA" 0.33 (8.4) × 1.67 (42.4)	For "A27" 0.30 (7.6) × 1.10 (27.9)	For "A23" 0.40 (10.2) × 1.10 (27.9)	For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)
230-1	5	1.67 (42.4)	1.10 (27.9)	1.10 (27.9)	1.73 (43.9)	1.14 (29.0)

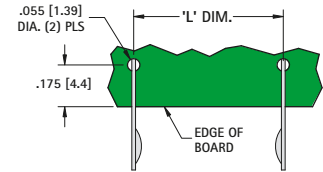
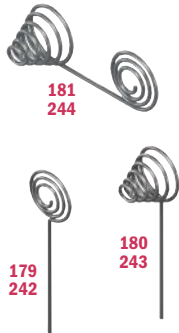


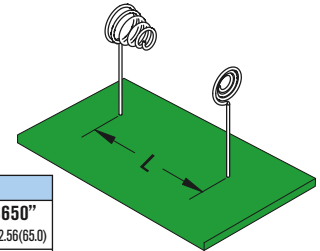
Fig. 5 Off-Board Mount

Refer to page 16 for Part Details

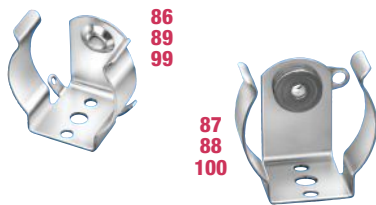


CAT. NO.	L DIMENSION				
	For "AAAA" 0.33 (8.4) × 1.67 (42.4)	For "A27" 0.30 (7.6) × 1.10 (27.9)	For "A23" 0.40 (10.2) × 1.10 (27.9)	For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)
179 180 181	1.88 (47.8)	1.27 (32.3)	1.23 (31.2)	1.23 (31.2)	1.80 (45.7)

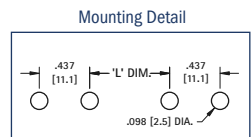
CAT. NO.	L DIMENSION					
	For "AA" 0.56 (14.2) × 1.98 (50.3)	For 2/3 "A" 0.67 (17.0) × 1.36 (34.5)	For "CR2" 0.60 (14.2) × 1.05 (26.7)	For "17500" 0.67 (17.0) × 1.97 (50.0)	For "18350" 0.71 (18.0) × 1.38 (35.0)	For "18650" 0.71 (18.0) × 2.56 (65.0)
242 243 244	2.12 (53.8)	1.50 (38.1)	1.19 (30.2)	2.12 (53.8)	1.52 (38.6)	2.70 (68.6)



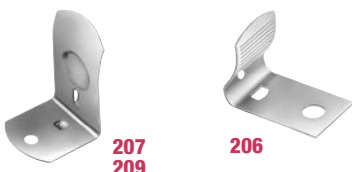
Refer to page 22 for Part Details



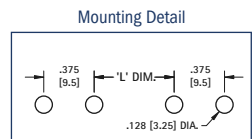
CAT. NO.	"L" DIMENSION		
	For "AA" 0.56 (14.2) × 1.98 (50.3)	For "C" 1.00 (25.4) × 1.97 (50.0)	For "D" 1.30 (33.0) × 2.42 (61.5)
99	0.91 (23.0)	-	-
100	-	-	-
86	-	0.91 (23.0)	-
87	-	-	1.19 (30.2)
88	-	-	-
89	-	-	-



Refer to page 22 for Part Details



CAT. NO.	"L" DIMENSION		
	For "AA" 0.56 (14.2) × 1.98 (50.3)	For "C" 1.00 (25.4) × 1.97 (50.0)	For "D" 1.30 (33.0) × 2.42 (61.5)
206	1.10 (27.9)	-	-
207	-	0.81 (20.6)	-
208	-	-	1.25 (31.8)



BATTERY LAYOUTS FOR MOLDED CASE CONTACTS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.

Refer to pages 20 & 21 for Part Details

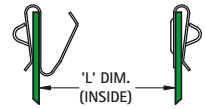
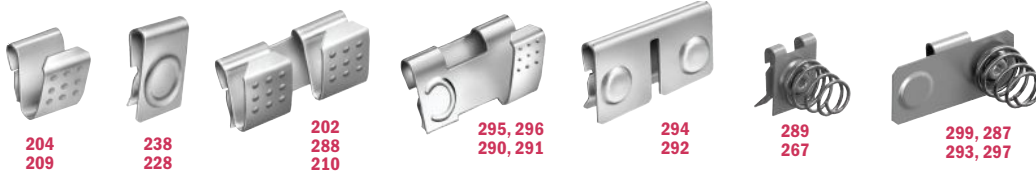


Fig. 1 Spring-Button

L dimensions reflect initial insertion deflection.

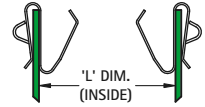


Fig. 2 Spring-Spring

L dimensions reflect initial insertion deflection.

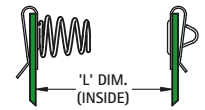


Fig. 3 Spring-Button

L dimensions reflect initial insertion deflection.

CAT. NO.	FIG. NO.	L DIMENSION					
		For "AAAA" 0.33 (8.4) × 1.67 (42.4)	For "A 27" 0.30 (7.7) × 1.10 (28.0)	For "A23" 0.39 (10.0) × 1.10 (28.0)	For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	
204 with 238	1	1.79 (45.5)	1.22 (31.0)	1.22 (31.0)	1.87 (47.5)	1.26 (32.0)	
204,238 with 295, 296	1	N/A	N/A	N/A	1.87 (47.5)	N/A	
202 with 294	1	N/A	N/A	N/A	1.87 (47.5)	N/A	
204 with 204	2	1.89 (48.0)	1.32 (33.5)	1.32 (33.5)	1.97 (50.0)	1.36 (34.5)	
204 with 202	2	N/A	N/A	N/A	1.97 (50.0)	N/A	
267 with 238	3	1.86 (47.2)	1.29 (32.8)	1.29 (32.8)	1.94 (49.3)	1.33 (33.8)	
267, 238 with 299, 287	3	N/A	N/A	N/A	1.94 (49.3)	N/A	

CAT. NO.	FIG. NO.	L DIMENSION						
		For "AA" 0.56 (14.2) × 1.98 (50.3)	For "CR2" 0.60 (14.2) × 1.05 (26.7)	For "2/3 A" 0.67 (17.0) × 1.34 (34.5)	For "17500" 0.671 (17.0) × 1.97 (50.0)	For "18350" 0.71 (18.0) × 1.38 (35.0)	For "18650" 0.71 (18.0) × 2.56 (65.0)	
209 with 228	1	2.13 (54.1)	1.20 (30.5)	1.46 (37.1)	2.12 (53.8)	1.53 (38.8)	2.71 (68.8)	
209, 228 with 290, 291	1	2.13 (54.1)	N/A	N/A	N/A	N/A	N/A	
288, 210 with 292	1	2.13 (54.1)	N/A	N/A	N/A	N/A	N/A	
209 with 209	2	2.27 (57.7)	1.34 (34.0)	1.60 (40.6)	2.26 (57.4)	1.67 (42.3)	2.85 (72.3)	
209 with 288, 210	2	2.27 (57.7)	N/A	N/A	N/A	N/A	N/A	
289 with 228	3	2.24 (56.9)	1.31 (33.3)	1.62 (41.1)	2.23 (56.6)	1.64 (41.6)	2.82 (71.6)	
289, 228 with 293, 297	3	2.24 (56.9)	N/A	N/A	N/A	N/A	N/A	

*Built in circuit protection may increase length of battery, check battery specifications for exact battery length

Refer to pages 17 thru 19 for Part Details

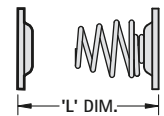


Fig. 4

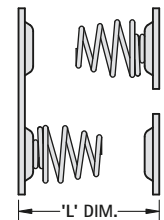


Fig. 5

CAT. NO.	FIG. NO.	"L" DIMENSION				
		For "AAAA" 0.33 (8.4) × 1.67 (42.4)	For "A27" 0.30 (7.6) × 1.10 (27.9)	For "A23" 0.40 (10.2) × 1.10 (27.9)	For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)
5203 with 5225	4	1.87 (47.5)	1.30 (33.0)	1.30 (33.0)	1.95 (49.5)	1.34 (34.0)
5204 with 5226	4	1.87 (47.5)	1.30 (33.0)	1.30 (33.0)	1.95 (49.5)	1.34 (34.0)
5214, 5213 with 5203, 5225	5	N/A	N/A	N/A	1.95 (49.5)	N/A

CAT. NO.	FIG. NO.	"L" DIMENSION						
		For "AA" 0.56 (14.2) × 1.98 (50.3)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)	For "17500" 0.67 (17.0) × 1.97 (50.0)	For "18350" 0.71 (18.0) × 1.38 (35.0)	For "18650" 0.71 (18.0) × 2.56 (65.0)	
5202 with 5224	4	2.23 (56.6)	1.30 (33.0)	1.61 (40.9)	2.22 (56.5)	1.63 (41.4)	2.81 (71.4)	
5222 with 5221	4	2.24 (56.9)	1.31 (33.3)	1.62 (41.1)	2.23 (56.6)	1.64 (41.7)	2.82 (71.6)	
5201 with 5223	4	2.24 (56.9)	1.31 (33.3)	1.62 (41.1)	2.23 (56.6)	1.64 (41.7)	2.82 (71.6)	
5220 with 5219	4	2.24 (56.9)	1.31 (33.3)	1.62 (41.1)	2.23 (56.6)	1.64 (41.7)	2.82 (71.6)	
5201, 5223 with 5210, 5211	5	2.24 (56.9)	N/A	N/A	N/A	N/A	N/A	
5222, 5221 with 5212	5	2.24 (56.9)	N/A	N/A	N/A	N/A	N/A	
5220, 5219 with 5217, 5218	5	2.24 (56.9)	N/A	N/A	N/A	N/A	N/A	
5227 with 5228	5	2.24 (56.9)	N/A	N/A	N/A	N/A	N/A	

CAT. NO.	FIG. NO.	"L" DIMENSION		
		For "C" 0.99 (25.0) × 1.97 (50.0)	For "26650" 1.02 (26.0) × 2.56 (65.0)	For "D" 1.30 (33.0) × 2.24 (56.9)
5240 with 5241	4	2.25 (57.2)	3.07 (78.0)	N/A
5250 with 5251	4	N/A	N/A	2.75 (69.9)
5240, 5241 with 5242	5	2.25 (57.2)	N/A	N/A
5250, 5251 with 5252, 5253	5	N/A	N/A	2.75 (69.9)

*Built in circuit protection may increase length of battery, check battery specifications for exact battery length



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Check Availability

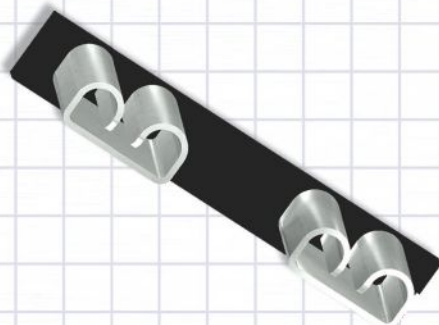
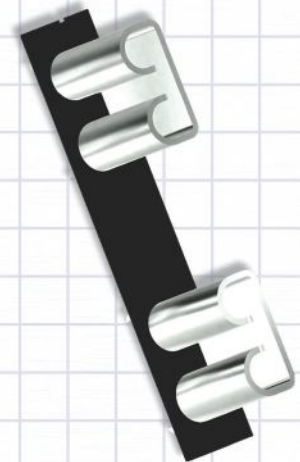
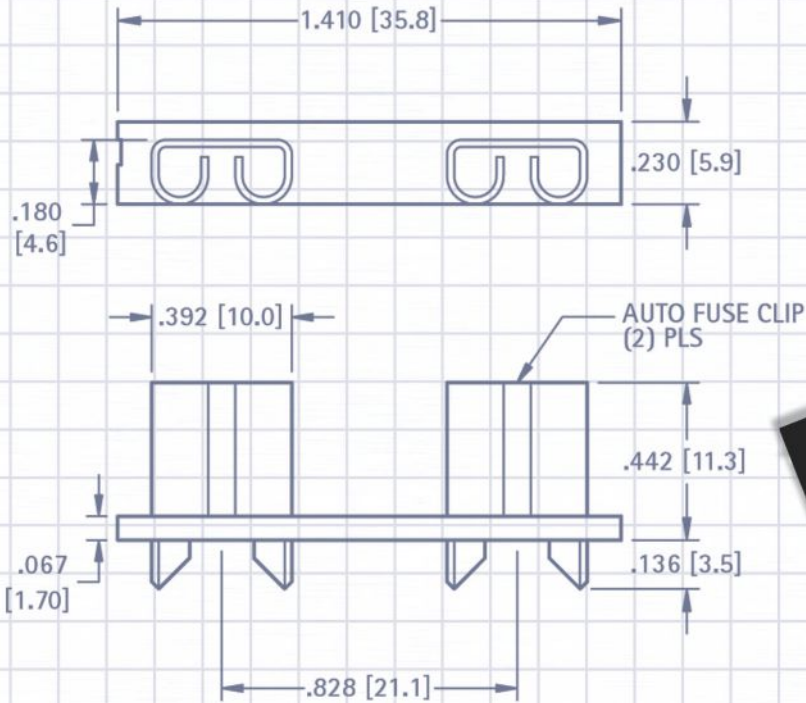
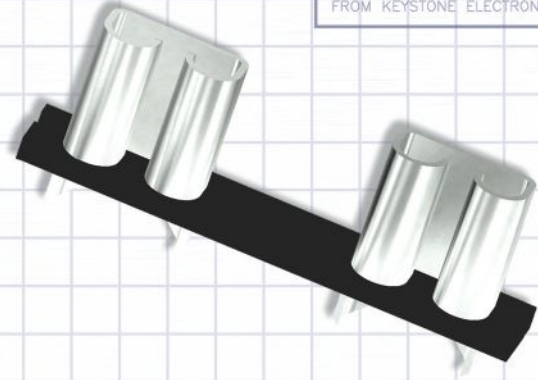
Battery Clips, Contacts & Holders

Certified Quality & Proven Performance
ISO 9001:2015 Quality System

THINK Design Solutions with Keystone Battery Holders

View More

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FUSE CLIPS & HOLDERS

Our comprehensive line of fuse clips, contacts and holders are ideally suited for use in today's industrial, electronic and automotive devices. Applications include:

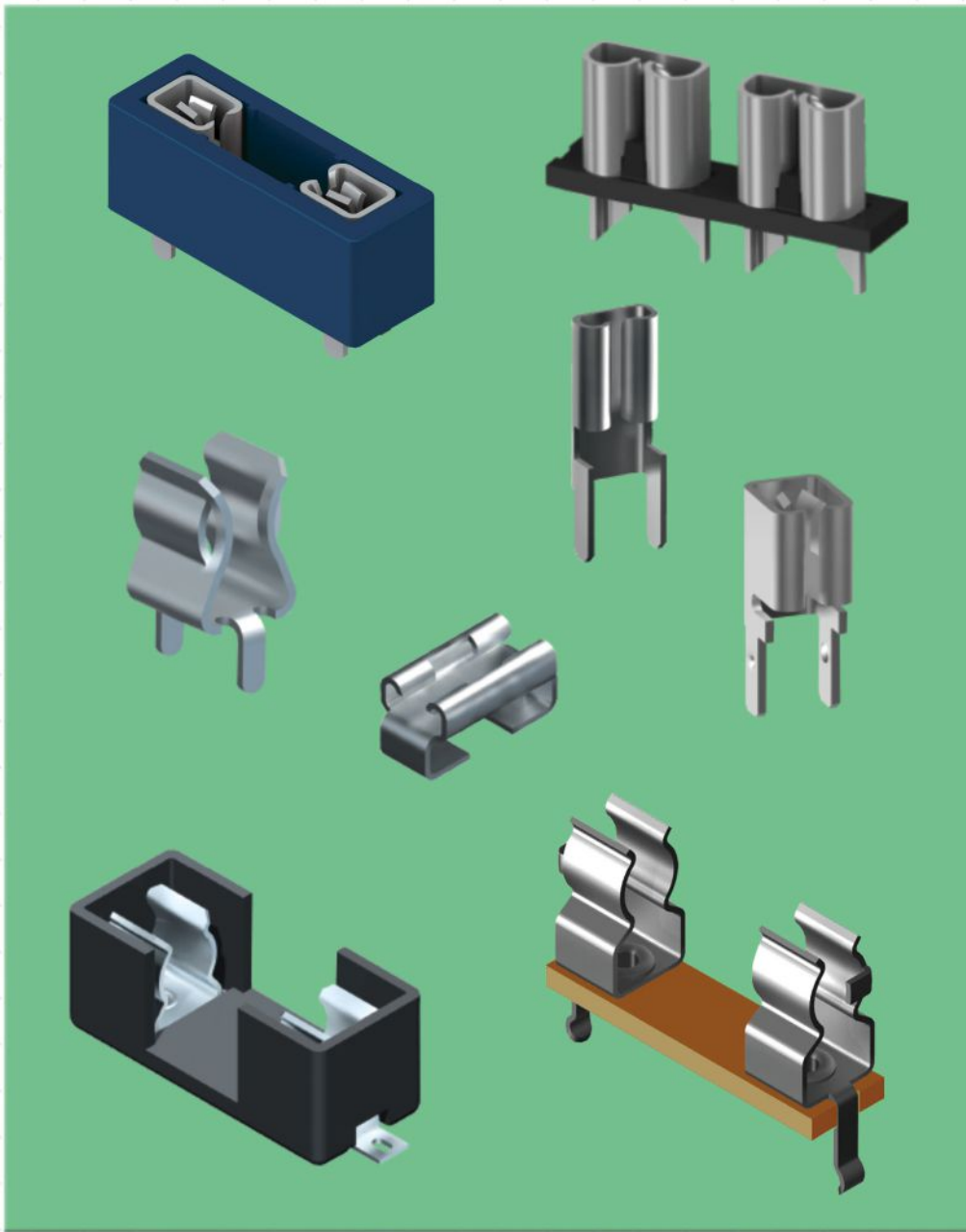
- Delicate microcircuitry
- Consumer Electronics
- Telecom and Datacom devices
- Mini, Low Profile, Standard & Maxi Blade Automotive Fuses
- High Shock and Vibration applications
- High Amperage applications
- Solar and Wind applications
- UL approved devices

Our quality system is ISO 9001:2015 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE

DESCRIPTION

REV.



SECTION 2 CONTENTS

AUTOMOTIVE FUSE CLIPS

Low Profile	47-49
Maxi	46
Mini	47-49
Standard	47-49

AUTOMOTIVE FUSE HOLDERS

Low Profile	47-49
Maxi	46
Mini	47-49
Standard	46-49

CYLINDRICAL FUSE COVERS.....51

CYLINDRICAL FUSE CLIPS

5mm	52
2AG thru 8AG	52-23
5AG, Midget, SPF	52

CYLINDRICAL FUSE HOLDERS

5mm	50
2AG thru 8AG	50-51
5AG, Midget, SPF	51


SUBMINIATURE FUSE HOLDERS

Cylindrical, Rectangular	51
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MOUNTING DETAILS.....54-56

AUTOMOTIVE BLADE FUSE CLIP & HOLDERS

Underwriters Laboratories, Inc.
Recognized Component Program –
UL File Number E354010



UL file number E354010 has been assigned to Keystone Electronics' automotive fuse clip and holders. (Refer to pages 44-47) Indicating recognition by Underwriters Laboratories Inc. that they are in compliance with their component program.

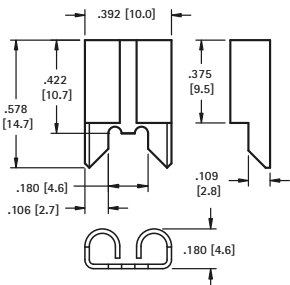
- Clips & holders available for Mini, Standard, Low Profile & Maxi Auto Blade fuses
- Horizontal and vertical fuse clips and holder options
- Holds fuse securely, even after multiple insertions
- THM components maintain position during wave soldering
- SMT components available on tape and reel for automated assembly

“MAXI” AUTOMOTIVE FUSE CLIP & HOLDER

FOR .312 (7.9) × .032 (.80) MAXI BLADE FUSES

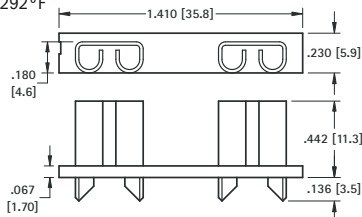
For Littelfuse Maxi 299 series/Bussmann Max series or equivalent

- Thru hole PC mountable, maintains position during wave soldering
- Holder design prevents solder wicking
- Withstands the rigors of shock and vibration
- Holds fuse securely, even after multiple insertions

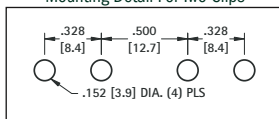


SPECIFICATIONS

Contacts: .020 (.51) Copper, Tin-Nickel Plate
Insulator: Glass filled Nylon, UL Rated 94V-0
UL Current Rating: 50 Amps @ 500V AC
UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)



Mounting Detail For Two Clips



CAT. NO. 3555

CAT. NO. 3555-2

MODULAR AUTOMOTIVE BLADE FUSE HOLDERS

FOR .205 (5.2) × .025 (.64) STANDARD BLADE FUSES

For Littelfuse ATOF 287 series/Bussmann ATC series or equivalent

SPECIFICATIONS

Contacts: Brass, Tin Plate
Body: Nylon
Current Rating: 30 Amps @ 500V AC (Non-UL Rated)
Temperature Rating: -58°F to +292°F (-50°C to +145°C)

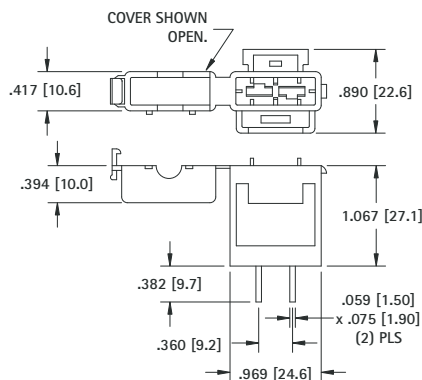
- Designed for standard auto blade fuses
- Fully insulated compact design
- Mounts easily in pre-drilled or punched hole
- Holder has pocket to hold spare fuse
- Safety lever release clip will not open under shock or vibration
- Fuses are installed and removed easily
- May be used individually or easily interlocked for multiple mounting



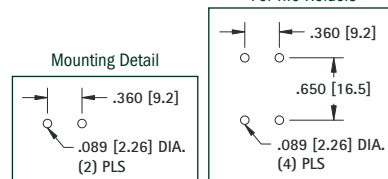
3560 (Shown with two 3560 holders, interlocked)



3559 (14 gauge wire lead must be cut and spliced for in-line use)



Mounting Detail For Two Holders



CAT. NO. 3560 (PC Mount) *

CAT. NO. 3559 (In Line) *

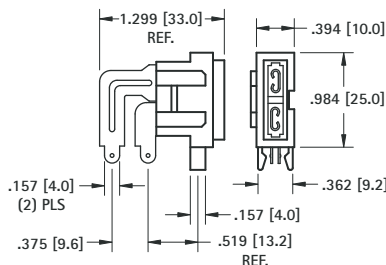
SPECIFICATIONS

Contacts: Brass, Tin Plate
Body: Nylon
Current Rating: 30 Amps @ 500V AC (Non-UL Rated)
Temperature Rating: -58°F to +292°F (-50°C to +145°C)

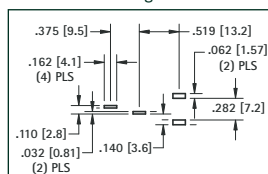
- Fully insulated fuse mount
- Designed for standard auto blade fuses
- Mounts easily in punched hole
- Fuses are installed and removed easily
- May be used individually or easily interlocked for multiple mounting



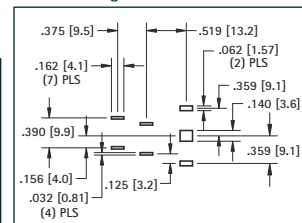
CAT. NO. 3558 *



Mounting Detail



Mounting Detail For Two Holders



*Modular Fuse Holders are not UL recognized

“AUTO” FUSE CLIPS & HOLDERS

FOR .205 (5.2) × .025 (.64) STANDARD BLADE FUSES

For Littelfuse ATOF 287 series/Bussmann ATC series or equivalent

- Holds fuse securely, even after multiple insertions
- Thru hole-mount, maintains position during wave soldering
- Withstands the rigors of shock and vibration
- Holder design prevents solder wicking

VERTICAL FUSE ENTRY

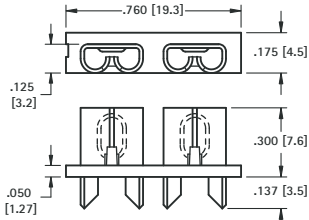
SPECIFICATIONS

Contacts: .016 (.41) Brass, Tin-Nickel Plate

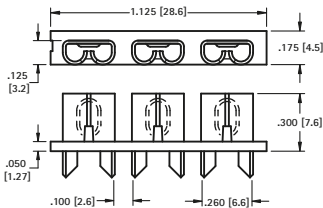
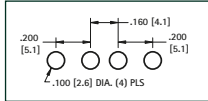
Insulator: Glass filled Nylon, UL Rated 94V-0

UL Current Rating: 20 Amps @ 500V AC

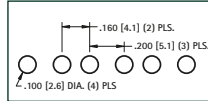
UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)



Mounting Detail For Two Clips



Mounting Detail For Two Clips



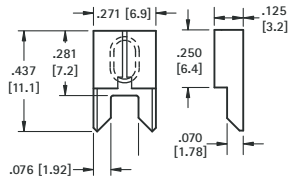
3522-2

3522-3

CAT. NO. 3522-2

CAT. NO. 3522-3

VERTICAL ENTRY

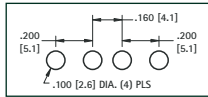


SPECIFICATIONS

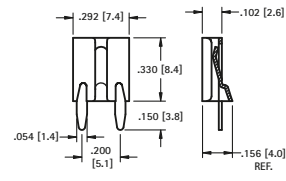
Contacts: .016 (.41) Brass

UL Current Rating: 30 Amps @ 500 VAC

Mounting Detail For Two Clips



LOW INSERTION FORCE



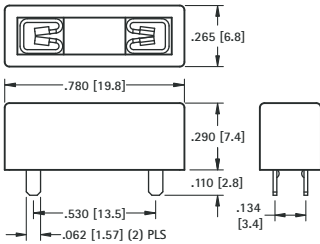
CAT. NO. 3522 Tin-Nickel Plate

CAT. NO. 3573 Matte Tin Plate

2 IN 1 FUSE HOLDER

For Littelfuse ATOF 287 series/Bussmann ATC series, Littelfuse Low Profile Mini (LP) series or equivalents

- Low insertion force
- Fuse holder fully insulates clips to protect fuse from shorting
- Holder assures proper spacing and reduces assembly time
- Thru hole PC mountable, maintains position during wave soldering



SPECIFICATIONS

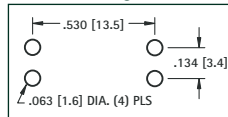
Contacts: .016 (.41) Brass, Tin-Nickel Plate

Insulator: Nylon 4/6, UL Rated 94V-0

UL Current Rating: 30 Amps @ 500V AC

UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)

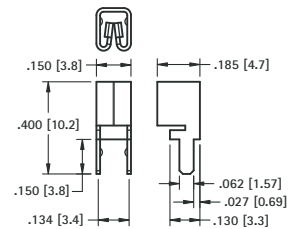
Mounting Detail



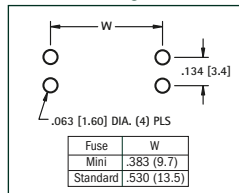
UNIVERSAL CLIP

For Littelfuse ATOF 287 series/Bussmann ATC series, Littelfuse Mini 297 or 997 series/Bussmann ATM series, Littelfuse Low Profile Mini (LP) series or equivalents

- Accepts most Auto-Blade Fuses
- Low insertion force
- Thru hole PC mountable, maintains position during wave soldering



Mounting Detail



CAT. NO.	COLOR	FUSE REF.
3557-2	Black	-
3557-10	Red	10 Amp
3557-15	Blue	15 Amp
3557-20	Yellow	20 Amp

All colors UL rated for 30 Amp.

CAT. NO. 3557 - Top Entry

CAT. NO. 3577 - Bottom Entry

HORIZONTAL FUSE ENTRY

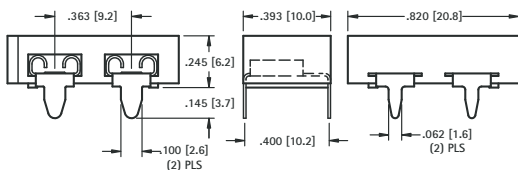
- Designed for low height clearance applications
- Fuse will be inserted parallel to board
- Thru hole mount, maintains position during wave soldering
- Fuse holder fully insulates clips to protect fuse from shorting
- Holder assures proper spacing and reduces assembly time
- Polarized legs assure proper orientation of clips onto board

SPECIFICATIONS

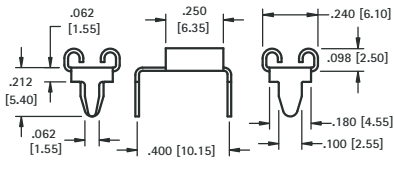
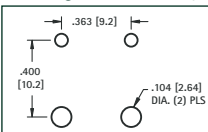
Contacts: .012 (.30) Brass

Insulator: Nylon, UL Rated 94V-0

UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)



Mounting Detail For Two Clips



CAT. NO. 3550-2 Tin Plate **UL Current Rating:** 20 Amps @ 500V AC

UL Current Rating: 30 Amps @ 500V AC **CAT. NO. 3550** Tin-Nickel Plate

For .110 (2.8) x .032 (.80) MINI BLADE FUSES

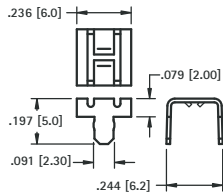
For Littelfuse Mini 297 or 997 series/Bussmann ATM series or equivalent

VERTICAL FUSE ENTRY

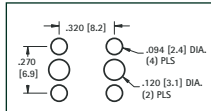
Thru Hole Mount



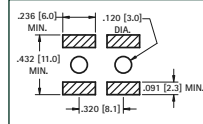
- Low Profile



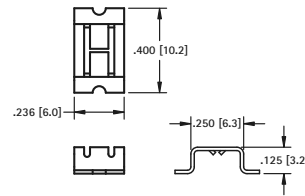
Mounting Detail For Two Clips



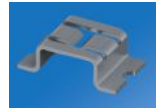
Pad Layout For Two Clips



AVAILABLE ON TAPE AND REEL



Surface Mount



- Low Profile

CAT. NO. 3583 (Bulk)

CAT. NO. 3583KTR (Tape & Reel)

Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (1500 pieces per reel)

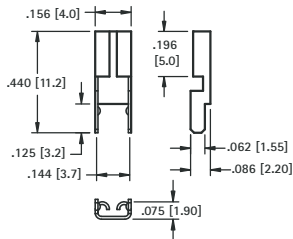
CAT. NO. 3564

SPECIFICATIONS

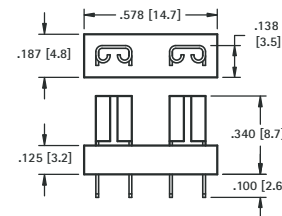
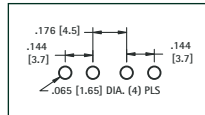
Material: .012 (.30) Brass

Insulator: Glass filled Nylon, UL Rated 94V-0

UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)



Mounting Detail For Two Clips



CAT. NO. 3544 Tin-Nickel Plate UL Current Rating: 30 Amps @ 500V AC

UL Current Rating: 20 Amps @ 500V AC CAT. NO. 3544-2 Tin Plate

LOW PROFILE MINI FUSE HOLDER

For Littelfuse Low Profile Mini (LP) series or equivalent

- Low insertion force
- Thru hole PC mountable, maintains position during wave soldering
- Fuse holder fully insulates clips to protect fuse from shorting
- Holder assures proper spacing and reduces assembly time

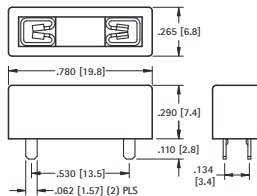
SPECIFICATIONS

Contacts: .016 (.41) Brass, Tin-Nickel Plate

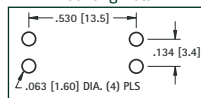
Insulator: Nylon 4/6, UL Rated 94V-0

UL Current Rating: 30 Amps @ 500V AC

UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)

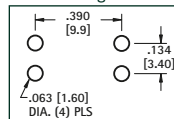


Mounting Detail



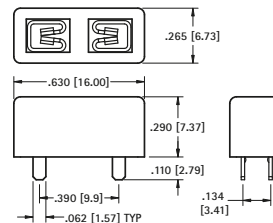
Refer to page 45 for Cat. No. 3557 Clip details

Mounting Detail



MINI FUSE HOLDER

For Littelfuse Mini 297 or 997 series/Bussmann ATM or equivalents



CAT. NO.	COLOR	FUSE REF.
3557-2	Black	-
3557-10	Red	10 Amp
3557-15	Blue	15 Amp
3557-20	Yellow	20 Amp

All colors UL rated for 30 Amp.

CAT. NO.	COLOR	FUSE REF.
3568	Black	-
3568-10	Red	10 Amp
3568-15	Blue	15 Amp
3568-20	Yellow	20 Amp

All colors UL rated for 30 Amp.

HORIZONTAL FUSE ENTRY

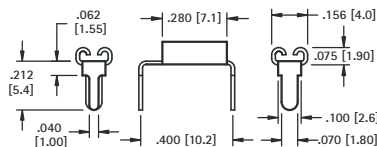
For Littelfuse Mini 297 or 997 series/Bussmann ATM series or equivalent

SPECIFICATIONS

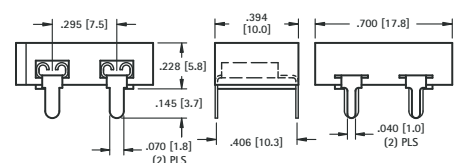
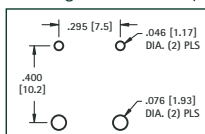
Contacts: .012 (.30) Brass

Insulator: Nylon 6/6, UL Rated 94V-0

UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)



Mounting Detail For Two Clips



CAT. NO. 3549 Nickel Plate UL Current Rating: 30 Amps @ 500V AC

UL Current Rating: 20 Amps @ 500V AC CAT. NO. 3549-2 Tin Plate

SMT "AUTO" BLADE FUSE HOLDERS

- Compatible with most vacuum and mechanical pick and place assembly systems
- Fully insulated clips to protect fuses against shorting
- One piece assembly reduces assembly time
- Withstands shock and vibration

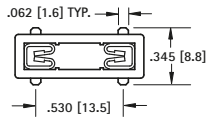
SPECIFICATIONS

Contacts: .016 (.41) Brass, Matte Tin Plate
Insulator: High Temperature Nylon 46, UL 94V-0
UL Temperature Rating: -58°F to +292°F (-50°C to +145°C)
UL Current Rating: 20 Amps @ 500V AC

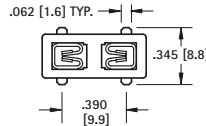
AVAILABLE ON TAPE AND REEL



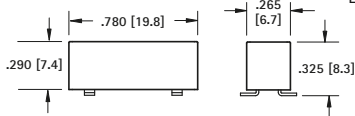
2 in 1 FUSE HOLDER



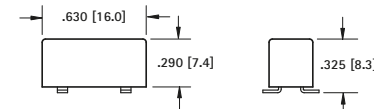
MINI FUSE HOLDER



For Standard: Littelfuse: ATOF series/ Bussmann ATC series.



For Low Profile: Littelfuse: 891 series/ Bussmann ATM-LP series

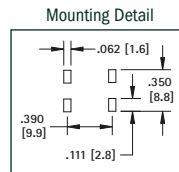
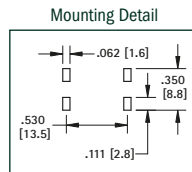


For Mini: Littelfuse: MIN series/Bussmann ATM series or equivalent

CAT. NO. BULK	ON TAPE & REEL	COLOR	FUSE REF.
3587	3587TR	Black	-
3587-10	3587-10TR	Red	10 Amp
3587-15	3587-15TR	Blue	15 Amp
3587-20	3587-20TR	Yellow	20 Amp

All colors UL rated for 20 Amp.

Tape & Reel Spec's: 32mm wide, 16mm pitch, 13 inch reel (500 pieces per reel)



CAT. NO. BULK	ON TAPE & REEL	COLOR	FUSE REF.
3588	3588TR	Black	-
3588-10	3588-10TR	Red	10 Amp
3588-15	3588-15TR	Blue	15 Amp
3588-20	3588-20TR	Yellow	20 Amp

All colors UL rated for 20 Amp.

Tape & Reel Spec's: 32mm wide, 16mm pitch, 13 inch reel (500 pieces per reel)

SMT "AUTO" BLADE FUSE CLIPS

- Compatible with most vacuum and mechanical pick and place assembly systems
- KTR parts have Kapton Tape added to top service for vacuum pick & place

- Accepts Standard and Mini blade Automotive blade fuses
- Clip with Matte-Tin plate is ideal for low temperature soldering applications, for other temperature sensitive components

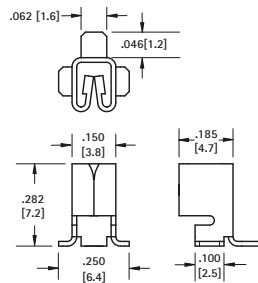
- Clips with Tin-Nickel plate are ideal for lead free, high temperature soldering applications

AVAILABLE ON TAPE AND REEL

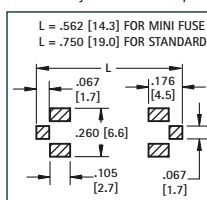
VERTICAL ENTRY



For Mini: Littelfuse: MIN series/Bussmann ATM series.
For Standard: Littelfuse: ATOF series/Bussmann ATC series.
For Low Profile: Littelfuse: 891 series/Bussmann ATM-LP series



Pad Layout For Two Clips



SPECIFICATIONS

Material: .016 (.41) Brass, Tin-Nickel Plate
UL Current Rating: 30 Amps @ 500V AC

CAT. NO. 3586 (Bulk)

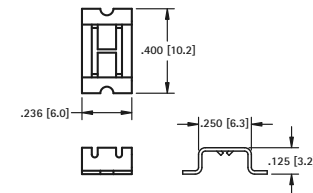
CAT. NO. 3586KTR (Tape & Reel)

Tape & Reel Spec's: 16mm wide, 12mm pitch, 13 inch reel (750 pieces per reel)

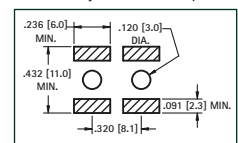
VERTICAL ENTRY



For Mini: Littelfuse: MIN series/Bussmann ATM series or equivalent



Pad Layout For Two Clips



SPECIFICATIONS

Material: .016 (.41) Brass, Matte Tin Plate
UL Current Rating: 15 Amps @ 500V AC

CAT. NO. 3583

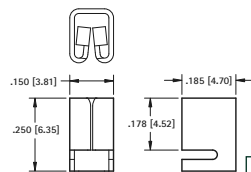
CAT. NO. 3583KTR (Tape & Reel)

Tape & Reel Spec's: 24mm wide, 12mm pitch, 13 inch reel (1500 pieces per reel)

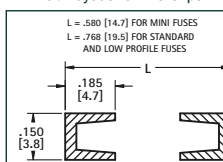
VERTICAL ENTRY



For Mini: Littelfuse: MIN series/Bussmann ATM series.
For Standard: Littelfuse: ATOF series/Bussmann ATC series.
For Low Profile: Littelfuse: 891 series/Bussmann ATM-LP series



Pad Layout For Two Clips



SPECIFICATIONS

Material: .018 (.41) Brass, Tin-Nickel Plate
UL Current Rating: 30 Amps @ 500V AC

CAT. NO. 3584* (Bulk)

CAT. NO. 3584KTR* (Tape & Reel)

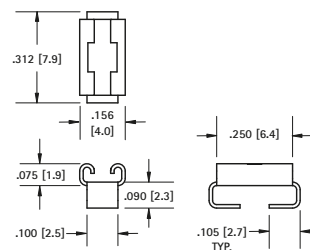
Tape & Reel Spec's: 16mm wide, 12mm pitch, 13 inch reel (750 pieces per reel)

* Cat. No. 3584 is not UL Listed

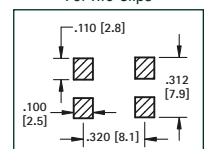
HORIZONTAL ENTRY



For Mini: Littelfuse: MIN series/Bussmann ATM series or equivalent



Mounting Detail For Two Clips



SPECIFICATIONS

Material: .012 (.30) Brass, Matte Tin Plate
UL Current Rating: 20 Amps @ 500V AC

CAT. NO. 3569 (Bulk)

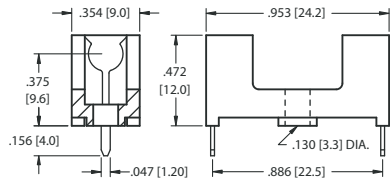
CAT. NO. 3569TR (Tape & Reel)

Tape & Reel Spec's: 24mm wide, 8mm pitch, 13 inch reel (1000 pieces per reel)

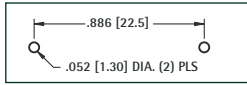
5mm x 20mm FUSE HOLDERS

5mm & 3AG FUSE HOLDERS

SLIM LINE



Mounting Detail



SPECIFICATIONS

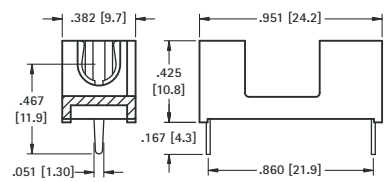
Base & Cover: Nylon,
UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 5 Amps @ 250V AC

CAT. NO. 4628 - Holder

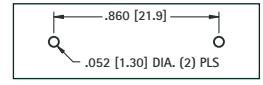
CAT. NO. 4628C - Cover only (with window)

- Optional cover with window protects and insulates fuse
- Flame Retardant
- Not UL rated

LOW PROFILE



Mounting Detail



SPECIFICATIONS

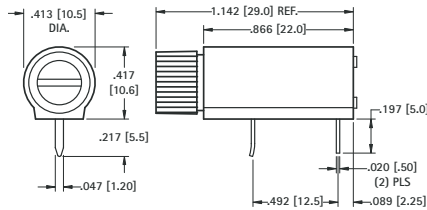
Base & Cover: Nylon,
UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 5 Amps @ 250V AC

CAT. NO. 4527 - Holder

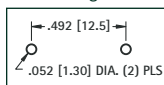
CAT. NO. 4527C - Cover only

- Low profile, space saving design
- Optional cover protects and insulates fuse
- Flame Retardant
- Not UL rated

FULLY INSULATED



Mounting Detail



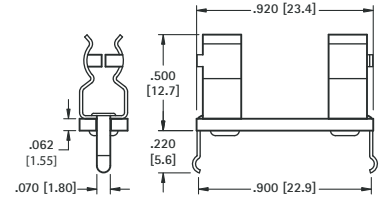
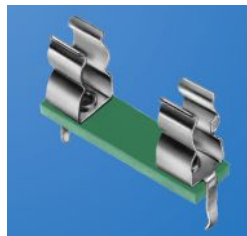
SPECIFICATIONS

Base: PBT
Contacts: Brass, Tin Plate
Rated: 10 Amps @ 250V AC

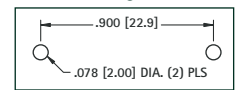
CAT. NO. 4525

- Supplied unassembled
- Shock resistant
- Fuse can be accessed from board edge
- Fuse is completely enclosed, protecting use from shorting and breaking
- Not UL rated

PC SNAP-IN



Mounting Detail



SPECIFICATIONS

Base: .062 (1.57) FR-4, UL Rated 94V-0
Clips: Brass, Tin Plate
UL Rated: 6.3 Amps @ 250V AC

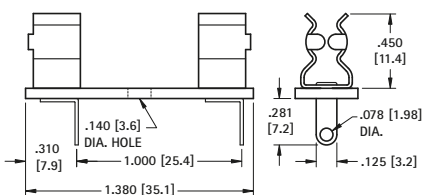
CAT. NO. 3527 - Holder

- Snap-in design for wave soldering
- Flame Retardant
- Optional cover protects and insulates fuse - **Cat. No. 3527C**

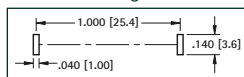
3AG FUSE HOLDERS



TERMINATION LUGS CAN BE USED WITH WIRES OR PC MOUNT



Mounting Detail



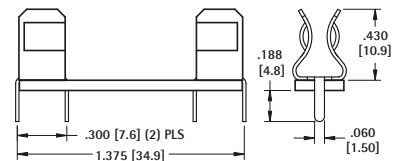
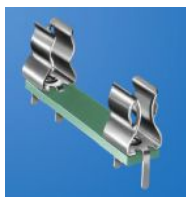
SPECIFICATIONS

Base: .062 (1.57) FR-4, UL Rated 94V-0
Clips: Brass, Tin Plate
UL Rated: 15 Amps @ 500VAC

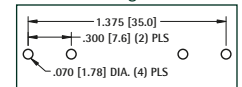
CAT. NO. 3526

Optional cover available - **Cat. No. 4245C**

PRESS-FIT, IDEAL FOR WAVE SOLDERING



Mounting Detail



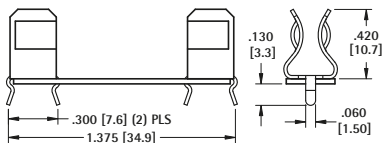
SPECIFICATIONS

Base: .062 (1.57) FR-4, UL Rated 94V-0
Clips: Brass, Tin Plate
UL Rated: 15 Amps @ 500VAC

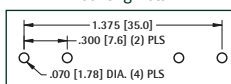
CAT. NO. 4245

Optional cover available - **Cat. No. 4245C**

SNAP-IN DESIGN ASSURES STABILITY DURING WAVE SOLDERING



Mounting Detail



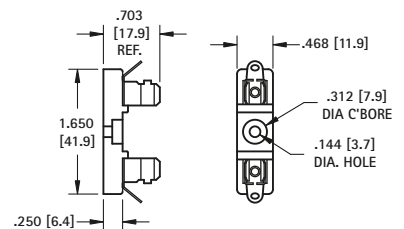
SPECIFICATIONS

Base: .032 (.79) FR-4, UL Rated 94V-0
Clips: Brass, Tin Plate
UL Rated: 15 Amps @ 500VAC

CAT. NO. 4250

Optional cover available - **Cat. No. 4245C**

MOLDED CASE



SPECIFICATIONS

Base: LCP, UL Rated 94V-0
Clips: Brass - Nickel Plated
UL Rated: 15 Amps @ 250 VAC

CAT. NO. 3523

Optional cover available - **Cat. No. 4245C**

Mounting Hole:
.144 (3.7) Dia.

MIDGET, SPF (5AG) FUSE HOLDER

- Designed for SPF (Solar Protection Fuse)
- Optional cover will protect and insulate fuse
- Flame resistant

SPECIFICATIONS

Base & Cover: Nylon 46, UL Rated 94V-0

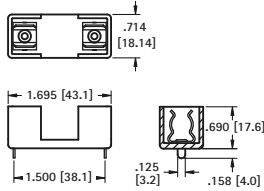
UL Rated: 30 Amps @ 500 VAC

Clips: .030 (.76) Brass, Matte Tin Plate

UL Operating Temp. Range: -58°F to +292°F (-50°C to +145°C)

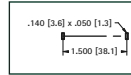


3576 (THM)

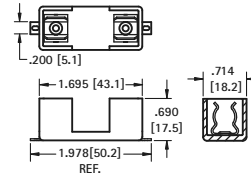
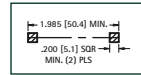


Optional Cover **Cat. No. 3576C** fits Cat. No. 3576 & 3574

Mounting Detail



Mounting Detail



3574 (SMT)



CAT. NO. 3574 - Holder

CAT. NO. 3576C - Cover only

CAT. NO. 3576 - Holder

CAT. NO. 3576C - Cover only

3AG FUSE BLOCKS

- Available with fiberglass or phenolic base
- Fuse clips riveted to base for rugged applications

SPECIFICATIONS

Phenolic Base: XP, Black UL Rated 94-HB

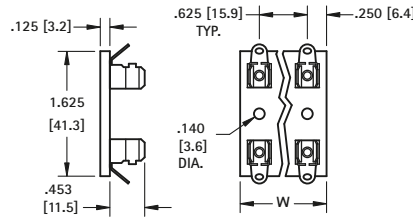
Fiberglass Base: GPO-3 UL Rated 94 V-0

Clips: .020 (.51) Brass - Nickel Plated

Rated: 15 Amps @ 500 VAC

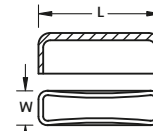
Operating Temp. Range: -58°F to +292°F (-50°C to +145°C)

BLACK PHENOLIC	FIBER-GLASS	HOLDS NO. OF FUSES	W
CAT. NO. 3536*	CAT. NO. 3540*	1	.500 (12.7)
3537*	3541*	2	1.125 (28.6)
3538*	3542*	3	1.750 (44.5)
3539*	3543*	4	2.375 (60.3)



FUSE COVERS

- Made from flame retardant material
- Protects fuse from shorting and minor bumps



MATERIAL: PVC, UL Listed 94V-0

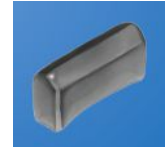
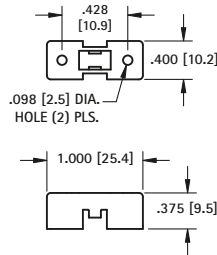
CAT. NO.	FUSE SIZE	L	W	H
3527C	5mm x 20mm	.945 (24.0)	.314 (8.0)	.512 (13.0)
3521C	2AG	.787 (20.0)	.295 (7.5)	.452 (11.5)
4245C	3AG	1.319 (33.5)	.472 (12.0)	.591 (15.0)



Can be used with clips 3512, 3512P, 3517 and 3518

MATERIAL: ABS, UL Rated 94V-0

CAT. NO.	FUSE SIZE
3517C	5mm x 20mm



Can be used with clips or fuse holders

SUBMINIATURE FUSE HOLDERS

- Reliable spring tension assures low contact resistance
- Fuse holders allow for quick changing of subminiature fuses
- Ideal for high density circuit board applications

SPECIFICATIONS

Base: Thermoplastic, UL Rated 94V-0

Springs: Beryllium Copper, Gold Plate

Pins: Brass, Tin Plate

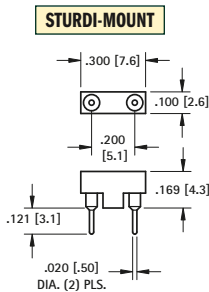
Current Rating: 5 Amps @ 250V AC

.335 (8.5) x .158 (4.0) FUSE

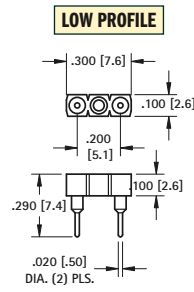
For Littelfuse 392/395 Type TE5®
Bussmann: PC Series
or equivalent

.335 (8.5) DIA. FUSE

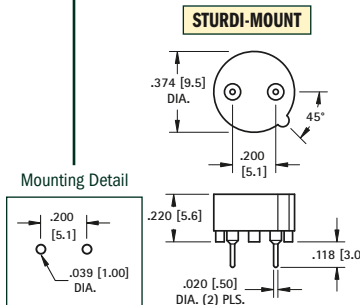
For Littelfuse 370 Type TR5®
Bussmann: BK-EFF series
or equivalent



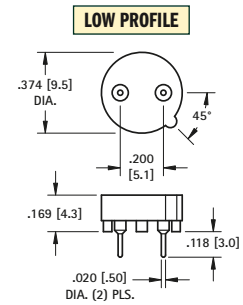
CAT. NO. 3552*



CAT. NO. 3553*



CAT. NO. 3556*



CAT. NO. 3554*

*3AG Fuse Blocks & Subminiature Fuse Holders are not UL recognized

Underwriters Laboratories, Inc.
Recognized Component Program –
UL File Number E354010



UL file number E354010 has been assigned to Keystone Electronics' fuse clips and holders with end stops. (Refer to pages 48-51) Indicating recognition by Underwriters Laboratories Inc. that they are in compliance with their component program.

Refer to pages 54-56 for Fuse Clip Layout and Mounting Details

- Available for 5mm, 1AG, 2AG, 3AG, 5AG, 7AG & 8AG sizes
- Low profile, space saving
- Low contact resistance
- Withstands shock and vibration
- Rated 6.3 to 30 Amps
- Custom designs and modifications available to your specifications

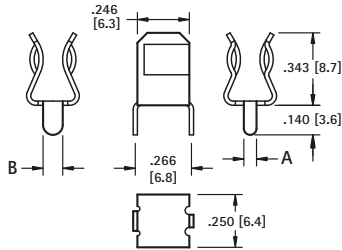
PC THRU MOUNT TYPES

- Snap-fit design enhances assembly and PC retention for wave soldering
- Available with orientation legs to assure proper PC installation
- Available with or without end stops

SURFACE MOUNT & RIVET TYPES

- KTR parts have Kapton Tape added to top service for vacuum pick & place

2AG, 5mm PC Clips

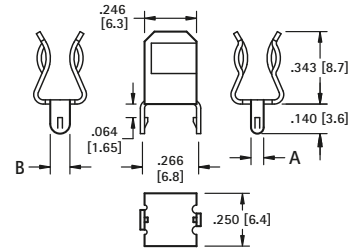


MATERIAL:
 .020 (.51) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO.	A	B
3517	.060 (1.5)	.060 (1.5)
3518P	.060 (1.5)	.093 (2.4)

With or Without Orientation Legs

Optional cover available - Cat. No. 3517C

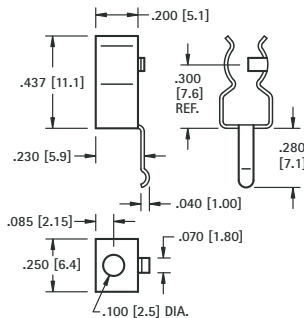


• With snap-in PC legs
MATERIAL:
 .020 (.51) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO.	A	B
3512	.060 (1.5)	.060 (1.5)
3512P	.060 (1.5)	.093 (2.4)

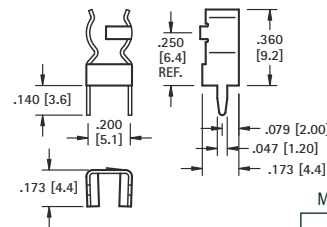
With or Without Orientation Legs

Optional cover available - Cat. No. 3517C



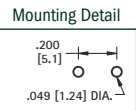
MATERIAL:
 .016 (.41) Brass, Tin Plate
UL Current Rating: 6.3 Amps

CAT. NO. 3520



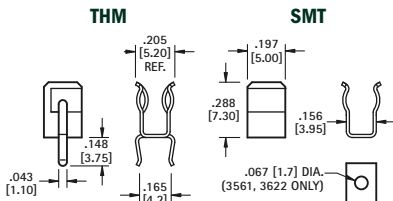
MATERIAL:
 .016 (.41) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO. 3519



FUSE CLIPS

2AG or 5mm



MATERIAL: .016 (.41) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO.	ON TAPE BULK	ON TAPE & REEL	PC LEGS	END STOP
3521	—	—	YES	YES
3621	—	—	YES	NO*
3561	3561KTR	—	NO	YES
3622	3622KTR	—	NO	NO*

Mounting Detail
 Cat. No. 3521 & 3621 Only

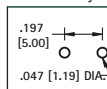
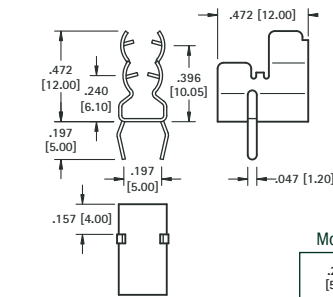


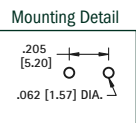
Table & Reel Spec's: 16m wide, 12mm pitch, 13 inch reel (500 pieces per reel)

5mm/3AG

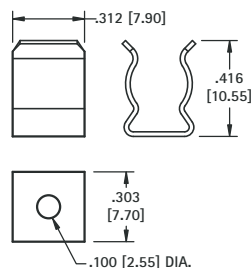
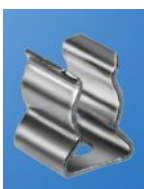


MATERIAL:
 .016 (.41) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO. 3562



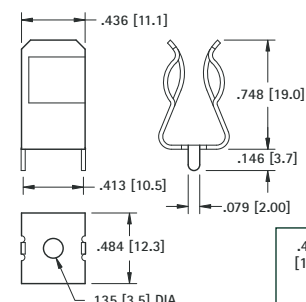
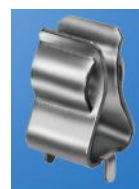
4AG (9/32 Dia.)



MATERIAL:
 .020 (.51) Brass, Nickel Plate
UL Current Rating: 15 Amps

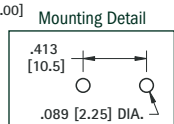
CAT. NO. 3565 (Without End Stops)*

5AG (13/32 Dia.) - Solar Protection Fuse



MATERIAL:
 .030 (.76) Brass, Tin Plate
UL Current Rating: 30 Amps

CAT. NO. 3566



*Fuse clips without end stops are not UL recognized

Refer to pages 54-56 for Fuse Clip Layout and Mounting Details

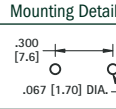
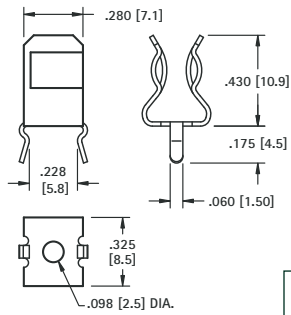
1AG, 3AG, 7AG, 8AG THRU HOLE MOUNT TYPES

WITH SNAP-IN PC LEGS

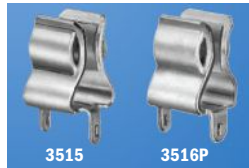


MATERIAL:
.020 (.51) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO. 3513

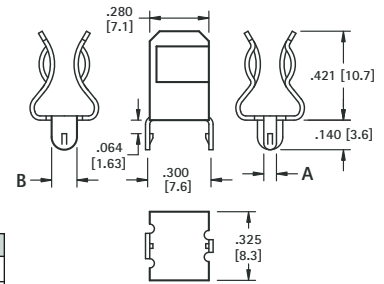


WITH SNAP-IN PC LEGS



MATERIAL:
.020 (.51) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO.	A	B
3515	.060 (1.5)	.060 (1.5)
3515P	.060 (1.5)	.093 (2.4)
3516P	.060 (1.5)	.120 (3.0)



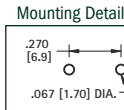
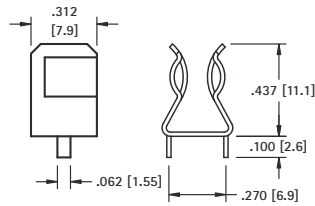
With or Without Orientation Legs

WITH STRAIGHT PC LEGS



MATERIAL:
.020 (.51) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO. 3530

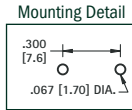
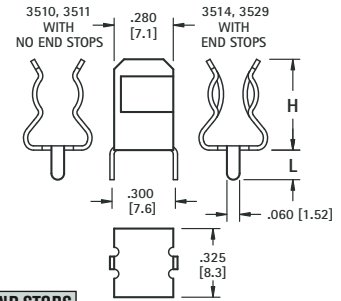


WITH STRAIGHT PC LEGS



MATERIAL:
.020 (.51) Brass, Tin Plate
UL Current Rating: 15 Amps

CAT. NO.	H	L	END STOPS
3510	.421 (10.7)	.140 (3.6)	NO*
3529	.421 (10.7)	.140 (3.6)	YES
3511	.430 (10.9)	.250 (6.4)	NO*
3514	.430 (10.9)	.250 (6.4)	YES

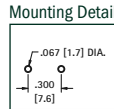
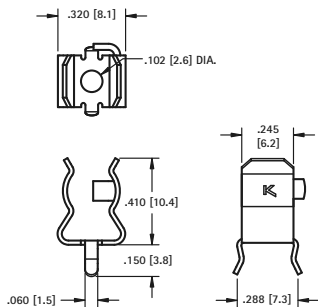


SNAP-IN WITH END STOP

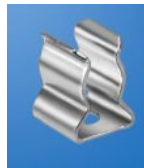


MATERIAL:
.020 (.51) Brass, Nickel Plate
UL Current Rating: 20 Amps

CAT. NO. 3500

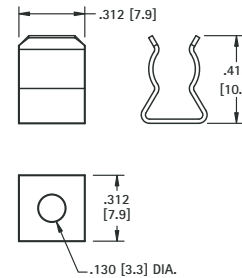


SMT & RIVET MOUNT, LOW PROFILE



MATERIAL:
.020 (.51) Brass, Nickel Plate
UL Current Rating: 15 Amps

CAT. NO. 3531 (Without End Stops)*

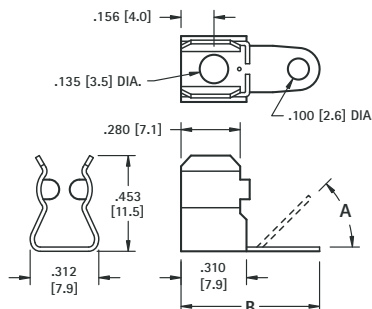


SMT & RIVET MOUNT WITH LUG

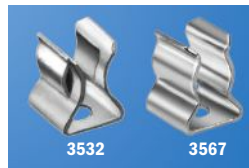


MATERIAL:
.020 (.51) Brass, Nickel Plate
Current Rating: 15 Amps

CAT. NO.	A	B
3533	Flat	.656 (16.7)
3535	45°	.562 (14.3)
3570	-	NO TAB

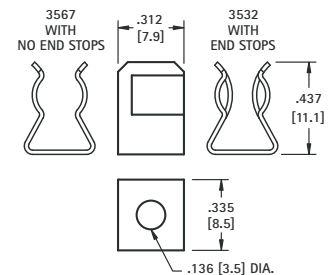


SMT & RIVET MOUNT



MATERIAL:
.020 (.51) Brass, Nickel Plate
UL Current Rating: 15 Amps

CAT. NO.	END STOPS
3532	YES
3567	NO*



*Fuse clips without end stops are not UL recognized

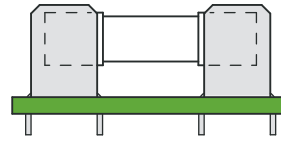
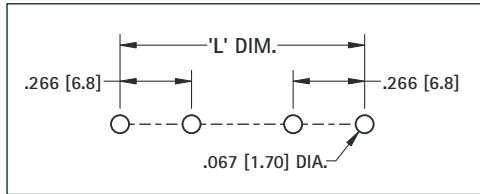
REFER TO PAGE 52 FOR PART DETAILS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR FUSE LAYOUT PRIOR TO FABRICATION.



3517

Mounting Detail



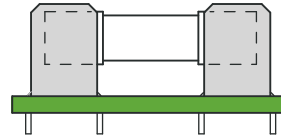
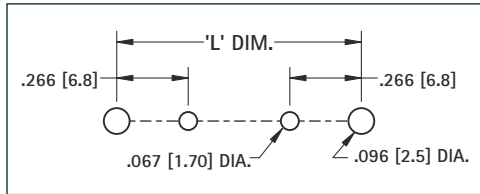
CAT. NO. 3517

FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



3518P

Mounting Detail



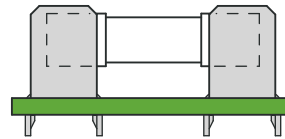
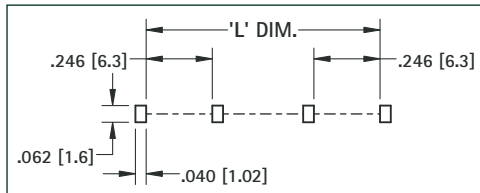
CAT. NO. 3518P

FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



3512

Mounting Detail



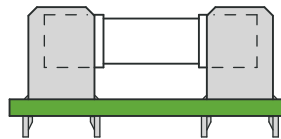
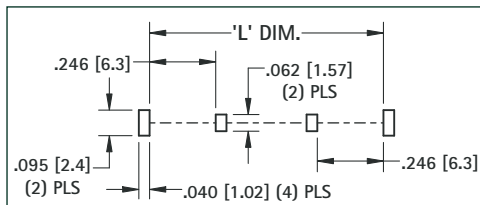
CAT. NO. 3512

FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



3512P

Mounting Detail



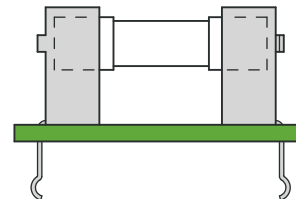
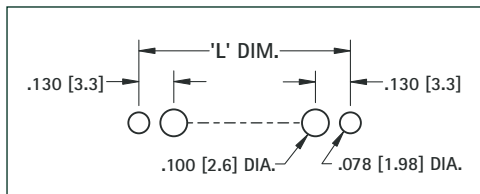
CAT. NO. 3512P

FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



3520

Mounting Detail



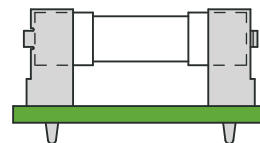
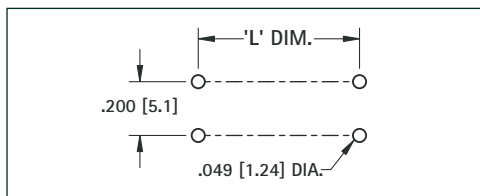
CAT. NO. 3520

FUSE SIZE	L DIM.
5mm × 20mm	.900 (22.9)



3519

Mounting Detail



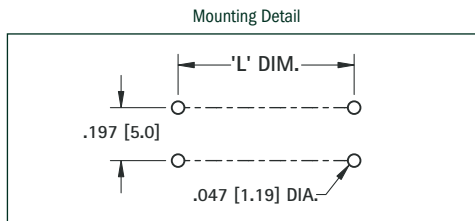
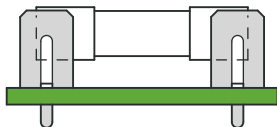
CAT. NO. 3519

FUSE SIZE	L DIM.
5mm × 20mm	.650 (16.5)

REFER TO PAGE 52 FOR PART DETAILS

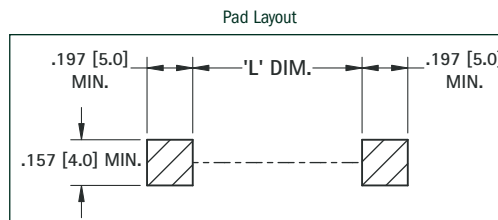
NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. VERIFY YOUR FUSE LAYOUT PRIOR TO FABRICATION.

CAT. NO. 3521, 3621	
FUSE SIZE	L DIM.
2AG	.514 (13.1)
5mm × 20mm	.710 (18.0)



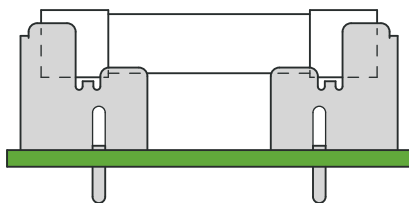
3521

CAT. NO. 3561, 3622	
FUSE SIZE	L DIM.
2AG	.354 (9.0)
5mm × 20mm	.500 (12.7)

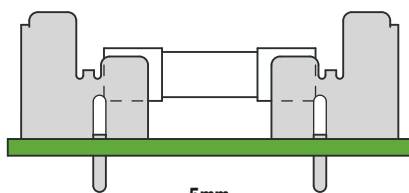


3561

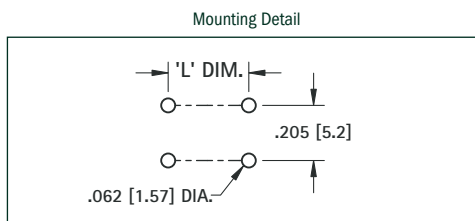
CAT. NO. 3562	
FUSE SIZE	L DIM.
5mm × 20mm	.820 (20.8)
3AG	



3AG

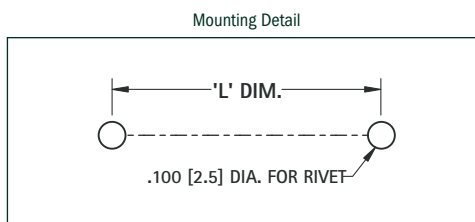


5mm



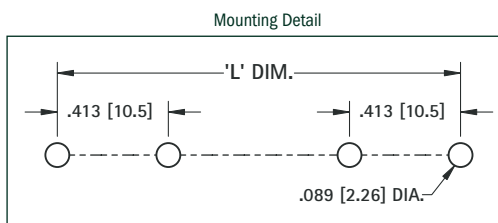
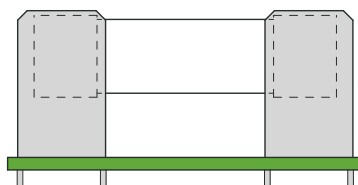
3562

CAT. NO. 3565		
DESIGNATION	FUSE SIZE	L DIM.
4AG	.281 (7.1) × 1.250 (31.8)	1.000 (25.4)



3565

CAT. NO. 3566		
DESIGNATION	FUSE SIZE	L DIM.
SM/SS	.406 (10.3) × 1.375 (34.9)	1.515 (38.5)
5AG	.406 (10.3) × 1.500 (38.1)	1.640 (41.7)



3566

FUSE CLIP LAYOUT & MOUNTING DETAILS

REFER TO PAGE 53 FOR PART DETAILS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR FUSE LAYOUT PRIOR TO FABRICATION.



3529

CAT. NO. 3510, 3511, 3513, 3514, 3529

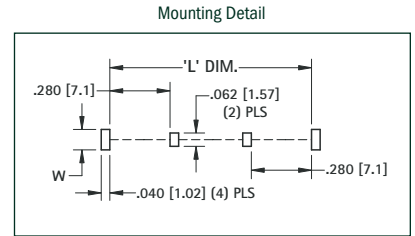
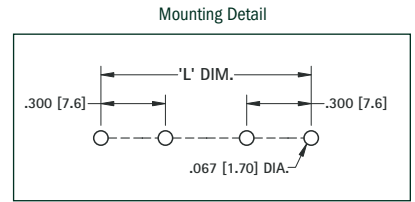
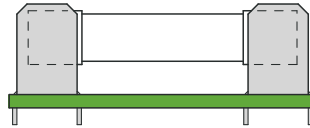
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.750 (19.1)
7AG	.250 (6.4) × .875 (22.2)	1.000 (25.4)
8AG	.250 (6.4) × 1.000 (25.4)	1.125 (28.6)
3AG	.250 (6.4) × 1.250 (31.8)	1.375 (34.9)

CAT. NO. 3515, 3515P, 3516P

DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.735 (18.7)
7AG	.250 (6.4) × .875 (22.2)	.985 (25.0)
8AG	.250 (6.4) × 1.000 (25.4)	1.100 (28.0)
3AG	.250 (6.4) × 1.250 (31.8)	1.360 (34.6)

ORIENTATION LEGS

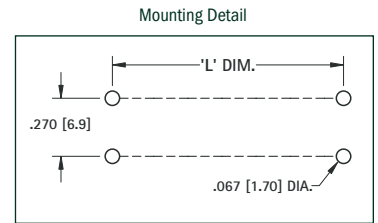
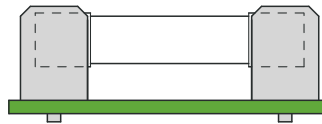
CAT. NO.	W
3515	.062 (1.6)
3515P	.095 (2.4)
3516P	.122 (3.1)



3530

FOR CAT. NO. 3530

DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.450 (11.4)
7AG	.250 (6.4) × .875 (22.2)	.700 (17.8)
8AG	.250 (6.4) × 1.000 (25.4)	.825 (21.0)
3AG	.250 (6.4) × 1.250 (31.8)	1.075 (27.3)



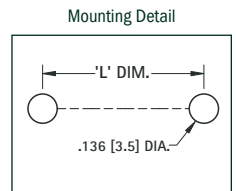
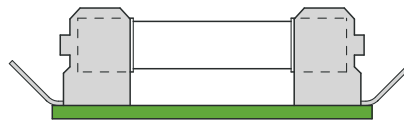
RIVET MOUNT



3535

FOR CAT. NO. 3531, 3533, 3535, 3570

DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.450 (11.4)
7AG	.250 (6.4) × .875 (22.2)	.700 (17.8)
8AG	.250 (6.4) × 1.000 (25.4)	.825 (21.0)
3AG	.250 (6.4) × 1.250 (31.8)	1.075 (27.3)



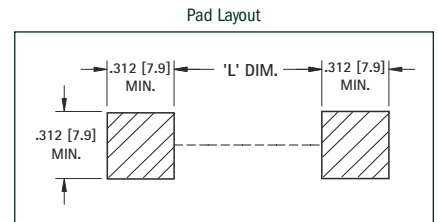
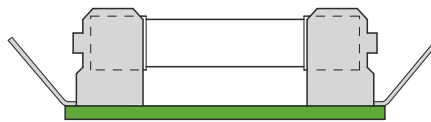
SURFACE MOUNT



3533

FOR CAT. NO. 3531, 3533, 3535, 3570

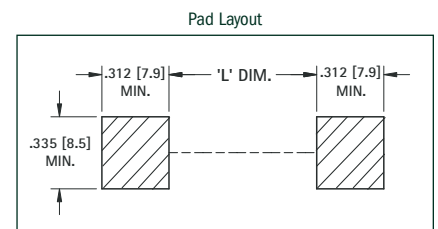
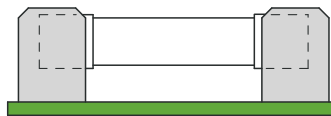
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.120 (3.0)
7AG	.250 (6.4) × .875 (22.2)	.365 (9.3)
8AG	.250 (6.4) × 1.000 (25.4)	.490 (12.4)
3AG	.250 (6.4) × 1.250 (31.8)	.740 (18.8)



3532

FOR CAT. NO. 3532, 3567

DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.195 (5.0)
7AG	.250 (6.4) × .875 (22.2)	.445 (11.3)
8AG	.250 (6.4) × 1.000 (25.4)	.570 (14.5)
3AG	.250 (6.4) × 1.250 (31.8)	.820 (20.8)

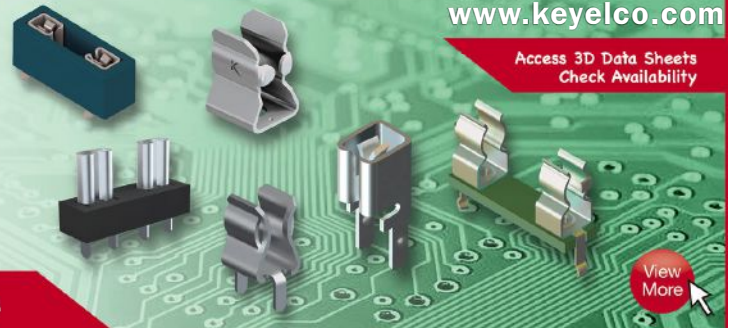


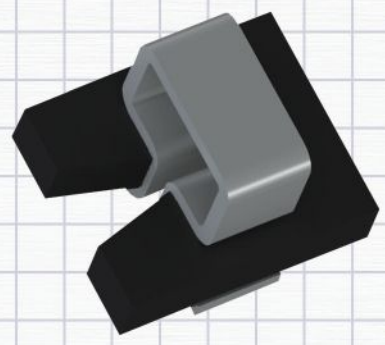
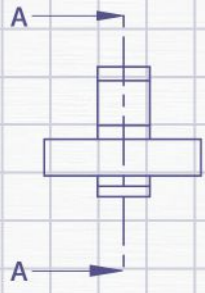
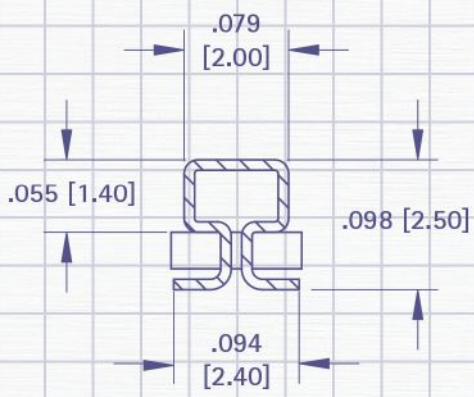
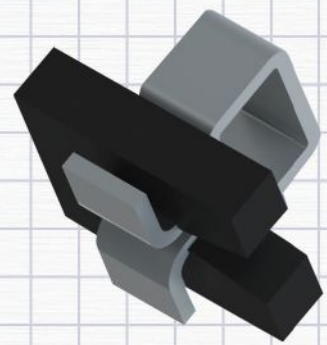
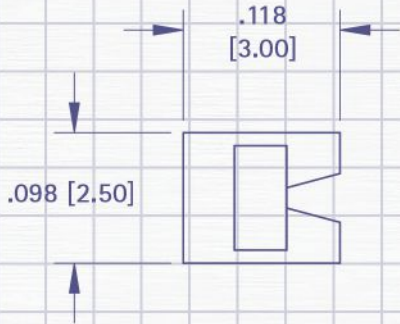
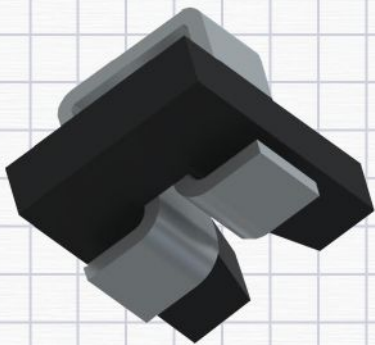
DESIGNERS AND MANUFACTURERS
THINKKEYSTONE
ELECTRONICS CORP.

Fuse Clips & Holders

Certified Quality & Proven Performance
ISO 9001:2015 Quality System

THINK Design Solutions with Keystone Fuse Holders





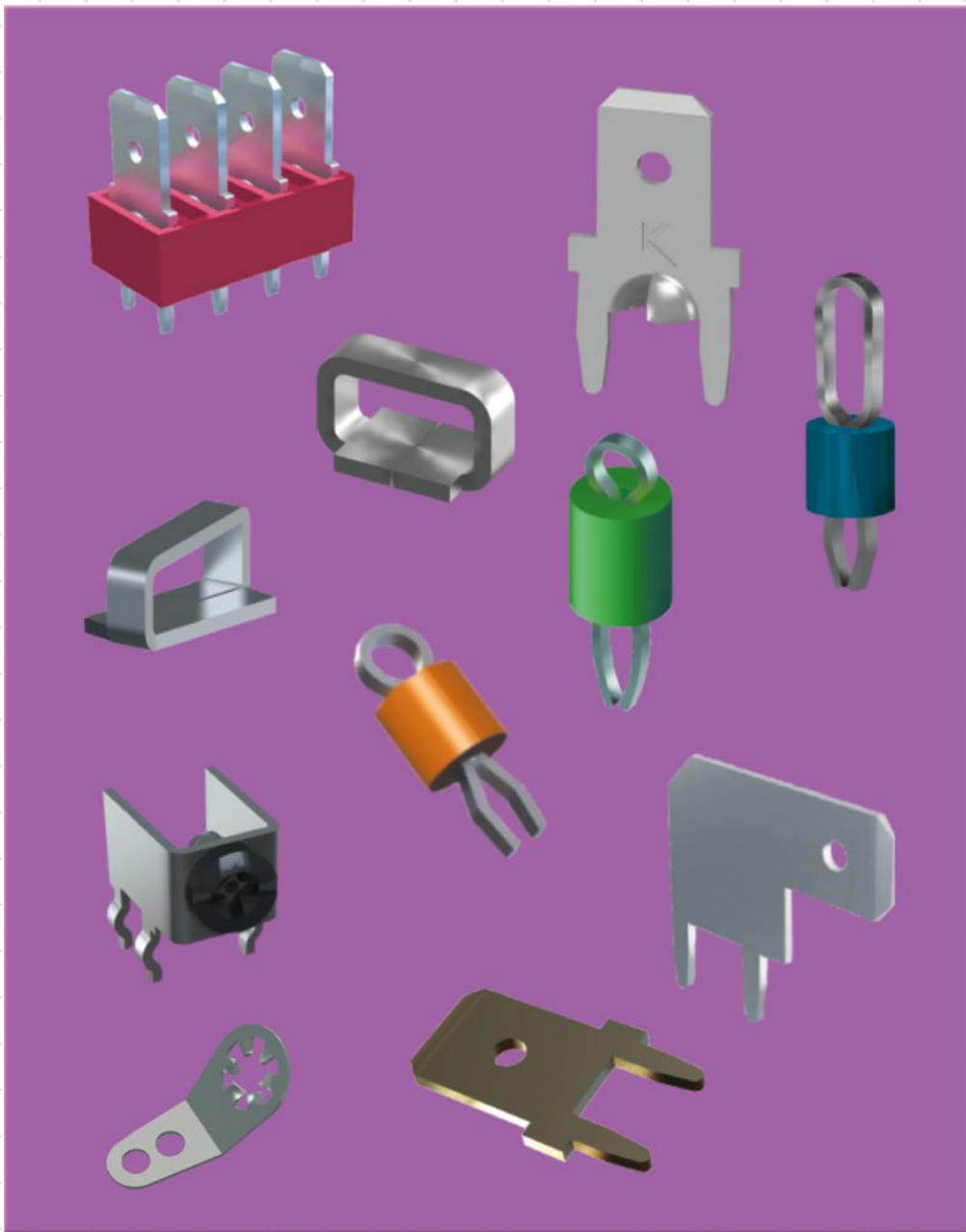
TERMINALS & TEST POINTS

Today's high tech electronics require space saving, low cost methods for connecting and testing circuitry. Our complete line of PC terminals, screw terminals, headers, wire-to-wire IDC connectors and test points are designed to meet the interconnect and testing challenges for electronic and electrical component termination points. Applications include:

- Multi-Insertion applications
- Replacement for pc screw edge connectors, blocks or strips
- Surface mount and thru-hole PCB designs
- Wire-to-Wire connections
- UL approved devices

Our quality system is ISO 9001:2015 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.



SECTION 3 CONTENTS

ALLIGATOR CLIPS .....	.62	SCREW TERMINALS	
EDGE CONNECTORS, SMT .....	.69	Slim-Line .....	.73
I-CLAMP IDC CONNECTORS .....	.72	Color Coded, THM .....	.73-77
JUMPERS		SEMS Screw .....	.76
THM .....	.60	Metric Thread .....	.77
SMT .....	.60	Swage (Panel) Mount .....	.78-79
Zero Ohm .....	.60	Binding Post .....	.79
QUICK-FIT TERMINALS		Binding Post, Mini .....	.78
Female, SMT .....	.69	SOLDER LUGS .....	.80
Female, THM .....	.68	SOLDERLESS (CRIMP) TERMINALS .....	.70-71
Headers .....	.67	TEST POINTS	
Male, Rivet Mount .....	.67	Color Coded SMT .....	.61
Male, SMT .....	.67	Color Coded THM .....	.62
Male, THM .....	.64-66	SMT .....	.61
Male, THM, Continuous Reel .....	.66	THM .....	.62
		Slotted & Loop Types (THM) .....	.63

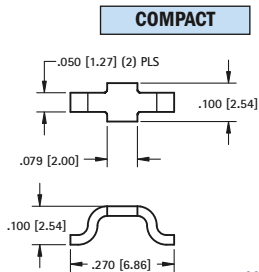
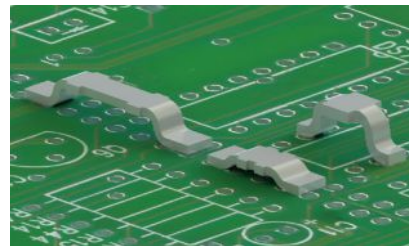
SMT PRINTED CIRCUIT BOARD JUMPERS

AVAILABLE ON TAPE AND REEL

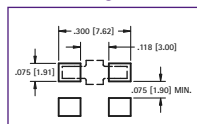
- Designed to link circuit board traces in applications where thru hole jumpers are not possible
- All conductive polystyrene carrier meets ANSA/EIA-481 standard
- Low profile/space saving design
- Minimal PCB footprint

MATERIAL: .020 (.51) Copper, Silver Plate

Power Rating: 0.5 Watts at 158°F (70°C), with a current of 20 Amps and a connection temperature at 221°F (105°C or less)

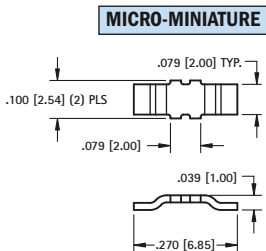


Mounting Detail

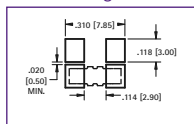


CAT. NO. 5100

CAT. NO. 5100TR - 500 pieces per reel

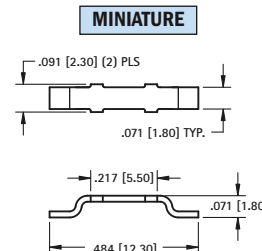


Mounting Detail

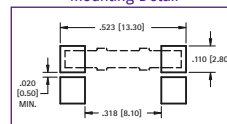


CAT. NO. 5102

CAT. NO. 5102TR - 500 pieces per reel



Mounting Detail



CAT. NO. 5104

CAT. NO. 5104TR - 2500 pieces per reel

HIGH CURRENT "TRUE" ZERO OHM SMT JUMPER

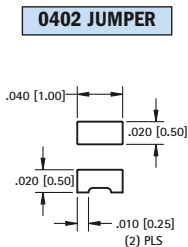
"True" Zero ohm high current SMT Jumpers, designed to replace Zero ohm resistors without changing board designs or layouts. These new devices are uniquely suited as true zero ohm resistor replacements.

MATERIAL: Copper, Silver Plate

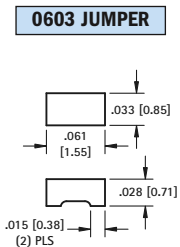
Power Rating: 0.5 Watts at 158°F (70°C), with a current of 20 Amps and a connection temperature at 221°F (105°C or less)

Tape & Reel Spec's: 12mm Wide, 4mm Pitch, 1,000 pieces per 7" reel meets ANSI/EIA-481 standards

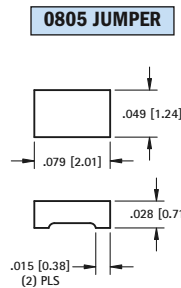
SUPPLIED ON TAPE AND REEL



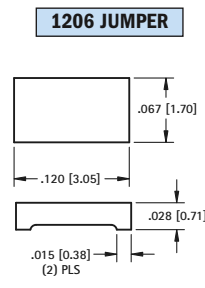
CAT. NO. 5112



CAT. NO. 5110



CAT. NO. 5106

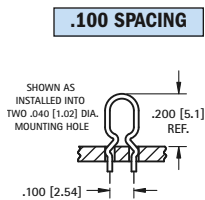


CAT. NO. 5108

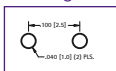
THM JUMPERS

- Unique wave leg design retains jumper in thru hole for wave soldering
- May be used as a test point location

- Shorting Pin may be used in applications that require precise location of the legs
- May also be used with micro-jacks (see pages 102-103)

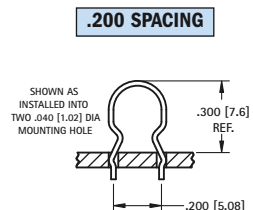


Mounting Detail

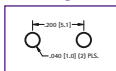


MATERIAL: .020 (.50) Dia. Phosphor Bronze, Silver Plate

CAT. NO. 5025

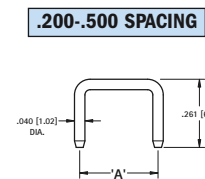


Mounting Detail



MATERIAL: .020 (.50) Dia. Phosphor Bronze, Silver Plate

CAT. NO. 5026



CAT. NO.	A Dim.
1430-1	.200 (5.1)
1430-2	.250 (6.4)
1430-4	.400 (10.2)
1430-5	.500 (12.7)

MATERIAL: Brass, Gold Plate

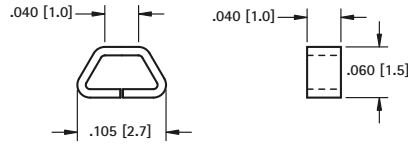
(SMT) SURFACE MOUNT TEST POINTS ON TAPE & REEL

AVAILABLE ON TAPE AND REEL

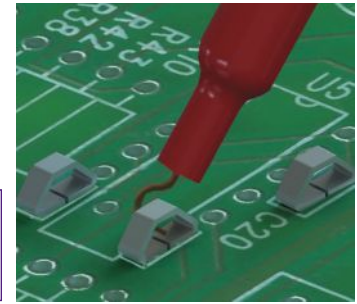
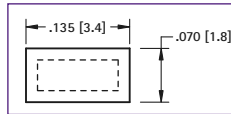
- Manufactured using flat wire to provide a large mounting surface area
- Efficient, safe, board level testing
- Simplifies testing on dense circuit boards
- Compatible with vacuum and mechanical pick & place assembly systems
- All conductive polystyrene carrier tape meets ANSA/EIA-481 standards

- Ideal for use with miniature probes, clips and hooks
- Ultra low profile, ideal for advanced surface mount PCB applications

MICRO MINIATURE



Pad Layout



SPECIFICATIONS

Material:

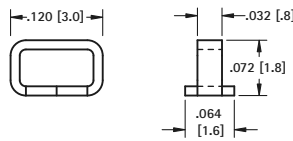
.010 (.25) Phosphor Bronze, Silver Plate

CAT. NO. 5015 - 1000 pieces per reel **CAT. NO. 5017** - 5000 pieces per reel

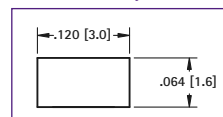
Tape & Reel Spec's: 8mm Wide, 4mm Pitch

- Ideal for use with most standard probes, clips and hooks
- Unique design provides exceptional strength and durability

MINIATURE



Pad Layout



SPECIFICATIONS

Material:

.015 (.38) Phosphor Bronze, Silver Plate

CAT. NO. 5019 - 1000 pieces per reel **CAT. NO. 5029** - 5000 pieces per reel

Tape & Reel Spec's: 12mm Wide, 4mm Pitch

- Ideal for use with most standard probes, clips and hooks
- Color keyed for visibility and quick identification

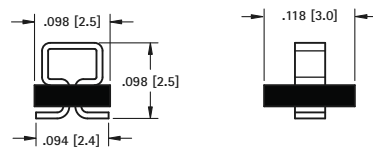
COLOR KEYED

MATERIAL

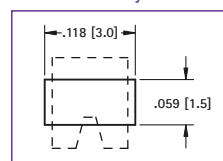
Terminal: .008 (.20) Phosphor Bronze, Silver Plate

Base: LCP UL Rated 94V-0

CAT. NO.	Base Color	CAT. NO.	Base Color
5190TR	RED	5195TR	BROWN
5191TR	BLACK	5196TR	GREEN
5192TR	WHITE	5197TR	BLUE
5193TR	ORANGE	5198TR	GREY
5194TR	YELLOW	5199TR	PURPLE



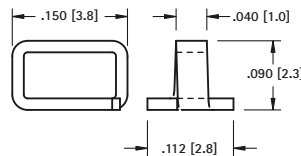
Pad Layout



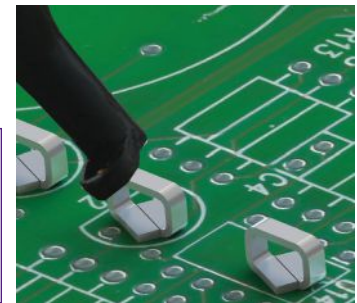
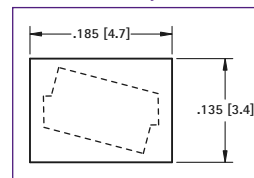
Tape & Reel Spec's: 12mm Wide, 4mm Pitch, 1,000 pieces per 7" reel

- Ideal for use with standard probes, clips and hooks
- Unique design provides exceptional strength and durability

COMPACT



Pad Layout



SPECIFICATIONS

Material:

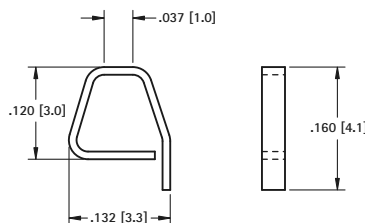
.015 (.38) Phosphor Bronze, Silver Plate

CAT. NO. 5016 - 1000 pieces per reel **CAT. NO. 5018** - 5000 pieces per reel

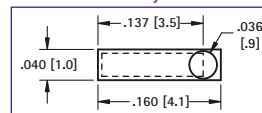
Tape & Reel Spec's: 12mm Wide, 4mm Pitch

- Locating Pin provides positive location during assembly process
- Increased solder strength
- Can be used as a SMT test point or when used with a .032 [.81] board, as a THM test point

HYBRID MOUNT



Pad Layout



SPECIFICATIONS

Material:

.010 (.25) Phosphor Bronze, Silver Plate

CAT. NO. 5027 - 800 pieces per reel

Tape & Reel Spec's: 12mm Wide, 4mm Pitch

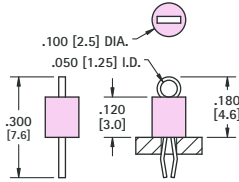
(THM) THRU HOLE MOUNT TEST POINTS - COLOR KEYED

- Color keyed for visibility and quick identification
- Economical choice for PC test point terminations
- Snap-fit mounting provides positive retention for wave soldering
- Wire form loop for safe, non-slip testing
- Space saving, ultra low and low profile designs
- High profile design for difficult to reach applications
- Suitable for high density packaging on .062 (1.57) and .093 (2.36) PC boards
- Practical replacement for wire-wrap posts and turrets
- Secure grip for J hooks, EZ hooks, grabbers, alligator clips, tips or probes
- High temperature nylon base ideal for reflow soldering
- Ideal for reliable production testing and field service troubleshooting



COLOR KEYED

MINIATURE



SPECIFICATIONS

Terminal:

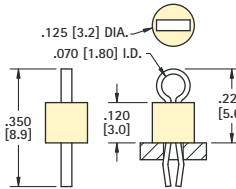
.010 (.25) x .020 (.51) Phosphor Bronze, Silver Plate

Base: Nylon 46, UL Rated 94V-0

Mtg. Hole: .040 (1.0) Diameter

CAT. NO.	BASE COLOR	CAT. NO.	BASE COLOR
5000	RED	5115	BROWN
5001	BLACK	5116	GREEN
5002	WHITE	5117	BLUE
5003	ORANGE	5118	GREY
5004	YELLOW	5119	PURPLE

COMPACT



SPECIFICATIONS

Terminal:

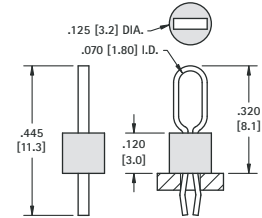
.015 (.38) x .032 (.81) Phosphor Bronze, Silver Plate

Base: Nylon 46, UL Rated 94V-0

Mtg. Hole: .063 (1.6) Diameter

CAT. NO.	BASE COLOR	CAT. NO.	BASE COLOR
5005	RED	5120	BROWN
5006	BLACK	5121	GREEN
5007	WHITE	5122	BLUE
5008	ORANGE	5123	GREY
5009	YELLOW	5124	PURPLE

MULTIPURPOSE



SPECIFICATIONS

Terminal:

.015 (.38) x .032 (.81) Phosphor Bronze, Silver Plate

Base: Nylon 46, UL Rated 94V-0

Mtg. Hole: .063 (1.6) Diameter

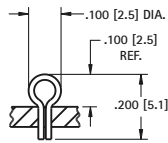
CAT. NO.	BASE COLOR	CAT. NO.	BASE COLOR
5010	RED	5125	BROWN
5011	BLACK	5126	GREEN
5012	WHITE	5127	BLUE
5013	ORANGE	5128	GREY
5014	YELLOW	5129	PURPLE

ULTRA LOW PROFILE

MATERIAL: .017 (.43) Dia. Phosphor Bronze Silver Plate
Mtg Hole: .040 (1.0)

CAT. NO. 5021

SHOWN AS INSTALLED INTO .040 [1.02] DIA. MOUNTING HOLE

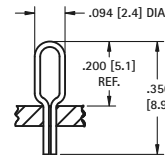


LOW PROFILE

SHOWN AS INSTALLED INTO .040 [1.02] DIA. MOUNTING HOLE

MATERIAL: .016 (.40) x .028 (.71) Phosphor Bronze Silver Plate
Mtg Hole: .040 (1.0)

CAT. NO. 5020

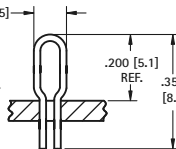


STANDARD

MATERIAL: .020 (.50) Dia. Phosphor Bronze Silver Plate
Mtg Hole: .073 (1.9)

CAT. NO. 5023

SHOWN AS INSTALLED INTO .067 [1.70] TO .078 [1.98] DIA. MOUNTING HOLE

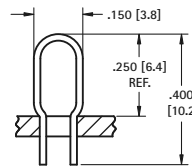


LARGE

SHOWN AS INSTALLED INTO .112 [2.84] TO .116 [2.95] DIA. MOUNTING HOLE

MATERIAL: .020 (.50) Dia. Phosphor Bronze Silver Plate
Mtg Hole: .114 (2.9)

CAT. NO. 5024



ALLIGATOR CLIPS



- Solder connection with strain relief
- Insulated or non-insulated
- Large clip also accepts standard banana plug

MATERIAL: Clip: Steel, Nickel Plate; Insulator: Vinyl



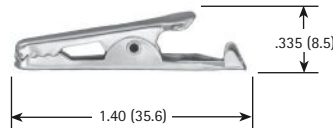
SMALL CLIP



CAT. NO.	INSULATOR COLOR
5033	NONE
5034	RED
5035	BLACK
5036	GREEN
5037	YELLOW

JAW SPREAD
.236 (6.0) max.

MEDIUM CLIP



CAT. NO.	INSULATOR COLOR
5038	NONE
5039	RED
5040	BLACK

JAW SPREAD
.236 (6.0) max.

LARGE CLIP



CAT. NO.	INSULATOR COLOR
5044	NONE
5045	RED
5046	BLACK
5048*	NONE

JAW SPREAD
.315 (8.0) max.

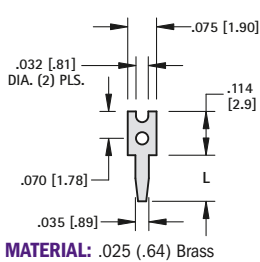
*with screw

THM TEST POINTS - SLOTTED & LOOP TYPES



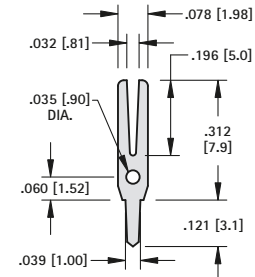
- Low profile, space saving designs for dense packaging
- Wide variety of configurations to suit most applications
- Safe, practical, economical replacement for wire-wrap posts
- Easy mount design, ideal for wave soldering
- Re-fit PC boards without need for re-design
- Provides easy access for production testing and field service troubleshooting
- Positive grip when using J hooks, EZ hooks, grabbers, clips, tips and probes
- Custom test point terminals can be manufactured to your specifications
- Other platings and materials available upon request

MATERIAL: Brass, Tin Plate



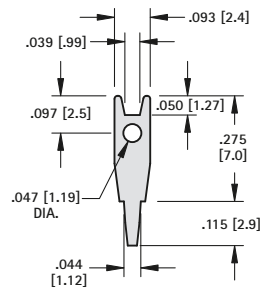
MATERIAL: .025 (.64) Brass

CAT. NO.	L
1030	.120 (3.0)
1031	.156 (4.0)



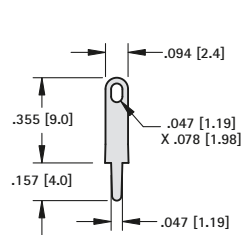
MATERIAL: .016 (.41) Brass

CAT. NO. 1037



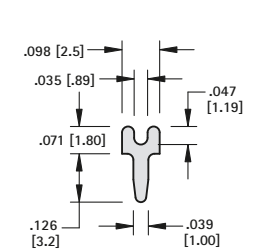
MATERIAL: .025 (.64) Brass

CAT. NO. 1036



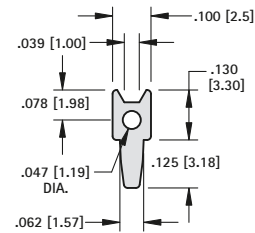
MATERIAL: .020 (.51) Brass

CAT. NO. 4953



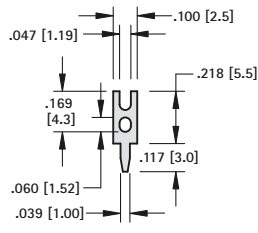
MATERIAL: .025 (.64) Brass

CAT. NO. 4950



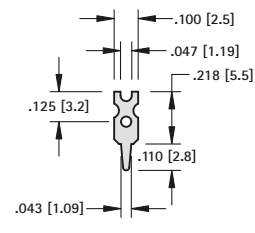
MATERIAL: .024 (.61) Brass

CAT. NO. 1032



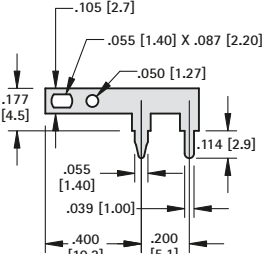
MATERIAL: .020 (.51) Brass

CAT. NO. 1035



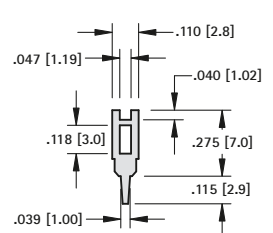
MATERIAL: .025 (.64) Brass

CAT. NO. 1034



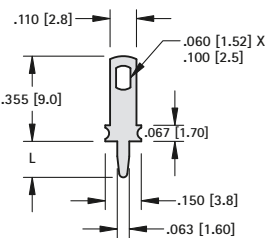
MATERIAL: .025 (.64) Brass

CAT. NO. 1045



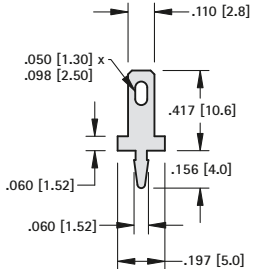
MATERIAL: .025 (.64) Brass

CAT. NO. 1040



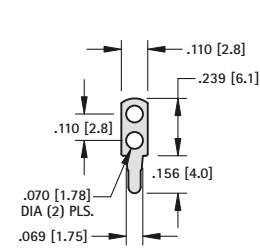
MATERIAL: .032 (.81) Brass

CAT. NO.	L
1041	.275 (7.0)
1046	.150 (3.8)



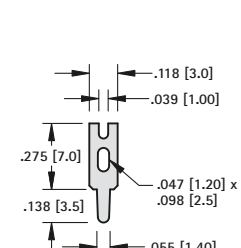
MATERIAL: .020 (.51) Brass

CAT. NO. 1250



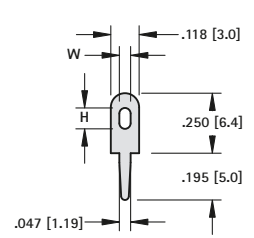
MATERIAL: .020 (.51) Brass

CAT. NO. 1038



MATERIAL: .025 (.64) Brass

CAT. NO. 4951

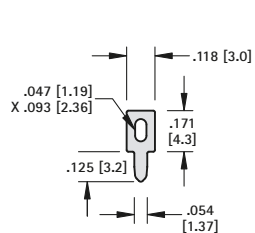


MATERIAL: .025 (.64) Brass

CAT. NO.	W	H
1249	.047 (1.19)	.087 (2.21)
4952	.063 (1.60)	.098 (2.49)

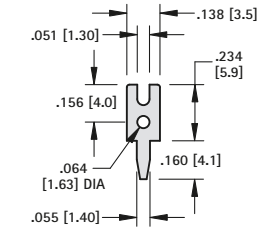
CUSTOM TERMINALS

Custom terminals can be machined to your exact specifications. Standard and special terminals can be staked onto special boards. Please email/fax your design to our Engineering Department.



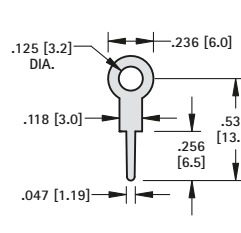
MATERIAL: .025 (.64) Brass

CAT. NO. 1033



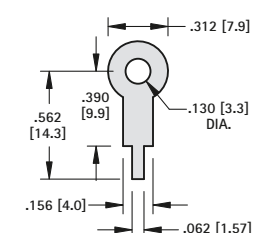
MATERIAL: .025 (.64) Brass

CAT. NO. 1039



MATERIAL: .020 (.51) Brass

CAT. NO. 4954



MATERIAL: .015 (.38) Brass

CAT. NO. 680



Underwriters Laboratories, Inc. Recognized Component Program — UL File Number E201546

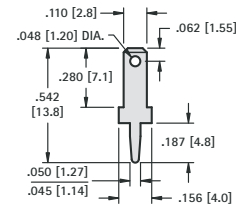


UL file number E201546 has been assigned to Keystone Electronics' "Quick-Fit" terminals (Refer to pages 64-68) indicating recognition by Underwriters Laboratories Inc. that they are in compliance with their component program.

Underwriters Laboratories Inc. component program assures that "Quick-Fit" terminals meet the dimensional and performance requirements of the National Electrical Manufacturers Association specification number NEMA2-1982-(1988) and UL310.

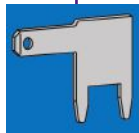
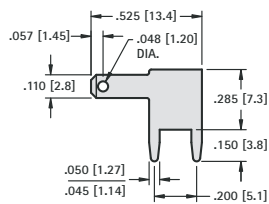


.110 (2.8) TAB

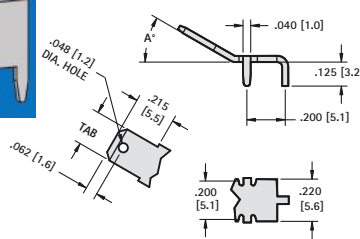


CAT. NO.	MATERIAL	MTG. HOLE
1267	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1211	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

.110 (2.8) TAB



.110 (2.8) & .187 (4.8) TAB



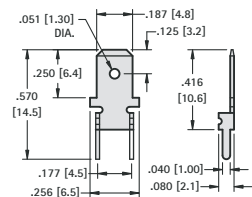
Material: .020 (.50) Brass, Tin Plate
Mtg Holes: .046 (1.2) Dia.

.110 (2.8) TAB CAT. NO.	A ANGLE	.187(4.8) TAB CAT. NO.
4915*	0°	4918*
4916*	30°	4919*
4917*	60°	4920*

CAT. NO.	MATERIAL	MTG. HOLES
4903	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
4906	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

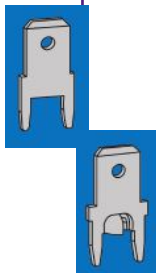
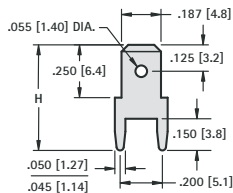
.187 (4.8) TAB

STURDI-MOUNT



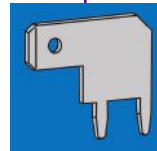
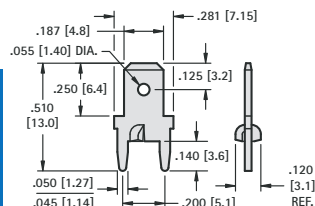
CAT. NO.	MATERIAL	MTG. HOLES
4900	.020 (.50) Brass, Tin Plate	.043 (1.1) Dia.

.187 (4.8) TAB



.187 (4.8) TAB

STURDI-MOUNT

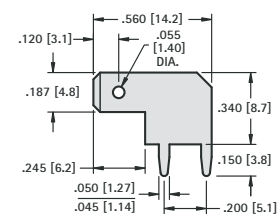


CAT. NO.	MATERIAL	MTG. HOLES
1285-ST	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1212-ST	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

Material: Brass, Tin Plate

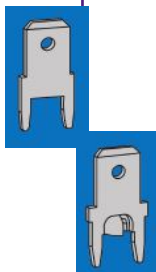
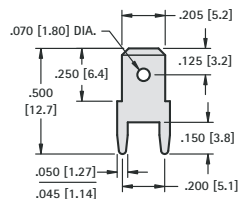
CAT. NO.	H	MATL THICK	MTG. HOLES
1285	.500 (12.7)	.020 (.50)	.046 (1.2) Dia.
1212	.500 (12.7)	.032 (.81)	.052 (1.3) Dia.
1216	.860 (21.8)	.032 (.81)	.052 (1.3) Dia.

.187 (4.8) TAB



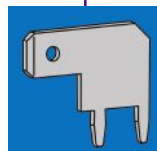
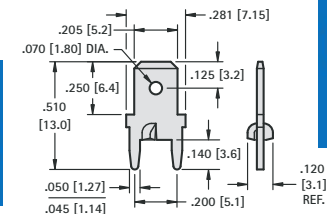
CAT. NO.	MATERIAL	MTG. HOLES
4904	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
4907	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

.205 (5.2) TAB



.205 (5.2) TAB

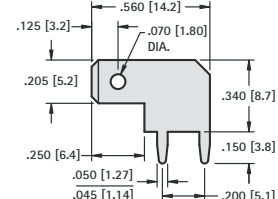
STURDI-MOUNT



CAT. NO.	MATERIAL	MTG. HOLES
1286-ST	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1213-ST	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

CAT. NO.	MATERIAL	MTG. HOLES
1286	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1213	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

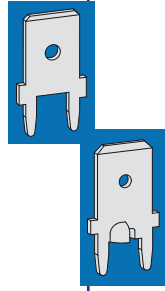
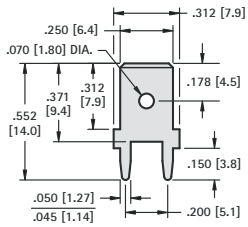
.205 (5.2) TAB



CAT. NO.	MATERIAL	MTG. HOLES
4905*	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
4909*	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

* Not UL Recognized

.250 (6.4) TAB

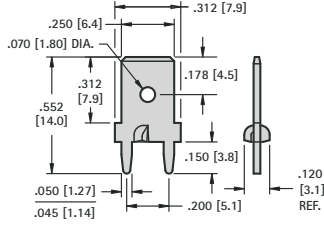


CAT. NO.	MATERIAL	MTG. HOLES
1287	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

NOTE: see page 66 for continuous reel packaging

.250 (6.4) TAB

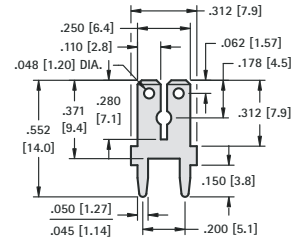
STURDI-MOUNT



CAT. NO.	MATERIAL	MTG. HOLES
1287-ST	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

NOTE: see page 66 for continuous reel packaging

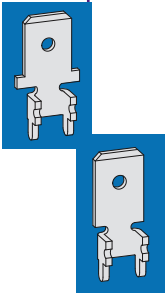
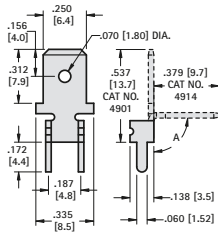
DUAL .110 (2.8)/.250 (6.4) TAB



CAT. NO.	MATERIAL	MTG. HOLES
1282	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

.250 (6.4) TAB

STURDI-MOUNT

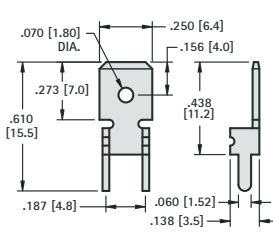


MATERIAL: .032 (.81) Brass, Matte Tin Plate

CAT. NO.	ANGLE A	MTG. HOLES
4901	0°	.067 (1.7) Dia.
4914	90°	

.250 (6.4) TAB

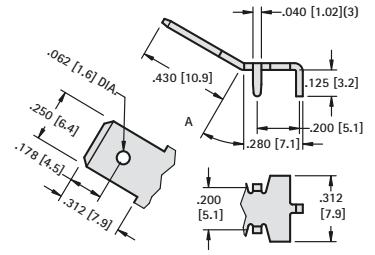
STURDI-MOUNT



CAT. NO.	MATERIAL	MTG. HOLES
4902	.032 (.81) Brass, Tin Plate	.067 (1.7) Dia.

.250 (6.4) TAB

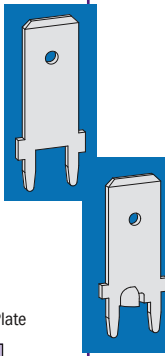
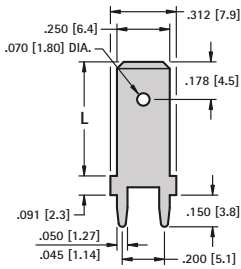
STURDI-MOUNT



MATERIAL: .032 (.81) Brass, Matte Tin Plate

CAT. NO.	ANGLE A	MTG. HOLES
4910	0°	.052 (1.3) Dia.
4908	30°	
4912	60°	

.250 (6.4) TAB

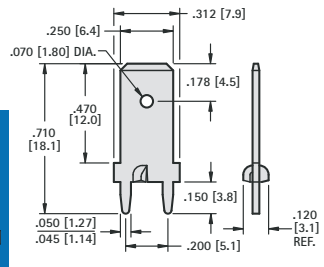


MATERIAL: .032 (.81) Brass, Matte Tin Plate

CAT. NO.	"L"	MTG. HOLES
1289	.540 (13.7)	.052 (1.3) Dia.
1203	.657 (16.7)	
1292	.710 (18.0)	
1225	1.039 (26.4)	

.250 (6.4) TAB

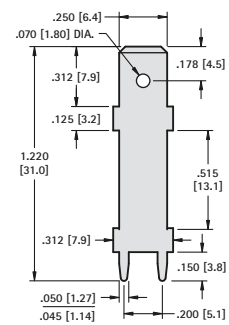
STURDI-MOUNT



CAT. NO.	MATERIAL	MTG. HOLES
1289-ST	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

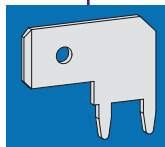
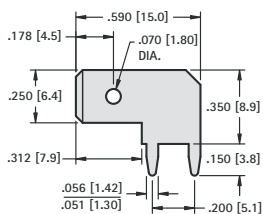
NOTE: see page 66 for continuous reel packaging

.250 (6.4) TAB



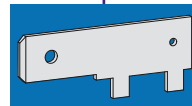
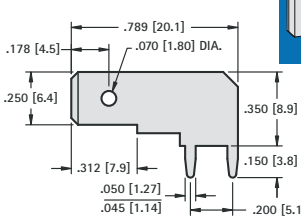
CAT. NO.	MATERIAL	MTG. HOLES
1281	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

.250 (6.4) TAB



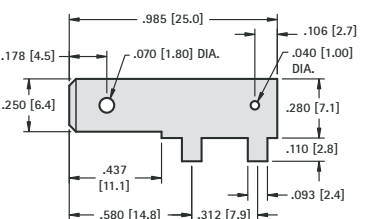
CAT. NO.	MATERIAL	MTG. HOLES
4966	.032 (.81) Brass, Tin Plate	.056 (1.4) Dia.

.250 (6.4) TAB



CAT. NO.	MATERIAL	MTG. HOLES
1266	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

.250 (6.4) TAB



CAT. NO.	MATERIAL	MTG. HOLES
1265*	.032 (.81) Brass, Tin Plate	.106 (2.7) Dia.

* Not UL Recognized

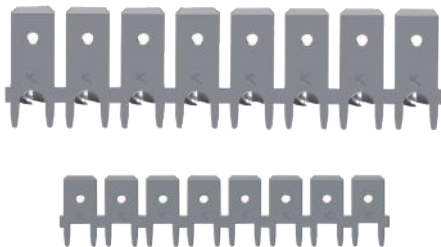
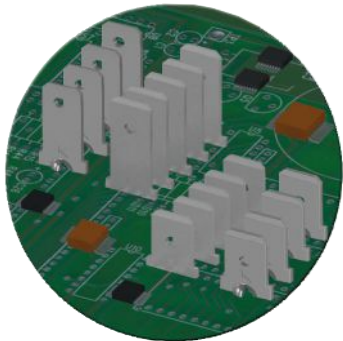
REELED .250 (6.4) PC QUICK-FIT MALE TERMINALS

Underwriters Laboratories, Inc.
 Recognized Component Program —
 UL File Number E201546



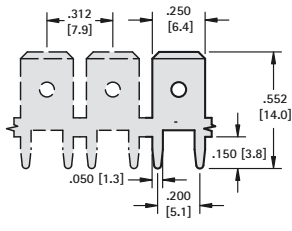
UL file number E201546 has been assigned to Keystone Electronics' "Quick-Fit" terminals (Refer to pages 64-68) indicating recognition by Underwriters Laboratories Inc. that they are in compliance with their component program.

Underwriters Laboratories Inc. component program assures that "Quick-Fit" terminals meet the dimensional and performance requirements of the National Electrical Manufacturers Association specification number NEMA2-1982-(1988) and UL310.



• Supplied in continuous reel for automated pick and place insertion

.250 (6.4) TAB

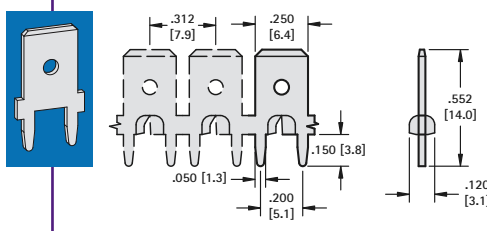


CAT. NO.	MATERIAL	MTG. HOLES
1287-R	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

Tape & Reel Spec's: 12,500 per 15 inch reel

.250 (6.4) TAB

STURDI-MOUNT

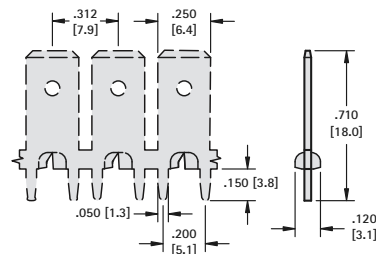


CAT. NO.	MATERIAL	MTG. HOLES
1287-STR	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

Tape & Reel Spec's: 15,000 per 24 inch reel

.250 (6.4) TAB

STURDI-MOUNT

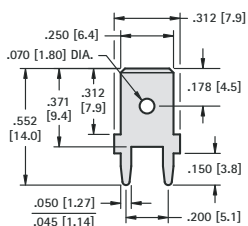


CAT. NO.	MATERIAL	MTG. HOLES
1289-STR	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

Tape & Reel Spec's: 15,000 per 24 inch reel

BULK .250 (6.4) PC QUICK-FIT MALE TABS

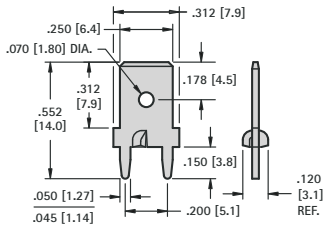
.250 (6.4) TAB



CAT. NO.	MATERIAL	MTG. HOLES
1287	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

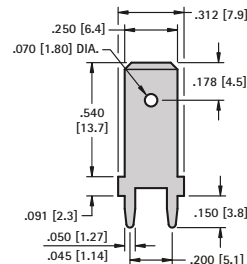
.250 (6.4) TAB

STURDI-MOUNT



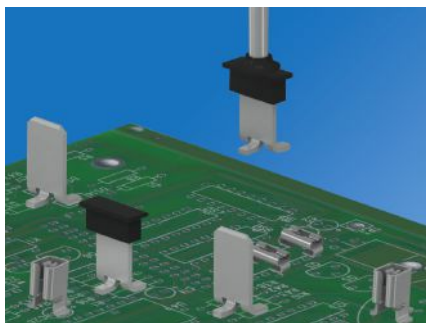
CAT. NO.	MATERIAL	MTG. HOLES
1287-ST	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

.250 (6.4) TAB



CAT. NO.	MATERIAL	MTG. HOLES
1289	.032 (.81) Brass, Tin Plate	.052 (1.3) Dia.

SMT .250 (6.4) QUICK-FIT TERMINALS



AVAILABLE ON TAPE AND REEL

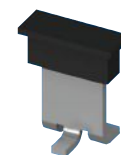
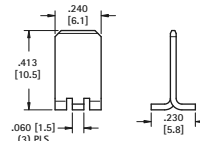
.250 (6.4) TAB

VERTICAL - MALE

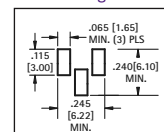
- Designed for automated assembly processing
- Available on tape and reel for automated assembly. Pick-up cap added to reeled parts to accommodate vacuum pick and place assembly
- Reflow solder compatible. Plastic pick-up cap will survive reflow temperatures

CAT. NO.	ON TAPE & REEL	MATERIAL
4928*	4928TR*	.032 (.81) Brass, Tin Plate

Tape & Reel Spec's: 16mm wide, 12mm pitch, 13 inch reel (750 pieces per reel)



Mounting Detail

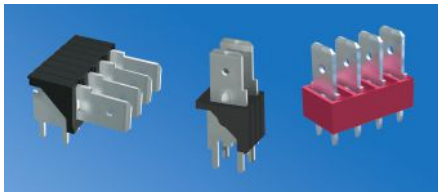


PC QUICK-FIT MALE TERMINALS 



.250 (6.4) "STURDI-MOUNT" PC QUICK-FIT HEADERS

AVAILABLE IN BRASS OR STEEL TABS

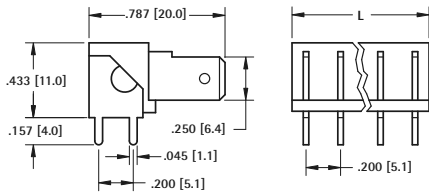


- Ideal for rugged multi-insertion applications
- Pre-assembled header reduces PC assembly costs
- Increases PC board retention strength
- Keeps terminals perpendicular
- Maintains position for wave soldering

SPECIFICATIONS

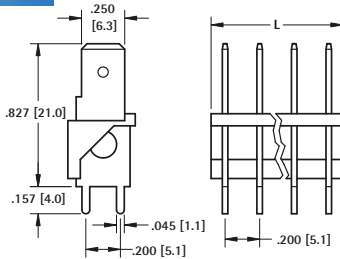
Material: .032 (.81) Brass or Steel, Tin Plated
Insulator: Thermoplastic, UL Rated 94V-0
Current Rating: 15 Amps @ 500V AC
Temperature Rating: -58°F to +292°F (-50°C to +145°C)

HORIZONTAL



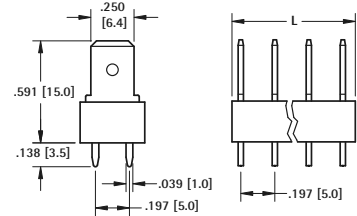
BRASS TABS	STEEL TABS	NO. OF TABS	L DIM.
CAT. NO.	CAT. NO.		
7802	7822	2	.362 (8.2)
7803	7823	3	.562 (14.3)
7804	7824	4	.762 (19.4)
7805	7825	5	.962 (24.4)
7806	7826	6	1.162 (29.5)

VERTICAL



BRASS TABS	STEEL TABS	NO. OF TABS	L DIM.
CAT. NO.	CAT. NO.		
7812	7832	2	.362 (8.2)
7813	7833	3	.562 (14.3)
7814	7834	4	.762 (19.4)
7815	7835	5	.962 (24.4)
7816	7836	6	1.162 (29.5)

LOW PROFILE



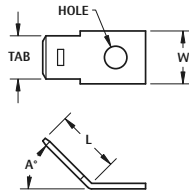
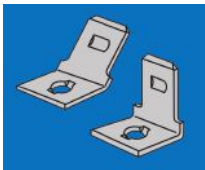
BRASS TABS	STEEL TABS	NO. OF TABS	L DIM.
CAT. NO.	CAT. NO.		
7817	7827	2	.320 (.81)
7818	7828	3	.517 (13.1)
7819	7829	4	.713 (18.1)
7820	7830	5	.910 (23.1)
7821	7831	6	1.107 (28.1)

RIVET MOUNT QUICK-FIT TERMINALS



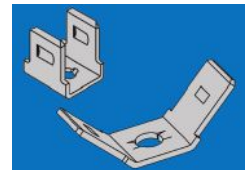
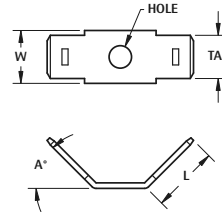
- UL recognized bright brass Quick-Fit terminals
- Rivet mount male tab versions meet NEMA 2-E201546 & UL 310 specifications
- Designed for repeated mating cycles
- For tabs 0.110 (2.8mm) to 0.250 (6.4mm)

.110 (2.8) - .187(4.8) - .250 (6.4) TABS



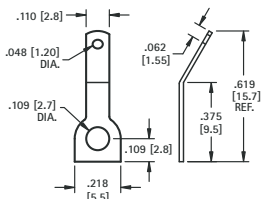
BRIGHT BRASS							MATTE TIN			
A = 45°	A = 90°	TAB SIZE	MAT'L THICK	TAB	W WIDTH	HOLE DIA.	A = 45°	A = 90°		
CAT. NO.	CAT. NO.						CAT. NO.	CAT. NO.		
2004	2002	.110 (2.8)	.020 (.51)	.365 (9.3)	.180 (4.6)	.096 (2.4)	1233	1220		
1271	1261	.187 (4.8)	.020 (.51)	.375 (9.5)	.250 (6.4)	.100 (2.5)	1234	1221		
1280	1256	.250 (6.4)	.032 (.81)	.406 (10.3)	.306 (7.8)	.130 (3.3)	1235	1222		

.110 (2.8) - .187 (4.8) - .250 (6.4) TABS



BRIGHT BRASS							MATTE TIN			
A = 45°	A = 90°	TAB SIZE	MAT'L THICK	TAB	W WIDTH	HOLE DIA.	A = 45°	A = 90°		
CAT. NO.	CAT. NO.						CAT. NO.	CAT. NO.		
2005	2003	.110 (2.8)	.020 (.51)	.360 (9.1)	.180 (4.6)	.096 (2.4)	1240	1227		
1263	1262	.187 (4.8)	.020 (.51)	.315 (8.0)	.250 (6.4)	.100 (2.5)	1241	1228		
1258	1257	.250 (6.4)	.032 (.81)	.400 (10.1)	.306 (7.8)	.130 (3.3)	1242	1229		

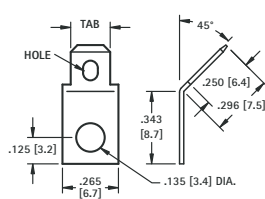
.110 (2.8) TAB



MATERIAL: .020 (.51) Brass, Tin Plate

CAT. NO.	ANGLE
1269	0°
1270	30°

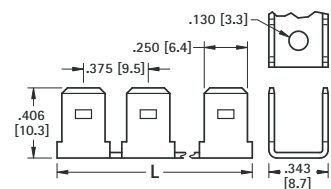
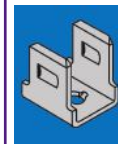
.187 (4.8) - .205 (6.4) TABS



45° TAB MATERIAL: .020 (.51) Brass, Tin Plate

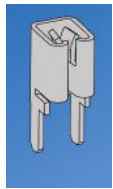
CAT. NO.	TAB	HOLE
4005	.205 (5.2)	.132 (3.4) × .070 (1.78) Slot
4095	.187 (4.7)	.078 (1.98) Dia. Hole

MULTIPLE .250 (6.4) TAB



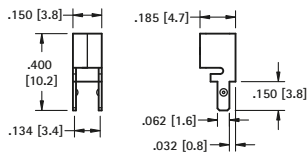
MATERIAL: .032 (.81) Bright Brass

CAT. NO.	PAIRS	L	TAB SIZE
1005	2	.687 (17.4)	.250 (6.4)
1006	3	1.062 (27.0)	.250 (6.4)
1007	4	1.441 (36.6)	.250 (6.4)
1008	5	1.820 (46.2)	.250 (6.4)



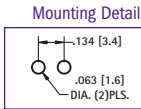
ACCEPTS ALL TABS
 .110 (2.8) TO .250 (6.4) x .020 (.50) TO .032 (.81)

VERTICAL OR HORIZONTAL ENTRY



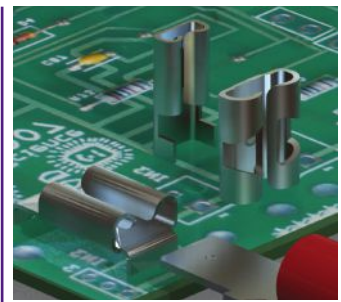
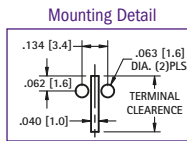
MATERIAL:
 .016 (.41) Brass, Tin-Nickel Plate

CAT. NO.	ORIENTATION
3557	top & side entry

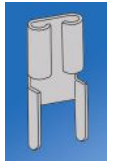


MATERIAL:
 .016 (.41) Brass, Tin-Nickel Plate

CAT. NO.	ORIENTATION
3577	bottom entry

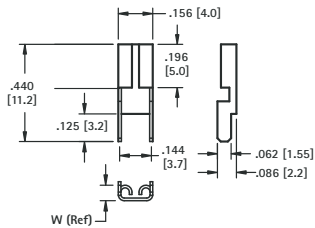


Underwriters Laboratories, Inc.
 Recognized Component Program
 — UL File Number E201546



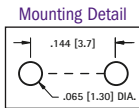
ACCEPTS .110 (2.8) TAB

VERTICAL ENTRY



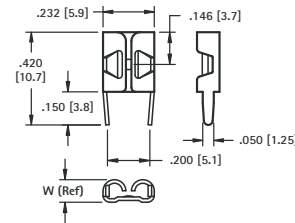
MATERIAL:
 .012 (.30) Brass, Tin-Nickel Plate

CAT. NO.	ACCEPTS TAB	W
3534	.110 (2.8) x .020 (.51)	.070 (1.80)
3544	.110 (2.8) x .032 (.81)	.075 (1.92)



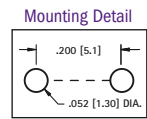
ACCEPTS .187 (4.8) TAB

VERTICAL ENTRY



MATERIAL: .016 (.41) Brass, Tin-Nickel Plate

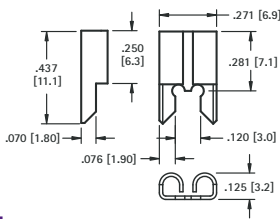
CAT. NO.	ACCEPTS TAB	"W"
3548	.187 (4.8) x .020 (.51)	.093 (2.36)
3578†	.187 (4.8) x .020 (.51)	.093 (2.36)
3551	.187 (4.8) x .032 (.81)	.102 (2.59)



†Low insertion force design

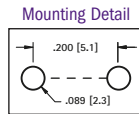
ACCEPTS .205 (5.2) TAB

VERTICAL ENTRY



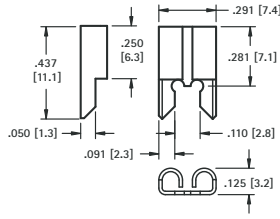
MATERIAL:
 .016 (.41) Brass, Tin-Nickel Plate

CAT. NO.	ACCEPTS TAB
3525	.205 (5.2) x .020 (.51)
3575*	.205 (5.2) x .032 (.81)



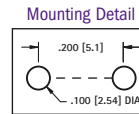
ACCEPTS .250 (6.4) TAB

VERTICAL ENTRY



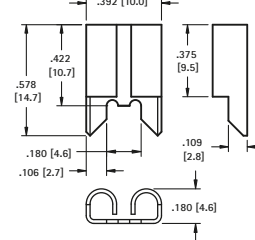
MATERIAL:
 .016 (.41) Brass, Tin-Nickel Plate

CAT. NO.	ACCEPTS TAB
3528	.250 (6.4) x .032 (.81)



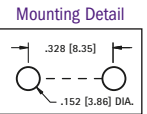
ACCEPTS .312 (7.9) TAB

OVER SIZED



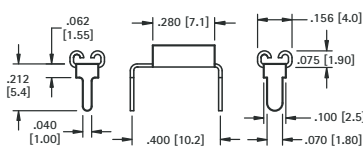
MATERIAL:
 .020 (.51) Copper, Tin-Nickel Plate

CAT. NO. 3555



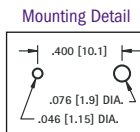
ACCEPTS .110 (2.8) TAB

HORIZONTAL ENTRY



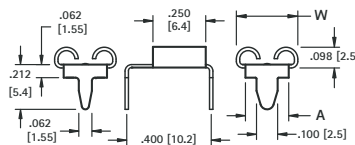
MATERIAL:
 .012 (.30) Brass, Tin-Nickel Plate

CAT. NO.	ACCEPTS TAB
3545	.110 (2.8) x .020 (.51)
3549	.110 (2.8) x .032 (.81)



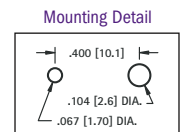
ACCEPTS .187 (4.8), .205 (5.2), .250 (6.4) TAB

HORIZONTAL ENTRY



MATERIAL: Brass, Tin-Nickel Plate

CAT. NO.	ACCEPTS TAB	"W"	"A"	MATL THICK
3571	.187 (4.8) x .020 (.51)	.222 (5.6)	.162 (4.1)	.012 (.30)
3572*	.187 (4.8) x .032 (.81)			
3546	.205 (5.2) x .020 (.51)			
3550	.205 (5.2) x .032 (.81)	.240 (6.1)	.180 (4.6)	.012 (.30)
3547	.250 (6.4) x .032 (.81)	.291 (7.4)	.205 (5.2)	.016 (.41)



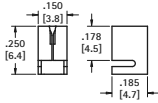
* Not UL Recognized

SMT QUICK-FIT FEMALE TERMINALS

AVAILABLE ON TAPE AND REEL



ACCEPTS ALL TABS
VERTICAL OR HORIZONTAL ENTRY



SPECIFICATIONS

Material: .016 (.41) Brass, Tin-Nickel Plate
Current Rating: 15 Amps @ 500V AC

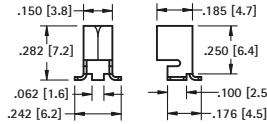
CAT. NO. 3584 (Bulk)

CAT. NO. 3584KTR (Tape & Reel)

Tape & Reel Spec's: 16mm wide, 12mm pitch, 13 inch reel (750 pieces per reel)

ACCEPTS ALL TABS
VERTICAL OR HORIZONTAL ENTRY

KTR parts have Kapton Tape added to top surface for vacuum pick & place



SPECIFICATIONS

Material: .016 (.41) Brass, Tin-Nickel Plate
Current Rating: 15 Amps @ 500V AC

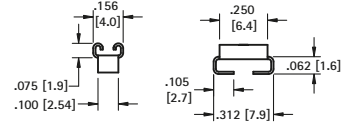
CAT. NO. 3586 (Bulk)

CAT. NO. 3586KTR (Tape & Reel)

Tape & Reel Spec's: 16mm wide, 12mm pitch, 13 inch reel (750 pieces per reel)



ACCEPTS .110 (2.8) × .032 (.81) TAB
HORIZONTAL ENTRY



SPECIFICATIONS

Material: .012 (.30) Brass, Matte Tin Plate
Current Rating: 15 Amps @ 500V AC

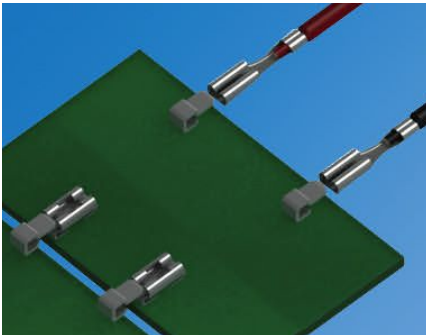
CAT. NO. 3569 (Bulk)

CAT. NO. 3569TR (Tape & Reel)

Tape & Reel Spec's: 24mm wide, 8mm pitch, 13 inch reel (2000 pieces per reel)

SMT .110 (2.8) TAB EDGE CONNECTOR

AVAILABLE ON TAPE AND REEL



CAT. NO. 3579 Bulk

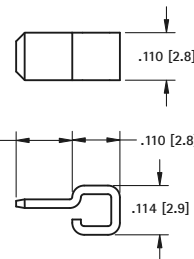
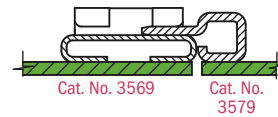
CAT. NO. 3579TR (Tape & Reel)

Tape & Reel Spec's: 24mm wide, 8mm pitch, 13 inch reel (1000 pieces per reel)

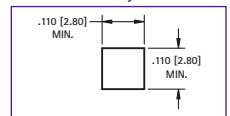
- Designed to pass signals or voltage across boards
- Generous lead-in guide aid in board assembly
- Designed to be used with **Cat. No. 3569**
- .110 tab design also allows standard crimp terminals to be used, see page 70
- Compatible with most automated assembly processes

SPECIFICATIONS

Material: Brass, Tin Plate
Current Rating: 10 Amps
Operating Temperature: -40°F to +257°F (-40°C to 125°C)
Life: 100 cycles

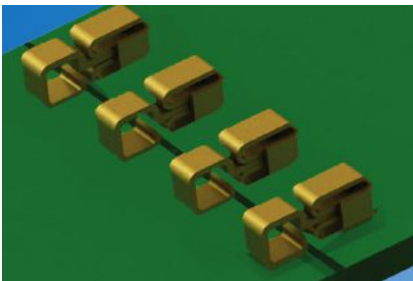


Pad Layout

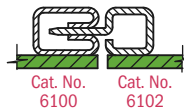


SMT LOW PROFILE EDGE CONNECTORS

AVAILABLE ON TAPE AND REEL



- Designed to pass signals or power across boards
- Generous lead-in guide aid in board assembly
- Gold plating provides superior solderability as well as low contact resistance
- Compatible with most automated assembly processes



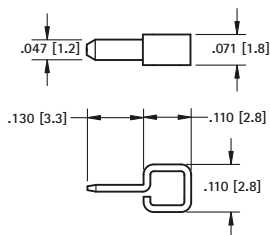
Cat. No. 6100

Cat. No. 6102

SPECIFICATIONS

Material: Phosphor Bronze, Gold Plate
Current Rating: 10 Amps
Operating Temperature: -40°F to +257°F (-40°C to 125°C)
Life: 100 cycles

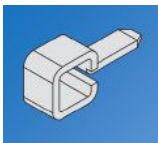
SMT EDGE PIN



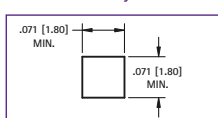
CAT. NO. 6100 Bulk

CAT. NO. 6100TR (Tape & Reel)

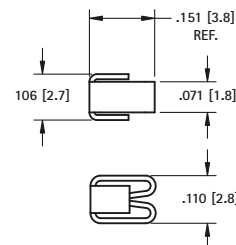
Tape & Reel Spec's: 16mm wide, 8mm pitch, 7 inch reel (500 pieces per reel)



Pad Layout



SMT EDGE SOCKET



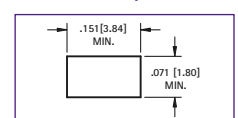
CAT. NO. 6102 Bulk

CAT. NO. 6102TR (Tape & Reel)

Tape & Reel Spec's: 12mm wide, 4mm pitch, 7 inch reel (500 pieces per reel)



Pad Layout

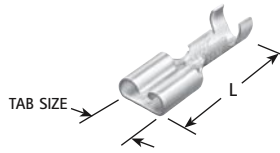


QUICK-FIT FEMALES

VINYL BOOT

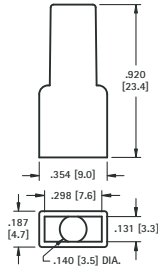


FEMALE NON-INSULATED



For .250 (6.4) QUICK-FITS

- Easily slips over terminal
- Insulates and protects



MATERIAL: Tinned Brass

Boot and Quick-Fit sold separately

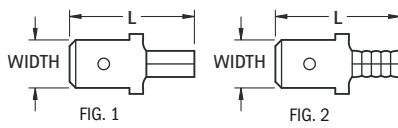
CAT. NO.	MATES WITH MALE TAB WIDTH × THICK	L	AWG SIZE	MAT'L THICK
1252	.110 (2.8) × .020 (.51)	.606 (15.4)	18-22	.010 (.25)
1264	.187 (4.8) × .020 (.51)	.576 (14.6)	16-22	.013 (.33)
4469	.205 (5.2) × .020 (.51)	.640 (16.3)	16-20	.013 (.33)
4470	.250 (6.4) × .032 (.81)	.750 (19.1)	16-20	.016 (.41)

CAT. NO.	BOOT COLOR
4471	CLEAR
4472	RED
4473	BLUE

SOLDERLESS QUICK-FIT TERMINALS

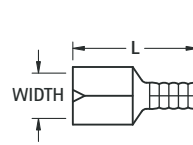
SPECIFICATIONS: Terminals: EPT Copper Insulation: Vinyl

MALE NON-INSULATED



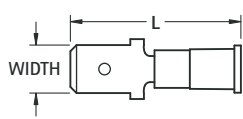
CAT. NO.	WIRE RANGE (AWG)	FIG.	MALE TAB		BARREL		
			WIDTH × THICK	L	LENGTH	I.D.	
8281	22/18	2	.187 (4.8) × .020 (.51)	.64 (16.3)	.24 (6.1)	.080 (2.03)	
8282		1	.250 (6.4) × .032 (.81)	.73 (18.5)	.25 (6.4)	.065 (1.65)	
8283	16/14	2	.187 (4.8) × .020 (.51)	.64 (16.3)	.24 (6.1)	.080 (2.03)	
8284		1	.250 (6.4) × .032 (.81)	.73 (18.5)	.25 (6.4)	.085 (2.16)	
8285	12/10	1	.250 (6.4) × .032 (.81)	.75 (19.1)	.25 (6.4)	.150 (3.81)	

FEMALE NON-INSULATED



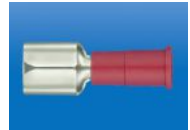
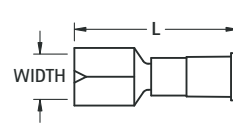
CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB		L	BARREL .250 (6.4)	
		WIDTH × THICK	L		I.D.	
8272	22/18	.187 (4.8) × .020 (.51)	.58 (14.7)	.085 (2.16)		
8273		.250 (6.4) × .032 (.81)	.66 (16.8)	.080 (2.03)		
8274	16/14	.187 (4.8) × .020 (.51)	.58 (14.7)	.085 (2.16)		
8275		.250 (6.4) × .032 (.81)	.66 (16.8)	.080 (2.03)		

MALE VINYL INSULATED



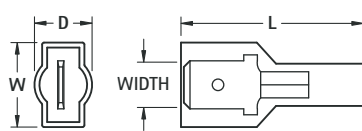
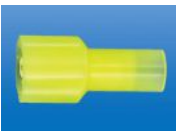
CAT. NO.	WIRE RANGE (AWG)	MALE TAB		BARREL			MAX INSULATION DIAMETER
		WIDTH × THICK	L	LENGTH	I.D.		
8286	22/18	.187 (4.8) × .020 (.51)	.85 (21.6)	.24 (6.1)	.080 (2.03)	.145 (3.7)	
8287		(Red)	.250 (6.4) × .032 (.81)	.93 (23.6)	.25 (6.4)	.065 (1.65)	.145 (3.7)
8288	16/14	.187 (4.8) × .020 (.51)	.85 (21.6)	.24 (6.1)	.080 (2.03)	.145 (3.7)	
8289		(Blue)	.250 (6.4) × .032 (.81)	.93 (23.6)	.25 (6.4)	.085 (2.16)	.170 (4.3)
8290	12/10 (Yellow)	.250 (6.4) × .032 (.81)	1.05 (26.7)	.25 (6.4)	.150 (3.81)	.250 (6.4)	

FEMALE VINYL INSULATED



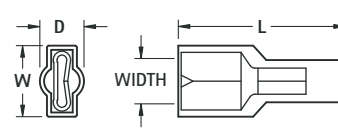
CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB		L	BARREL .250 (6.4)		MAX INSULATION DIAMETER
		WIDTH × THICK	L		I.D.		
8276	22/18	.187 (4.8) × .020 (.51)	.78 (19.8)	.085 (2.16)			
8277		(Red)	.250 (6.4) × .032 (.81)	.87 (22.1)	.080 (2.03)		
8278	16/14	.187 (4.8) × .020 (.51)	.78 (19.8)	.085 (2.16)			
8279		(Blue)	.250 (6.4) × .032 (.81)	.87 (22.1)	.080 (2.03)		
8280	12/10 (Yellow)	.250 (6.4) × .032 (.81)	.96 (24.4)	.165 (4.19)	.250 (6.4)		

MALE FULLY INSULATED NYLON



CAT. NO.	WIRE RANGE (AWG)	MALE TAB		W	D	BARREL .250 (6.4)		MAX. INSUL. DIA.
		WIDTH × THICK	L			LENGTH	I.D.	
8296	22/18	.187 (4.8) × .020 (.51)	.87 (22.1)	.37 (9.4)	.30 (7.6)	.24 (6.1)	.080 (2.03)	.145 (3.7)
8297		(Red)	.250 (6.4) × .032 (.81)	.95 (24.1)	.44 (11.2)	.30 (7.6)	.25 (6.4)	.065 (1.65)	.145 (3.7)
8298	16/14	.187 (4.8) × .020 (.51)	.87 (22.1)	.37 (9.4)	.30 (7.6)	.24 (6.1)	.080 (2.03)	.170 (4.3)
8299		(Blue)	.250 (6.4) × .032 (.81)	.95 (24.1)	.44 (11.2)	.30 (7.6)	.25 (6.4)	.085 (2.16)	.170 (4.3)
8300	12/10 (Yellow)	.250 (6.4) × .032 (.81)	1.05 (26.7)	.47 (11.9)	.39 (9.9)	.25 (6.4)	.150 (3.81)	.250 (6.4)

FEMALE FULLY INSULATED NYLON



CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB		L	W	D	BARREL .250 (6.4)		MAX. INSUL. DIA.
		WIDTH × THICK	L				I.D.		
8291	22/18	.187 (4.8) × .020 (.51)	.81 (20.6)	.30 (7.6)	.23 (5.8)	.085 (2.16)	.145 (3.7)		
8292		(Red)	.250 (6.4) × .032 (.81)	.87 (22.1)	.37 (9.4)	.23 (5.8)	.080 (2.03)	.145 (3.7)	
8293	16/14	.187 (4.8) × .020 (.51)	.81 (20.6)	.30 (7.6)	.23 (5.8)	.085 (2.16)	.145 (3.7)		
8294		(Blue)	.250 (6.4) × .032 (.81)	.87 (22.1)	.37 (9.4)	.23 (5.8)	.080 (2.03)	.170 (4.3)	
8295	12/10 (Yellow)	.250 (6.4) × .032 (.81)	.99 (25.1)	.39 (9.9)	.32 (8.1)	.165 (4.19)	.250 (6.4)		



i-Clamp Insulation Displacement wire connectors provide a quick and secure method of connecting wires and devices. The i-Clamps easily pierces the wire insulation to make a tamper proof and reliable connection without the need to cut, strip or otherwise secure the wires. Without having to strip or prepare the wires, installations time is dramatically reduced while connection security is enhanced. i-Clamps are made from translucent Polycarbonate which makes these devices durable in shock and vibration environments as well as provide the ability to visually inspect the connections. Once secured, the connection is permanent and tamper proof without the need to worry about wire exposure or nuts and tape falling off over time.

Specifications:

- Housing:** Polycarbonate, UL 94V-0
- Contact/Jumper:** High Performance Copper Alloy, Nickel Plate
- UL Listed:** E490622/E490623
- Voltage Rating:** 277 VAC

Note: Product suitability to your application must be determined prior to use. All appropriate electrical codes should be followed.



One-Way Series

For Splicing Lines



Quick/easy splice for up to four lines

CAT. NO.	# OF WIRE RUNS/TAPS	WIRE RANGE (IN/OUT)	COLOR CODE	CURRENT RATING
8370	2 Wires	#14 AWG	Yellow	20 Amps @ 277 VAC
8371	3 Wires			
8372	4 Wires			
8373	4 wire, 2 circuit	#14 AWG	Yellow/Blue	20 Amps @ 277 VAC
8374	2 Wires	#14-12 AWG	Orange	20 Amps @ 277 VAC
8375	3 Wires			
8377	4 Wires			

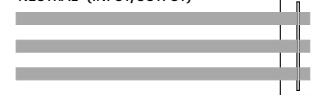
GROUND (INPUT/OUTPUT)



HOT (INPUT/OUTPUT)



NEUTRAL (INPUT/OUTPUT)

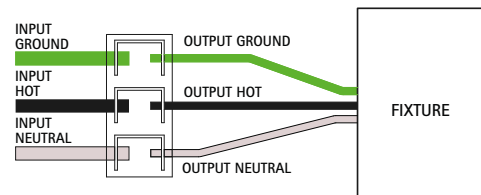


Two-Way Series

For Adding Fixtures or Components



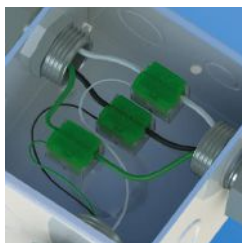
- Dual wire clamp allows for i-Clamp to be preassembled onto fixture at factory. Splice can be completed on site
- Pre-assembly eliminates risk of i-Clamp being lost during fixture insulation



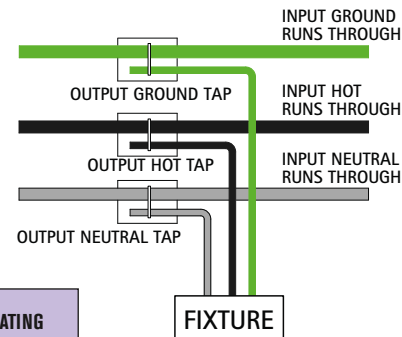
CAT. NO.	# OF WIRE RUNS/TAPS	WIRE RANGE (IN/OUT)	COLOR CODE	CURRENT RATING
8360	1 Wire	#16-14 AWG (In) / #16-14 AWG (Out)	Yellow	10 Amps @ 277 VAC
8361	2 Wires	#18 AWG (In) / #18 AWG (Out)	Blue	10 Amps @ 277 VAC
8362	2 Wires	#14 AWG (In) / #20-18 AWG (Out)	Yellow / Blue	5 Amps @ 277 VAC
8363	3 Wires	#14 AWG (In) / #20-18 AWG (Out)	Yellow / Blue	5 Amps @ 277 VAC

T-Series

For Branching a Wire



i-Clamp hinges open to allow main wire to be ran thru connector without any cuts or stripping



CAT. NO.	# OF WIRE RUNS/TAPS	WIRE RANGE (IN/OUT)	COLOR CODE	CURRENT RATING
8380	1 Run / 1 Tap	#14 AWG (In) / #16 AWG (Out)	Green	15 Amps @ 277 VAC
8381	1 Run / 1 Tap	#12-10 AWG (In) / #16-14 AWG (Out)	Yellow	15 Amps @ 277 VAC
8382	1 Run / 1 Tap	#12-10 AWG (In) / #14-12 AWG (Out)	Orange	20 Amps @ 277 VAC
8383	1 Run / 1 Tap	#16-14 AWG (In) / #22-18 AWG (Out)	Blue	5 Amps @ 277 VAC

SLIM-LINE PC SCREW TERMINALS

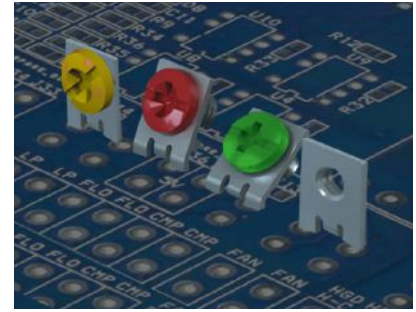
These easy to mount multi-purpose screw terminals are a practical low cost alternative to PC edge connectors. Will accept solid & stranded wire or wire crimp terminals. Supplied unassembled or with screw installed and captivated. These screw terminals have the same mounting hole pattern as quick fit terminals which allows instant change between quick fit and screw terminals.

Features:

- Same mounting hole pattern as most quick fit terminals
- Color coded screws available for quick identification
- Stable no rock design
- Accepts #14-22 AWG solid or stranded wire, crimp terminals or lugs
- Ideally suited for high density packaging
- Easy accessible for PC board assembly and troubleshooting

HEAD COLOR	SUFFIX
RED	-2
BLACK	-3
WHITE	-4
BLUE	-5
GREEN	-6
YELLOW	-7
NICKEL	none

COLOR SELECTION:
Select desired screw terminal and add color suffix to the screw terminal Cat. No.



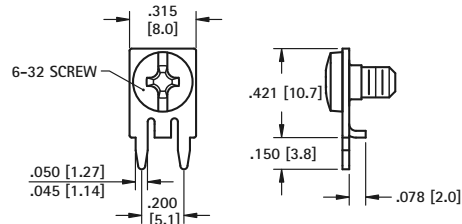
90° Angle

Specifications:

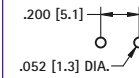
Current Rating: 15 Amps

Terminal: Brass, Matte Tin Plate

Binding Head Screw: Brass, Nickel Plate



Mounting Detail



CAT. NO. 7837 (No Screw Supplied)

CAT. NO. 8183 (Screw Supplied Unassembled)

CAT. NO. 7757 (Screw Installed & Captivated)



Color coded screws available (add color screw suffix to Cat No.)

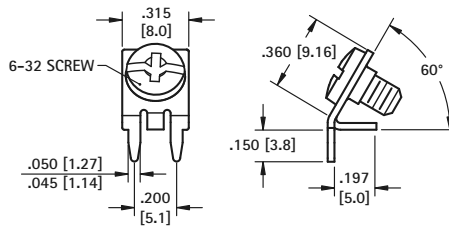
60° Angle

Specifications:

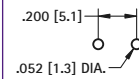
Current Rating: 15 Amps

Terminal: Brass, Matte Tin Plate

Binding Head Screw: Brass, Nickel Plate



Mounting Detail



CAT. NO. 7838 (No Screw Supplied)

CAT. NO. 8184 (Screw Supplied Unassembled)

CAT. NO. 7758 (Screw Installed & Captivated)



Color coded screws available (add color screw suffix to Cat No.)

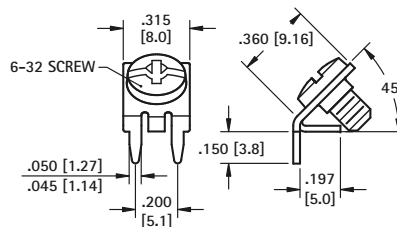
45° Angle

Specifications:

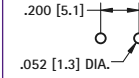
Current Rating: 15 Amps

Terminal: Brass, Matte Tin Plate

Binding Head Screw: Brass, Nickel Plate



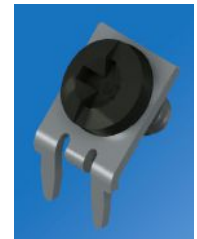
Mounting Detail



CAT. NO. 7839 (No Screw Supplied)

CAT. NO. 8185 (Screw Supplied Unassembled)

CAT. NO. 7759 (Screw Installed & Captivated)

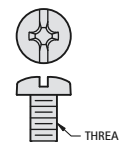


Color coded screws available (add color screw suffix to Cat No.)

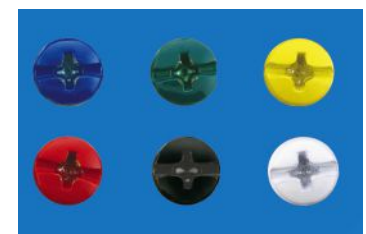
BINDING HEAD SCREWS - COLORED HEAD

M4 x 6.3mm L	M3 x 6mm L		6-32 x .250 (6.3) L
CAT. NO.	CAT. NO.	HEAD COLOR	CAT. NO.
7799-1	7689-1	NICKEL	8190-1
9192-2	9191-2	RED	9190-2
9192-3	9191-3	BLACK	9190-3
9192-4	9191-4	WHITE	9190-4
9192-5	9191-5	BLUE	9190-5
9192-6	9191-6	GREEN	9190-6
9192-7	9191-7	YELLOW	9190-7

Ideal for quick identification of screw terminal. Reduces errors in wiring of cables. See pages 73-77 for screw terminals with colored screws installed. Only head is painted, provides reliable electrical contact to terminal.



MATERIAL: Brass, Nickel Plate with Painted Color Head



PC SCREW TERMINALS

These easy-to-mount, multipurpose screw type terminals are a practical, low-cost alternative to PC screw type edge connectors, barrier blocks, terminal boards and terminal strips. Steadfast and easy to install, will accommodate solid or stranded wire, crimp type terminals or lugs. Multi-placement of these low-profile terminals make them ideally suited for high density packaging. Supplied unassembled or with screw installed and captivated.

PRINCIPAL FEATURES

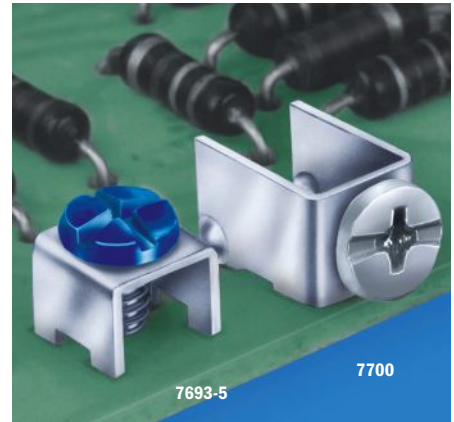
- Low profile
- Stable, no-rock design with exclusive anti-rotational feature
- Easily mounts with four legs into pre-drilled or punched holes
- Accepts #14-22 AWG solid or stranded wire, crimp type terminals or lugs
- Ideally suited for high-density packaging
- Available in horizontal or vertical mounting
- Space-saving and time saving
- Easy accessibility for PC board testing
- Binding screw is positioned above board level to avoid wicking during wave soldering
- Terminals are made of Brass with Tin Plate
- Supplied with a combination drive 6-32 binding head screw

CAT. NO. COLOR SUFFIX
Ex: XXXX -X

COLOR SELECTION:

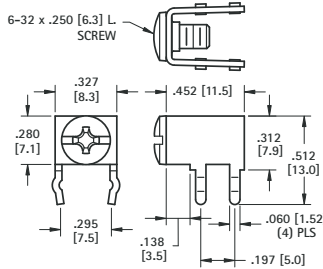
Select desired screw terminal and add color suffix to the screw terminal Cat. No.

HEAD COLOR	SUFFIX
RED	-2
BLACK	-3
WHITE	-4
BLUE	-5
GREEN	-6
YELLOW	-7
NICKEL	none



SNAP-IN PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

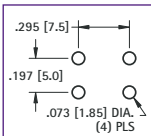


HORIZONTAL TYPE

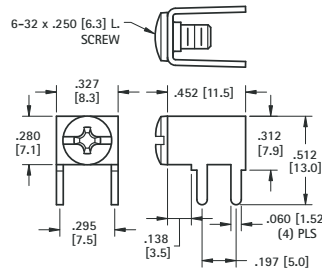
SPECIFICATIONS

Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

Mounting Detail



Color coded screws available (add color screw suffix to Cat. No.)



PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

CAT. NO. 7779 (No Screw Supplied)

CAT. NO. 7690 (Screw Supplied Unassembled)

CAT. NO. 7692 (Screw Installed & Captivated)

CAT. NO. 7781 (No Screw Supplied)

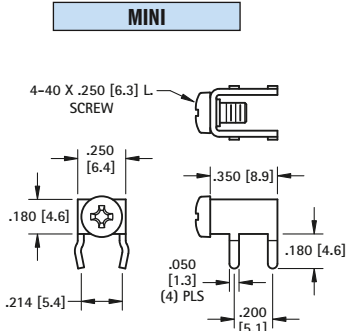
CAT. NO. 8190 (Screw Supplied Unassembled)

CAT. NO. 7700 (Screw Installed & Captivated)



SNAP-IN PC MOUNT

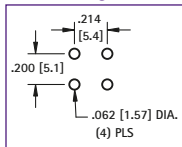
- Color coded screws available (add color screw suffix to Cat. No.)



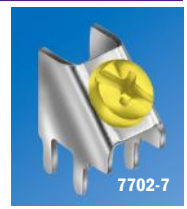
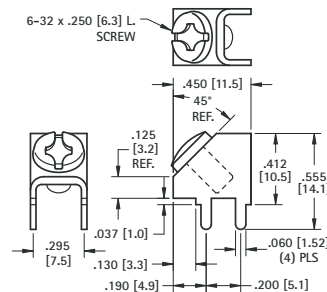
SPECIFICATIONS

Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

Mounting Detail



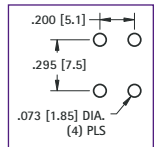
45°



PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

Mounting Detail



CAT. NO. 7774 (No Screw Supplied)

CAT. NO. 7773 (Screw Supplied Unassembled)

CAT. NO. 7783 (No Screw Supplied)

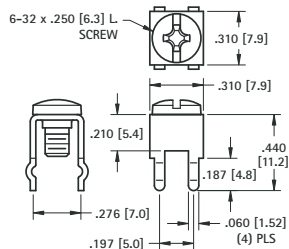
CAT. NO. 8189 (Screw Supplied Unassembled)

CAT. NO. 7702 (Screw Installed & Captivated)



SNAP-IN PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

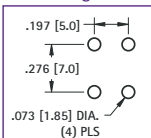


VERTICAL TYPE

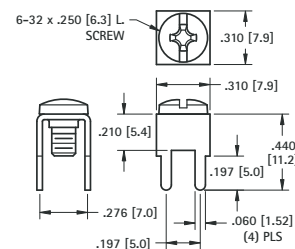
SPECIFICATIONS

Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

Mounting Detail



Color coded screws available (add color screw suffix to Cat. No.)



PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

CAT. NO. 7780 (No Screw Supplied)

CAT. NO. 7691 (Screw Supplied Unassembled)

CAT. NO. 7693 (Screw Installed & Captivated)

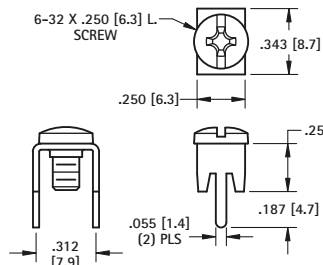
CAT. NO. 7782 (No Screw Supplied)

CAT. NO. 8191 (Screw Supplied Unassembled)

CAT. NO. 7701 (Screw Installed & Captivated)

PC SCREW TERMINALS

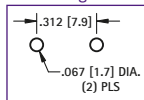
LOW PROFILE VERTICAL TYPE



SPECIFICATIONS

Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

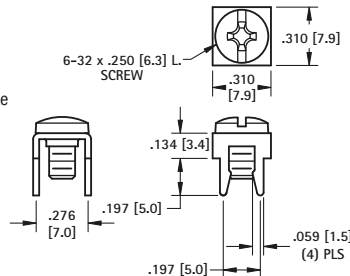
Mounting Detail



CAT. NO. 7784 (No Screw Supplied)

CAT. NO. 8198 (Screw Supplied Unassembled)

CAT. NO. 7778 (Screw Installed & Captivated)

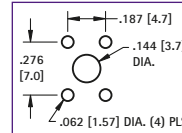


CAT. NO. 7785 (No Screw Supplied)

CAT. NO. 8195 (Screw Supplied Unassembled)

CAT. NO. 7775 (Screw Installed & Captivated)

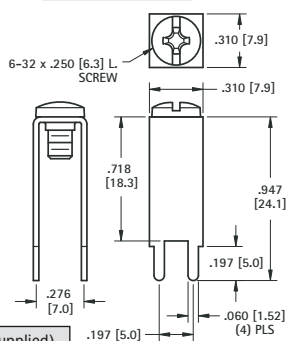
• Color coded screws available (add color screw suffix to Cat. No.)
Mounting Detail



VERTICAL TYPE



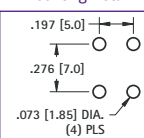
EXTENDED



SPECIFICATIONS

Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

Mounting Detail

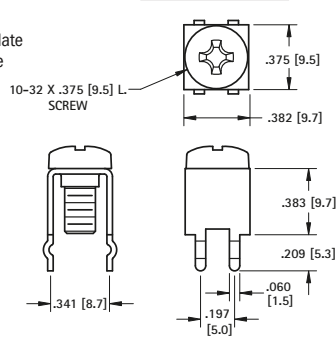


CAT. NO. 7789 (No Screw Supplied)

CAT. NO. 7697 (Screw Supplied Unassembled)

CAT. NO. 7699 (Screw Installed & Captivated)

HEAVY DUTY

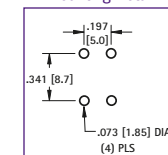


CAT. NO. 7791 (No Screw Supplied)

CAT. NO. 8174 (Screw Supplied Unassembled)



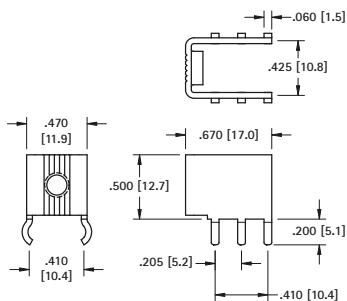
Mounting Detail



30 AMP - HEAVY DUTY



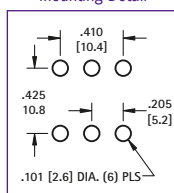
HORIZONTAL



SPECIFICATIONS

Rated: 30 Amps
Terminal: .045 (1.14) Brass, Matte Tin Plate
Screw: Stainless Steel

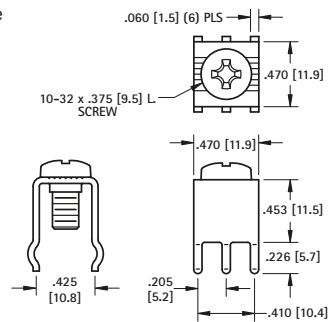
Mounting Detail



CAT. NO. 7801 (No Screw Supplied)

CAT. NO. 8166 (Screw Supplied Unassembled)

VERTICAL

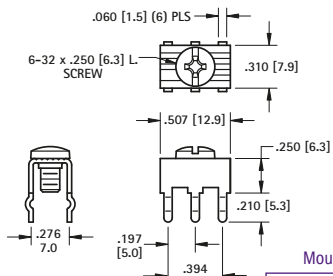


CAT. NO. 7787 (No Screw Supplied)

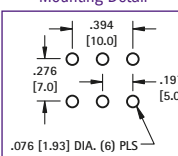
CAT. NO. 8196 (Screw Supplied Unassembled)



30 AMP



Mounting Detail



SPECIFICATIONS

Rated: 30 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

CAT. NO. 7786 (No Screw Supplied)

CAT. NO. 8197 (Screw Supplied Unassembled)

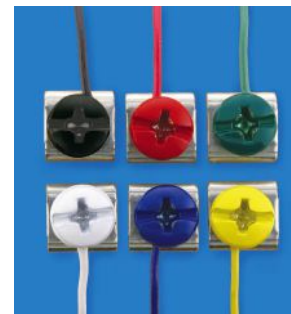
CAT. NO. 8199 (Screw Installed & Captivated)

COLOR CODED GUIDE

CAT. NO. COLOR SUFFIX
Ex: XXXX -X

COLOR SELECTION:
 Select desired screw terminal and add color suffix to the screw terminal Cat. No.

HEAD COLOR	SUFFIX
RED	-2
BLACK	-3
WHITE	-4
BLUE	-5
GREEN	-6
YELLOW	-7
NICKEL	none



Refer to page 69 for color screws only

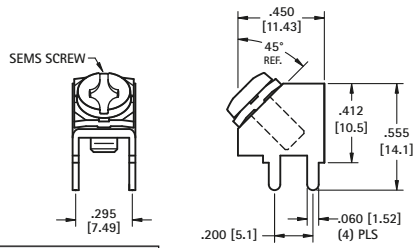
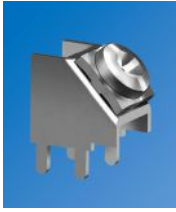
SEMS SCREW TERMINALS

SPECIFICATIONS

Terminal: .032 (.81) Brass, Matte Tin Plate
Screw & Washer: Steel, Nickel Plate

SEMS Screw Terminals provide quick and secure attachment of wire leads. SEMS screw has captivated, free spinning lock washer, eliminated twisting of wire when tightening lead to terminal. Washer will rise with head of screw when unscrewed.

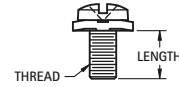
15 AMP



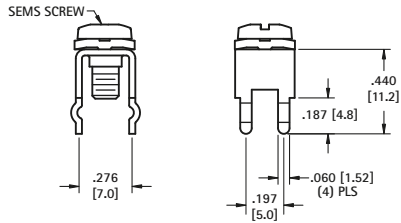
CAT. NO. 8189-SEMS (Screw Supplied Unassembled)

CAT. NO. 7702-SEMS (Screw Installed & Captivated)

SEMS SCREW ONLY



CAT. NO.	THREAD	LENGTH
9920	6-32	.250 (6.4)
9923	M3	.188 (4.8)

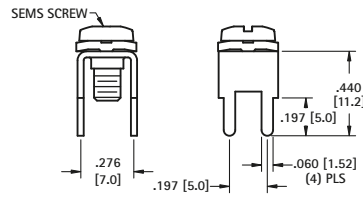


6-32 THREAD

CAT. NO.	
7681-SEMS	Screw Supplied Unassembled
7693-SEMS	No Screw Supplied

M3 THREAD

CAT. NO.	
7698-SEMS	Screw Supplied Unassembled
7696-SEMS	No Screw Supplied

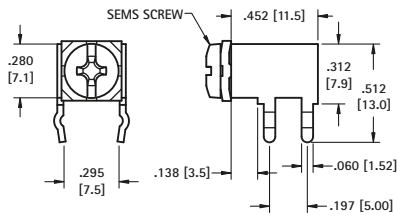


6-32 THREAD

CAT. NO.	
8191-SEMS	Screw Supplied Unassembled
7701-SEMS	No Screw Supplied

M3 THREAD

CAT. NO.	
7771-SEMS	Screw Supplied Unassembled
7772-SEMS	No Screw Supplied

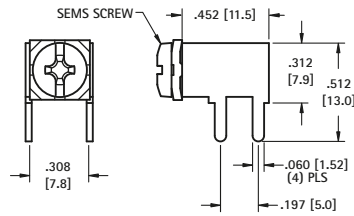


6-32 THREAD

CAT. NO.	
7690-SEMS	Screw Supplied Unassembled
7692-SEMS	Screw Installed & Captivated

M3 THREAD

CAT. NO.	
7699-SEMS	Screw Supplied Unassembled
7695-SEMS	No Screw Supplied

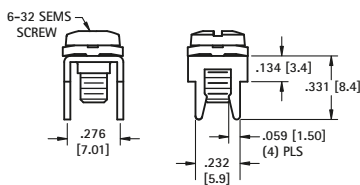


6-32 THREAD

CAT. NO.	
8190-SEMS	Screw Supplied Unassembled
7700-SEMS	No Screw Supplied

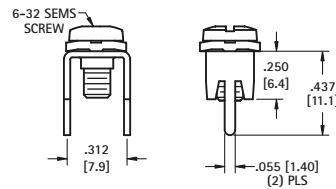
M3 THREAD

CAT. NO.	
7761-SEMS	Screw Supplied Unassembled
7762-SEMS	No Screw Supplied



CAT. NO. 8195-SEMS (Screw Supplied Unassembled)

CAT. NO. 7775-SEMS (Screw Installed & Captivated)

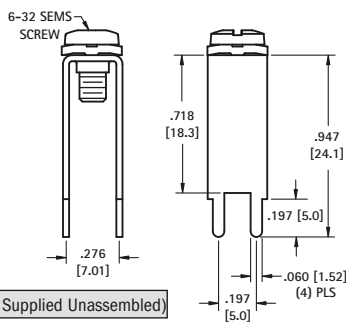


CAT. NO. 8198-SEMS (Screw Supplied Unassembled)

CAT. NO. 7778-SEMS (Screw Installed & Captivated)



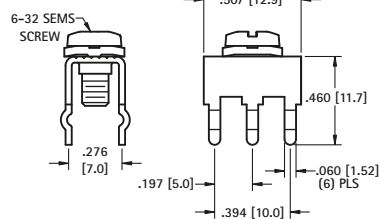
PC MOUNT



CAT. NO. 7697-SEMS (Screw Supplied Unassembled)

CAT. NO. 7699-SEMS (Screw Installed & Captivated)

30 AMP



CAT. NO. 8197-SEMS (Screw Supplied Unassembled)

CAT. NO. 8199-SEMS (Screw Installed & Captivated)



METRIC PC SCREW TERMINALS

These easy-to-mount, multipurpose screw type terminals are a practical, low-cost alternative to PC screw type edge connectors, barrier blocks, terminal boards and terminal strips. Steadfast and easy to install, will accommo-

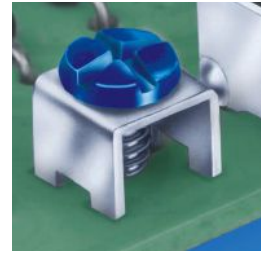
date solid or stranded wire, crimp type terminals or lugs. Multi- placement of these low-profile terminals make them ideally suited for high density packaging. Supplied unassembled or with screw installed and captivated.

PRINCIPAL FEATURES

- Stable, no-rock design with exclusive anti-rotational feature
- Easily mounts with four legs into pre-drilled or punched holes
- Accepts #14-22 AWG solid or stranded wire, crimp type terminals or lugs
- Ideally suited for high-density packaging
- Easy accessibility for PC board testing
- Binding screw is positioned above board level to avoid wicking during wave soldering
- All dimensions appear in millimeters

HEAD COLOR	SUFFIX
RED	-2
BLACK	-3
WHITE	-4
BLUE	-5
GREEN	-6
YELLOW	-7
NICKEL	none

COLOR SELECTION:
Select desired screw terminal and add color suffix to the screw terminal Cat. No.



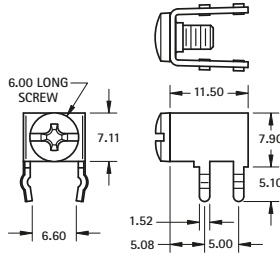
Refer to page 69 for color screws only

HORIZONTAL TYPE



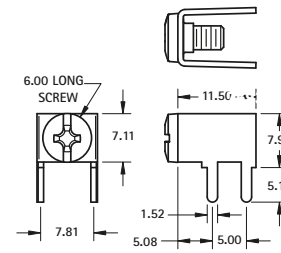
7695-2
SNAP-IN PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)



SPECIFICATIONS

Rated: 15 Amps
Terminal: .81 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

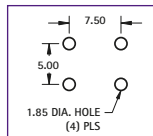


7762-3
PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

M3 THREAD CAT. NO.	No Screw Supplied	M4 THREAD CAT. NO.
7790	No Screw Supplied	7792
7689	Screw Supplied Unassembled	7793
7695	Screw Installed & Captivated	7794

Mounting Detail



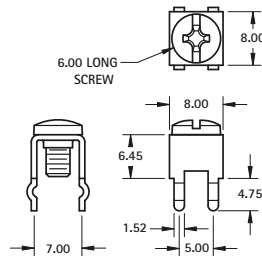
M3 THREAD CAT. NO.	No Screw Supplied	M4 THREAD CAT. NO.
7760	No Screw Supplied	7764
7761	Screw Supplied Unassembled	7765
7762	Screw Installed & Captivated	7766

VERTICAL TYPE



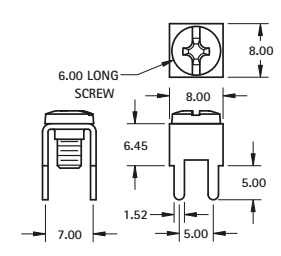
7696-4
SNAP-IN PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)



SPECIFICATIONS

Rated: 15 Amps
Terminal: .81 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

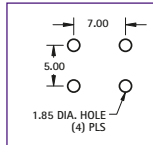


7772-6
PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

M3 THREAD CAT. NO.	No Screw Supplied	M4 THREAD CAT. NO.
7788	No Screw Supplied	7795
7698	Screw Supplied Unassembled	7796
7696	Screw Installed & Captivated	7797

Mounting Detail



M3 THREAD CAT. NO.	No Screw Supplied	M4 THREAD CAT. NO.
7770	No Screw Supplied	7767
7771	Screw Supplied Unassembled	7768
7772	Screw Installed & Captivated	7769

30 AMP - VERTICAL TYPE



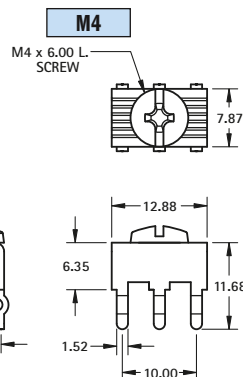
7800
SNAP-IN PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

SPECIFICATIONS

Rated: 30 Amps
Terminal: .81 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

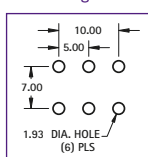
CAT. NO.	No Screw Supplied
7798	No Screw Supplied
7799	Screw Supplied Unassembled
7800	Screw Installed & Captivated



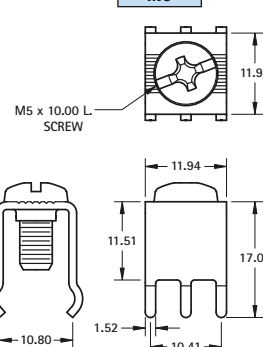
PRINCIPAL FEATURES

- Compact, heavy duty design
- Six snap-in legs for total stability
- Serrated top surface secures connection

Mounting Detail



M5



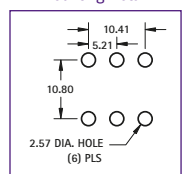
7808
SNAP-IN PC MOUNT

SPECIFICATIONS

Rated: 30 Amps
Terminal: 1.14 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

CAT. NO.	No Screw Supplied
7807	No Screw Supplied
7808	Screw Supplied Unassembled

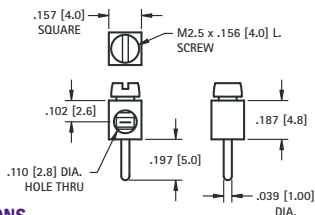
Mounting Detail



MINI BINDING POSTS



THRU HOLE



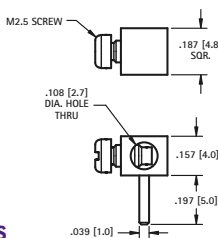
SPECIFICATIONS

Terminal: Brass, Tin Plate
Screw: Steel, Zinc Plate
Mounting Hole: .047 (1.2)
Current Rating: 15 AMP

CAT. NO. 8730 (Screw Installed)



HORIZONTAL

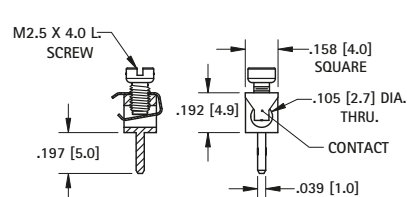


SPECIFICATIONS

Terminal: Brass, Tin Plate
Screw: Steel, Zinc Plate
Mounting Hole: .047 (1.2)
Current Rating: 15 AMP

CAT. NO. 8734 (Screw Installed)

WIRE CONTACT



SPECIFICATIONS

Terminal: Brass, Tin Plate
Screw: Steel, Zinc Plate
Contact: Phosphor Bronze, Tin Plate
Mounting Hole: .047 (1.2)
Current Rating: 15 AMP

CAT. NO. 8737 (Screw Installed)



LOW PROFILE SCREW TERMINALS

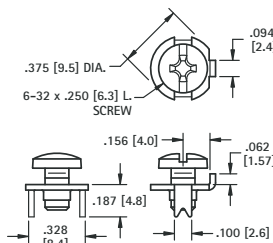
These sturdy, low cost screw terminals, feature an anti-rotation tab for use with spade terminals. They are available with the screw installed and captivated, the screw unassembled or without a screw.

PRINCIPLE FEATURES

- Easy to connect using solid or stranded wire, crimp lugs or terminals
- Anti-rotation tab for use with spade terminals
- Supplied with screw installed and captivated, with screw unassembled, or without screw
- Stainless Steel screw will not wick



6-32



SPECIFICATIONS

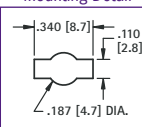
Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Screw: Stainless Steel

CAT. NO. 1284 (No Screw Supplied)

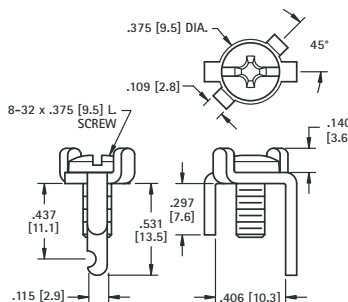
CAT. NO. 1298 (Screw Supplied Unassembled)

CAT. NO. 1201 (Screw Installed & Captivated)

Mounting Detail



8-32



SPECIFICATIONS

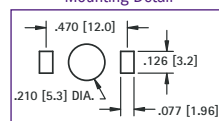
Rated: 15 Amps
Terminal: .064 (1.6) Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

CAT. NO. 1205 (No Screw Supplied)

CAT. NO. 1207 (Screw Supplied Unassembled)

CAT. NO. 1209 (Screw Installed)

Mounting Detail



HEAVY DUTY SCREW TERMINALS - 30 AMP

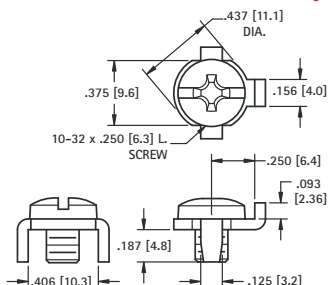
These heavy duty terminals are available with the screw installed or unassembled, and feature easy access to connect solid or stranded wire, crimp type lugs or terminals.

PRINCIPLE FEATURES

- Anti-rotation tab for use with spade terminals
- Below the board notched leg, to facilitate mechanical and solder connections
- Easy to connect using solid or stranded wire, crimp lugs or terminals
- Available with screw installed, unassembled, or without screw



10-32



SPECIFICATIONS

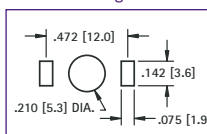
Rated: 30 Amps
Terminal: .062 (1.6) Brass, Matte Tin Plate
Screw: Stainless Steel

CAT. NO. 1293 (No Screw Supplied)

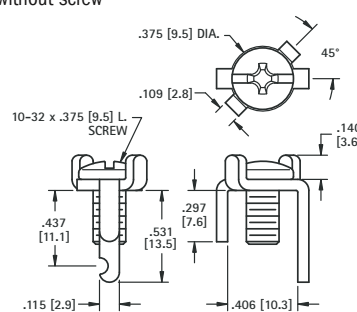
CAT. NO. 1299 (Screw Supplied Unassembled)

CAT. NO. 1202 (Screw Installed & Captivated)

Mounting Detail



10-32



SPECIFICATIONS

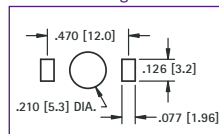
Rated: 30 Amps
Terminal: .064 (1.6) Brass, Matte Tin Plate
Screw: Steel, Nickel Plate

CAT. NO. 1206 (No Screw Supplied)

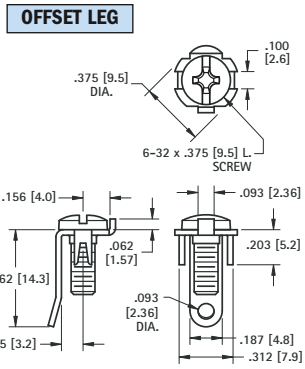
CAT. NO. 1208 (Screw Supplied Unassembled)

CAT. NO. 1283 (Screw Installed)

Mounting Detail



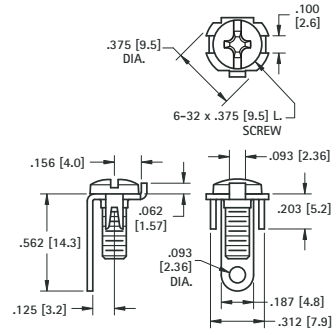
SCREW TERMINALS



SPECIFICATIONS
Terminal: .032 (.81) Steel, Tin Plate
Screw: Steel, Nickel Plate
 (Screw Installed & Captivated)
Rated: 15 Amps

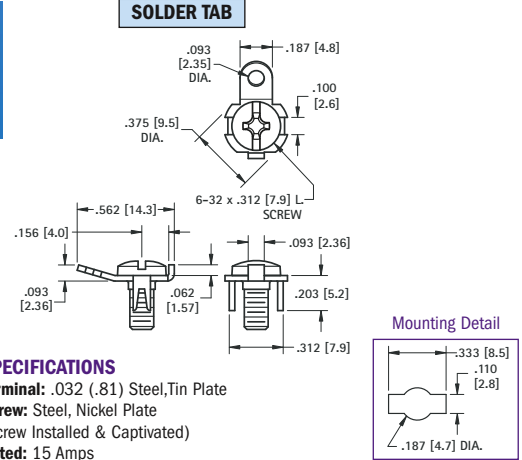
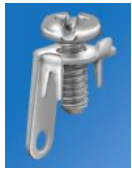
CAT. NO. 1248

STRAIGHT LEG



SPECIFICATIONS
Terminal: .032 (.81) Steel, Tin Plate
Screw: Steel, Nickel Plate
 (Screw Installed & Captivated)
Rated: 15 Amps

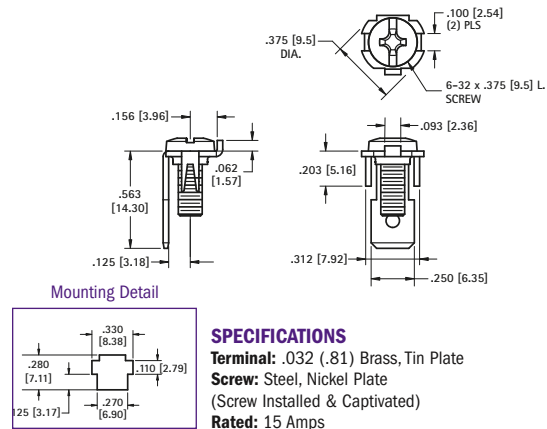
CAT. NO. 1215



SPECIFICATIONS
Terminal: .032 (.81) Steel, Tin Plate
Screw: Steel, Nickel Plate
 (Screw Installed & Captivated)
Rated: 15 Amps

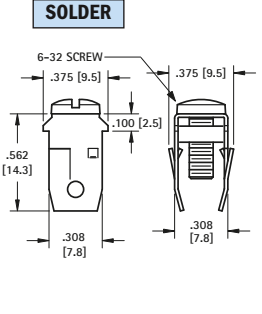
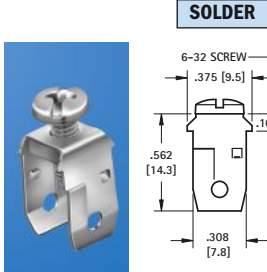
CAT. NO. 1232

QUICK FIT



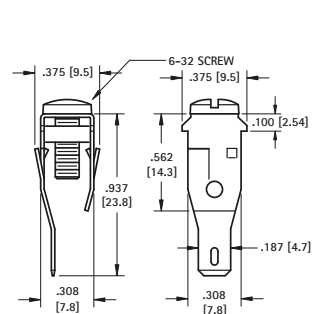
SPECIFICATIONS
Terminal: .032 (.81) Brass, Tin Plate
Screw: Steel, Nickel Plate
 (Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1217



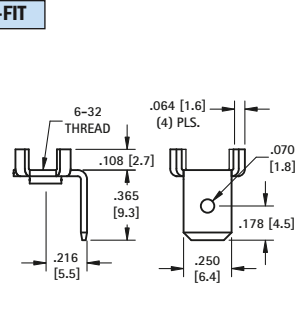
SPECIFICATIONS
Terminal: .020 (.51) Steel, Tin Plate
Screw: Steel, Zinc Plate,
 (Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1272

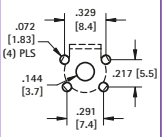


SPECIFICATIONS
Terminal: .020 (.51) Steel, Tin Plate
Screw: Steel, Zinc Plate,
 (Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1273



Mounting Detail



SPECIFICATIONS
Material: .032 (.81) Brass, Nickel Plate
Rated: 15 Amps

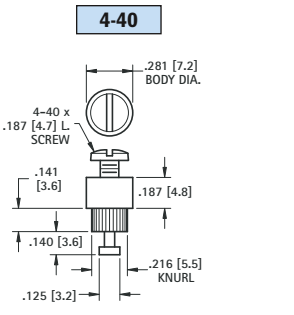
CAT. NO. 1247 (No Screw Supplied)
CAT. NO. 1251 (Screw Supplied)



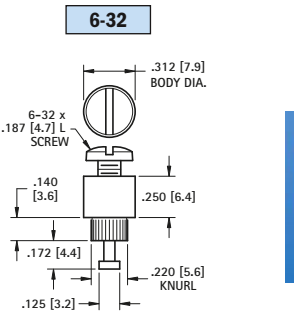
Supplied Unassembled

BINDING POST TERMINALS (RIVET TYPE)

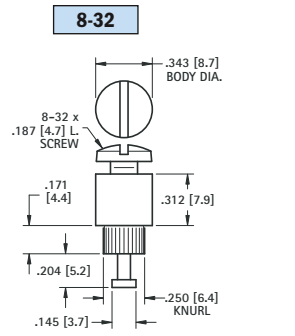
SPECIFICATIONS Terminal: Brass, Tin Plate **Screw:** Steel, Zinc Plate (Screw Supplied Unassembled)



Mounting Hole: .220 (5.6)
CAT. NO. 1537 FOR .093 (2.38) BOARD



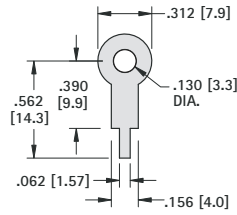
Mounting Hole: .225 (5.7)
CAT. NO. 1535 FOR .093 (2.38) BOARD



Mounting Hole: .255 (6.5)
CAT. NO. 1536 FOR .125 (3.2) BOARD

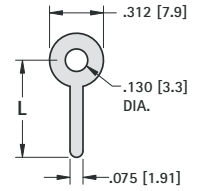


PC TERMINAL LUGS



MATERIAL: .016 (.41) Brass, Tin Plate

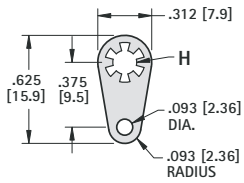
CAT. NO. 680



MATERIAL: .020 (.51) Brass, Tin Plate

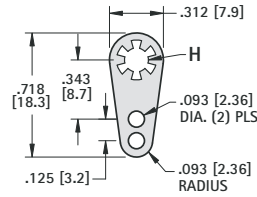
CAT. NO.	L
4000	.500 (12.7)
4001	.562 (14.3)
4002	.750 (19.1)
4003	1.000 (25.4)

LOCKWASHER TERMINAL LUGS



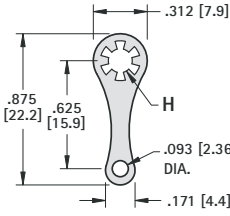
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
908	.120 (3.1)	#4
914	.140 (3.6)	#6
915	.171 (4.3)	#8



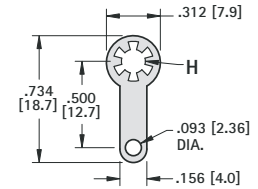
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
910	.120 (3.1)	#4
918	.140 (3.6)	#6
906	.171 (4.3)	#8



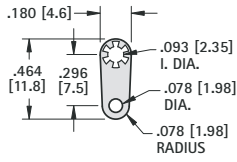
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
903	.120 (3.1)	#4
904	.140 (3.6)	#6
905	.171 (4.3)	#8
913	.196 (5.0)	#10



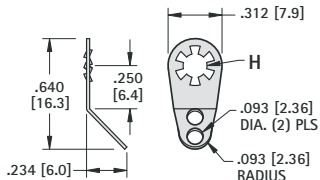
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
909	.120 (3.1)	#4
916	.140 (3.6)	#6
917	.171 (4.3)	#8



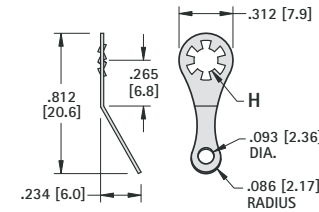
MATERIAL: .013 (.33) Brass, Tin Plate

CAT. NO. 907



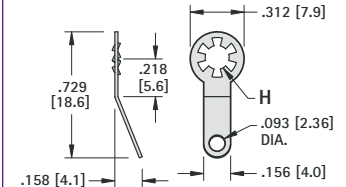
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7311	.120 (3.1)	#4
7312	.140 (3.6)	#6
7313	.171 (4.3)	#8



MATERIAL: .018 (.46) Brass, Tin Plate

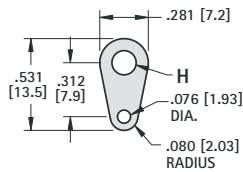
CAT. NO.	H	STUD SIZE
7317	.120 (3.1)	#4
7318	.140 (3.6)	#6
7319	.171 (4.3)	#8
4704	.196 (5.0)	#10



MATERIAL: .018 (.46) Brass, Tin Plate

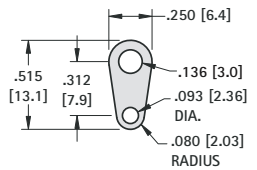
CAT. NO.	H	STUD SIZE
7314	.120 (3.1)	#4
7315	.140 (3.6)	#6
7316	.171 (4.3)	#8

SOLDER TERMINAL LUGS



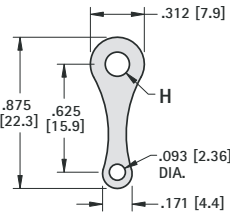
MATERIAL: .015 (.38) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7328	.120 (3.1)	#4
7329	.140 (3.6)	#6
7330	.171 (4.3)	#8



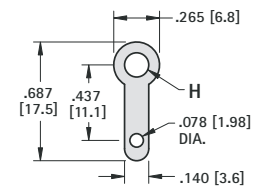
MATERIAL: .016 (.41) Brass, Tin Plate

CAT. NO. 4004



MATERIAL: .020 (.51) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7331	.120 (3.1)	#4
7332	.140 (3.6)	#6
7333	.171 (4.3)	#8
7310	.196 (5.0)	#10



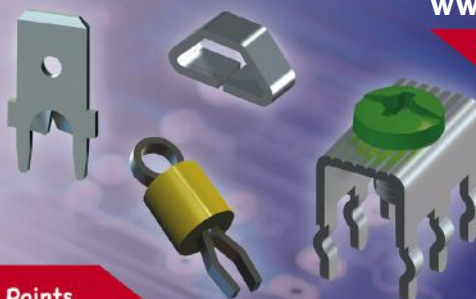
MATERIAL: .020 (.51) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7325	.120 (3.1)	#4
7326	.140 (3.6)	#6
7327	.171 (4.3)	#8
7340	.196 (5.0)	#10



Terminals & Test Points

Certified Quality & Proven Performance
ISO 9001:2015 Quality System



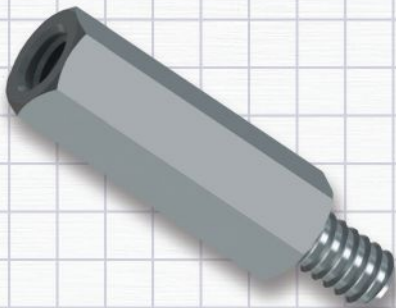
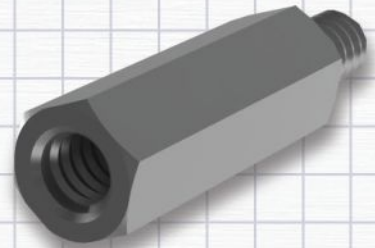
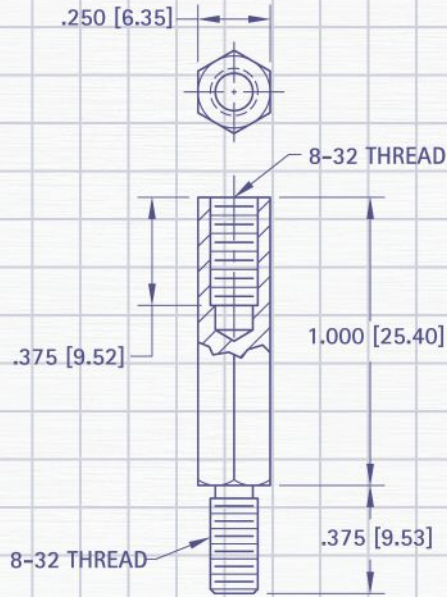
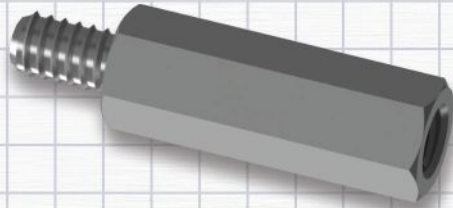
www.keyelco.com

Access 3D Data Sheets
& Check Availability



THINK Design Solutions with Keystone Terminals & Test Points

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- Extreme Temperature conditions
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DATE	DESCRIPTION	REV.

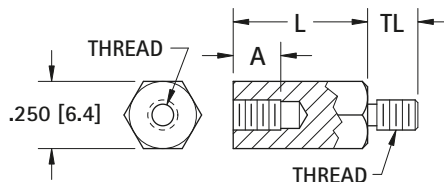


SECTION 4 CONTENTS

ASSORTMENT / MOUNT KITS	94	Retaining, Nylon	90
EXTREME TEMPERATURE NYLON	86	Surface Mount	86
INSERTS, THREADED SMT	86	Swage	87
PC SPACERS, NYLON		THREADED STANDOFFS	
Adhesive, Lock-In	93	Ceramic	88
Lock-in	92-93	Female - Female	85
Lock-in - Release	92-93	Force Fit	87
Reverse Chassis Mount	93	Hinged	90
Support	93	Male - Female	84
Threaded	92	Metric	89
PC 104 MOUNTING KITS	84	Swage	87
SPACERS		Surface Mount	86
Clear Hole	88	Nylon	84
Economy	88		
Force Fit	87		

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 at keylco.com

MALE/FEMALE THREADED STANDOFFS



THREAD SIZE	TL EXTERNAL	A INTERNAL
4-40	.187 (4.7)	.250 (6.4)
6-32	.250 (6.4)	.375 (9.5)
8-32	.375 (9.5)	.375 (9.5)

Application Note:
For PC 104 applications use length .600 (15.2) 4-40 Thread

CHOICE OF:		
Stainless: ASTM A581/A582	Brass: ASTM-B16 Plating: Nickel (QQ-N-290)	Aluminum: ASTM B211 Plating: Clear Iridite (Mil-C-5541)

4-40 THREAD			
L LENGTH	STAINLESS STEEL CAT NO.	BRASS CAT NO.	ALUMINUM CAT NO.
.250 (6.4)***	8712	8713	8714
.375 (9.5)	2087	7200	8400
.500 (12.7)	2088	1944	8401
.600 (15.2)*	5799	8799	6799
.625 (15.9)	2089	1945	8402
.750 (19.1)	2090	1946	8403
.875 (22.2)	2091	7201	8404
1.000 (25.4)	2092	1947	8405
1.125 (28.6)	2093	7202	8406
1.250 (31.8)	2094	1948	8407
1.375 (34.9)	2095	1949	8408
1.500 (38.1)	2096	1950	8409
1.625 (41.3)	2097	7203	8410
1.750 (44.5)	2098	7205	8411
2.000 (50.8)	2099	1951	8412

6-32 THREAD			
L LENGTH	STAINLESS STEEL CAT NO.	BRASS CAT NO.	ALUMINUM CAT NO.
.250 (6.4)***	8715	8716	8717
.375 (9.5)**	2119	7210	8413
.500 (12.7)	2120	1952	8414
.625 (15.9)	2121	1953	8415
.750 (19.1)	2122	1954	8416
.875 (22.2)	2123	7211	8417
1.000 (25.4)	2124	1644	8418
1.125 (28.6)	2125	7212	8419
1.250 (31.8)	2126	1955	8420
1.375 (34.9)	2127	1956	8421
1.500 (38.1)	2128	1645	8422
1.625 (41.3)	2129	7214	8423
1.750 (44.5)	2130	7215	8424
2.000 (50.8)	2131	1646	8425

8-32 THREAD			
L LENGTH	STAINLESS STEEL CAT NO.	BRASS CAT NO.	ALUMINUM CAT NO.
.250 (6.4)***	8731	8732	8733
.375 (9.5)**	2149	7220	8426
.500 (12.7)	2150	1957	8427
.625 (15.9)	2151	1958	8428
.750 (19.1)	2152	1959	8429
.875 (22.2)	2153	7221	8430
1.000 (25.4)	2154	1960	8431
1.125 (28.6)	2155	7222	8432
1.250 (31.8)	2156	1961	8433
1.375 (34.9)	2157	1962	8434
1.500 (38.1)	2158	1963	8435
1.625 (41.3)	2159	7224	8436
1.750 (44.5)	2160	7225	8437
2.000 (50.8)	2161	1964	8438
2.500 (63.5)	2180	1965	8439
3.000 (76.2)	2181	1966	8440

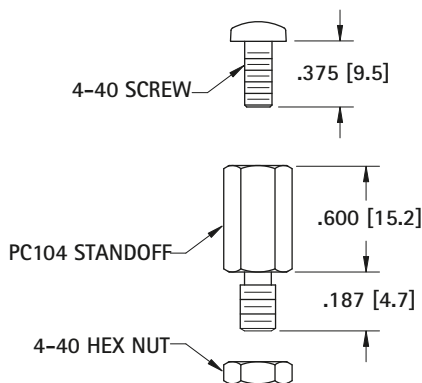
*PC 104 Standard Length
**Internal Thread .130 (3.3)/.150 (3.8) Deep

** Internal Thread .250 (6.4) Deep
*** Internal Thread .130 (3.3)/.150 (3.8) Deep

** Internal Thread .250 (6.4) Deep
*** Internal Thread .130 (3.3)/.150 (3.8) Deep

PC 104 MOUNTING KITS

- Designed to ease the assembly of new modules and multi-board stacks
- Each kit includes all the hardware that is required to mount a single-board



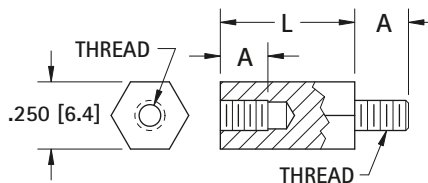
Complete Kit CAT. NO.	Kit Description	Includes Four (4) each:		
		Standoff	Screw	Nut
4799-4	Nylon	4799	9328	9605
5799-4	Stainless Steel	5799	9901	7248-3
6799-4	Aluminum	6799	9301*	9600*
8799-4	Brass	8799	9301*	9600*

* Aluminum and brass kits supplied with steel hardware.

NYLON STANDOFFS

MATERIAL: Nylon 6/6

MALE/FEMALE STANDOFFS



L LENGTH	THREAD SIZE		
	4-40 CAT. NO.	6-32 CAT. NO.	8-32 CAT. NO.
.250 (6.4)***	4800	4814	4828
.375 (9.5)	4801	4815	4829**
.500 (12.7)	4802	4816	4830
.600 (15.2)*	4799	-	-
.625 (15.9)	4803	4817	4831
.750 (19.1)	4804	4818	4832
.875 (22.2)	4805	4819	4833
1.000 (25.4)	4806	4820	4834
1.125 (28.6)	4807	4821	4835
1.250 (31.8)	4808	4822	4836
1.375 (34.9)	4809	4823	4837
1.500 (38.1)	4810	4824	4838
1.625 (41.3)	4811	4825	4839
1.750 (44.5)	4812	4826	4840
2.000 (50.8)	4813	4827	4841

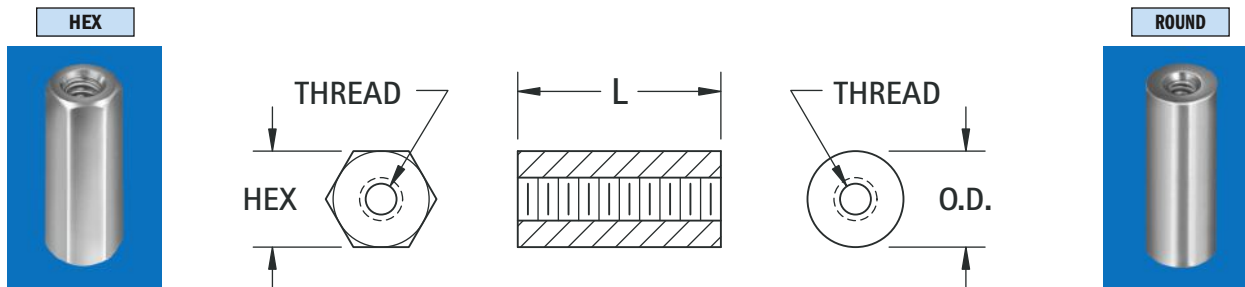
* PC 104 Standard Length
** Internal Thread .250 (6.4) Deep
*** Internal Thread .130 (3.3)/.150 (3.8) Deep

Application Note:
For PC 104 applications use CAT. NO. 4799

THREAD SIZE	A
4-40	.187 (4.7)
6-32	.250 (6.4)
8-32	.375 (9.5)

HEX MALE/FEMALE STANDOFFS

FEMALE THREADED STANDOFFS



CHOICE OF:			
Nylon V2: Standard Nylon Nylon V0: Flame Resistant	Stainless: ASTM A581/A582	Brass: per ASTM-B16 Plating: Zinc ASTM B633	Aluminum: ASTM B211 Plating: Clear Iridite Finish

HEX	HEX					LENGTH	ROUND		O.D.
	NYLON V2 CAT. NO.	NYLON V0 CAT. NO.	STAINLESS CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.		BRASS CAT. NO.	ALUMINUM CAT. NO.	
2-56 THREAD									
.156 (3.9)	—	—	—	1798A	1797A	.187 (4.7)	1802A	1801A	.156 (3.9)
	—	—	—	1798B	1797B	.250 (6.4)	1802B	1801B	
	—	—	—	1798C	1797C	.312 (7.9)	1802C	1801C	
	—	—	—	1798D	1797D	.375 (9.5)	1802D	1801D	
4-40 THREAD									
.187 (4.7)	—	—	—	1450	1891	.250 (6.4)	1547	2025	.187 (4.7)
	—	—	—	1803	1892	.375 (9.5)	1864	2026	
	—	—	—	1656	1893	.500 (12.7)	1657	2027	
	—	—	—	1804	1894	.625 (15.9)	1865	2028	
	—	—	—	1656A	1895	.750 (19.1)	1657A	2029	
	—	—	—	1805	1896	.875 (22.2)	1866	2030	
—	—	—	1656B	1897	1.000 (25.4)	1657B	2031		
.250 (6.3)	1902A	8440A	1921	1450A	2201	.250 (6.4)	1547A	3478	.250 (6.3)
	1902B	8440B	1921A	1450B	2202	.375 (9.5)	1547B	3479	
	1902C	8440C	1921B	1450C	2203	.500 (12.7)	1547C	3480	
	1902F	8440D	—	1829	1808	.625 (15.9)	1867	1839	
	1902D	8440E	1921C	1450D	2204	.750 (19.1)	1547D	3481	
	1902G	8440F	—	1830	1809	.875 (22.2)	1876	1846	
	1902E	8440G	1921D	1450E	2205	1.000 (25.4)	1547E	3482	
	—	—	1921E	1831	2206	1.500 (38.1)	1877	3483	
—	—	1921F	1832	2207	2.000 (50.8)	1878	3484		
6-32 THREAD									
.250 (6.3)	1903A	8441A	1922	1451A	2208	.250 (6.4)	1548A	3485	.250 (6.3)
	1903B	8441B	1922A	1451B	2209	.375 (9.5)	1548B	3486	
	1903C	8441C	1922B	1451C	2210	.500 (12.7)	1548C	3487	
	1903F	8441D	—	1451D	1813	.625 (15.9)	1548D	1847	
	1903D	8441E	1922C	1451E	2211	.750 (19.1)	1548E	3488	
	1903G	8441F	—	1833	1816	.875 (22.2)	1879	1848	
	1903E	8441G	1922D	1635	2212	1.000 (25.4)	1548F	3489	
	—	—	—	1636	1818	1.250 (31.8)	1881	1853	
	—	—	1922E	1637	2213	1.500 (38.1)	1882	3490	
	—	—	—	1638	1819	1.750 (44.5)	1883	1855	
	—	—	1922F	1639	2214	2.000 (50.8)	1884	3491	
	—	—	—	1642	1820	2.250 (57.2)	1885	1856	
	—	—	—	1643	1825	2.500 (63.5)	1886	1857	
8-32 THREAD									
.250 (6.3)	1904A	8442A	1923	1474A	2215	.250 (6.4)	1692A	3492	.250 (6.3)
	1904B	8442B	1923A	1474B	2216	.375 (9.5)	1692B	3493	
	1904C	8442C	1923B	1474C	2217	.500 (12.7)	1692C	3494	
	1904F	8442D	—	1834	1827	.625 (15.9)	1887	1858	
	1904D	8442E	1923C	1474D	2218	.750 (19.1)	1692D	3495	
	1904G	8442F	—	1836	1828	.875 (22.2)	1888	1859	
	1904E	8442G	1923D	1474E	2219	1.000 (25.4)	1692E	3496	
	—	—	1923E	1837	2220	1.500 (38.1)	1889	3497	
—	—	1923F	1838	2221	2.000 (50.8)	1899	3498		
10-32 THREAD									
.312 (7.9)	—	—	1475A	1822A	1821A	.375 (9.5)	3499A	3500A	.312 (7.9)
	—	—	1475B	1822B	1821B	.500 (12.7)	3499B	3500B	
	—	—	1475C	1822C	1821C	.625 (15.9)	3499C	3500C	
	—	—	1475D	1822D	1821D	.750 (19.1)	3499D	3500D	
	—	—	1475F	1822F	1821F	1.000 (25.4)	3499F	3500F	

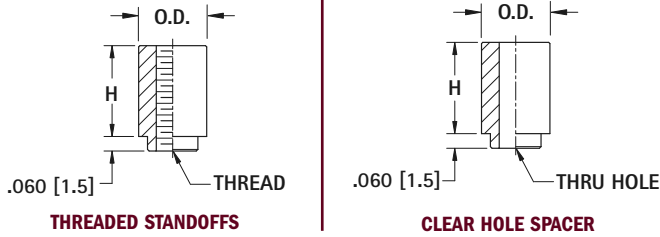
NOTE: All standoffs over 1.000 (25.4) are tapped .375 (9.5) min. both ends, except 4-40 standoffs which are tapped .250 (6.4) min.

SURFACE MOUNT STANDOFFS & SPACERS

SUPPLIED ON TAPE AND REEL



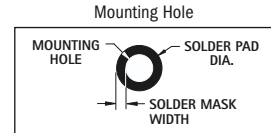
SMT Standoffs & Spacers are supplied on tape and reel with Kapton tape added to the top surface. This allows for the standoff to be placed on the circuit board using standard vacuum pick and place equipment. Attachment of the standoff to the PCB is completely controlled. Costly scrapping of populated board due to improper installation of swage or broaching spacer is eliminated.



MATERIAL: Steel, Tin Plate
PACKAGING: Supplied on 13 inch reels with Kapton tape added to top surface of standoff for vacuum pickup

Metric Standoffs				
CAT. NO.	H HEIGHT	PARTS/ REEL	THREAD	OUTSIDE DIA. (O.D.)
24881	2.00 (.080)	1500	M3	5.56 (.219)
24882	3.00 (.118)	1000		
24883	4.00 (.157)	900		
24884	6.00 (.236)	650		
24885	8.00 (.315)	375		
24886	10.00 (.394)	300		

THREADED STANDOFFS	CLEAR HOLE SPACERS	SMT STANDOFFS & SPACERS			
CAT. NO.	CAT. NO.	H HEIGHT	PARTS/ REEL*	THREAD	OUTSIDE DIA. (O.D.)
4871	—	.062 (1.57)	1500	2-56	.219 (5.6)
4873	—	.250 (6.35)	650		
4881	4886	.062 (1.57)	1500	4-40	.219 (5.6)
4882	4887	.125 (3.18)	1000		
4883	4888	.250 (6.35)	650		
4884	4889	.375 (9.52)	300		
4891	4896	.062 (1.57)	1500	6-32	.281 (7.1)
4892	4897	.125 (3.18)	1000		
4893	4898	.250 (6.35)	650		
4894	4899	.375 (9.53)	300		

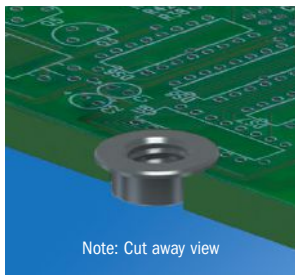


THREAD	MOUNTING HOLE	SOLDER PAD DIA.	SOLDER MASK WIDTH
2-56	.147 (3.7)	.244 (6.2)	.049 (1.2)
4-40	.166 (4.2)	.244 (6.2)	.039 (1.0)
6-32	.213 (5.41)	.306 (7.8)	.047 (1.2)
M3	.166 (4.2)	.244 (6.2)	.039 (1.0)

STANDOFFS

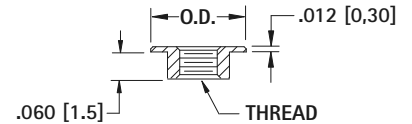
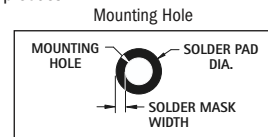
SURFACE MOUNT THREADED INSERTS

SUPPLIED ON TAPE AND REEL



Note: Cut away view

Zero height threaded inserts sit just .012 (0.30) above the board for an easy method of adding threads to PCB. Can be installed using same equipment and processes as any SMT product.



MATERIAL: Steel, Tin Plate
PACKAGING: Supplied on 13 inch reels with Kapton tape added to top surface of standoff for vacuum pick-up

THREAD	MOUNTING HOLE	SOLDER PAD DIA.	SOLDER MASK WIDTH
2-56	.147 (3.7)	.244 (6.2)	.049 (1.2)
4-40	.166 (4.2)	.244 (6.2)	.039 (1.0)
6-32	.213 (5.41)	.306 (7.8)	.047 (1.2)

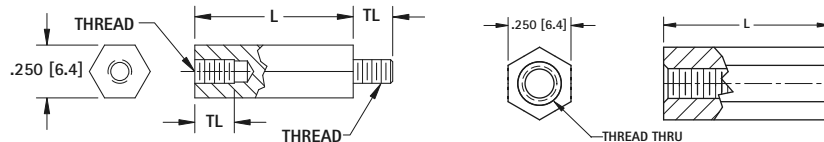
Zero Height SMT Threaded Inserts				
CAT. NO.	THREAD	OUTSIDE DIA. (O.D.)	H HEIGHT	PARTS/ REEL
4929	2-56	.219 (5.6)	.012 (.30)	1500
2439	4-40	.219 (5.6)		
4949	6-32	.281 (7.1)		

EXTREME TEMPERATURE NYLON STANDOFFS



Keystone's high performance nylon standoffs will stand up to harsh conditions such as automotive under hood applications. The standoffs are manufactured with a material that was specifically designed to survive the most extreme conditions. The plastic is designed to stay pliable and maintain its tensile strength in extreme cold and heat.

MATERIAL: High Performance Nylon Blend. Black
Operating Temperature: -20°F (-29°C) thru 365°F (185°C)



THREAD	TL
4-40	.187 (4.7)
6-32	.250 (6.4)
8-32	.375 (9.5)

HIGH PERFORMANCE MALE/FEMALE			
L LENGTH	4-40 CAT. NO.	6-32 CAT. NO.	8-32 CAT. NO.
.250 (6.4)†	4940	4970	4980
.375 (9.5)	4941	4971	4981
.500 (12.7)	4942	4972	4982
.750 (19.1)	4944	4974	4984
1.000 (25.4)	4946	4976	4986

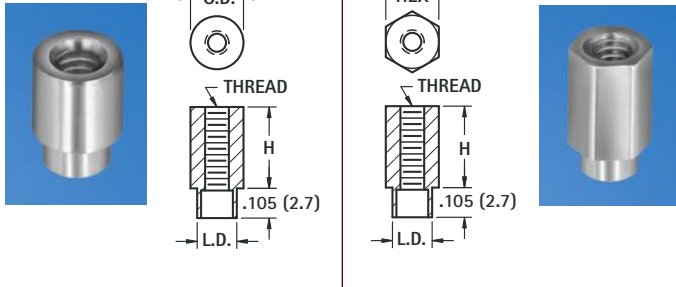
HIGH PERFORMANCE FEMALE/FEMALE			
L LENGTH	4-40 CAT. NO.	6-32 CAT. NO.	8-32 CAT. NO.
.250 (6.4)	4842	4874	4932
.375 (9.5)	4843	4875	4933
.500 (12.7)	4844	4876	4934
.750 (19.1)	4846	4878	4936
1.000 (25.4)	4848	4880	4938

† .140 (3.56) Internal Thread Depth

SWAGE THREADED STANDOFFS

ROUND

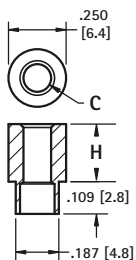
HEX



MATERIAL: Brass, ASTM-B16, Ductile Nickel Plate (QQ-N-290)
For .062 (1.57) boards

ROUND CAT. NO.	H HEIGHT ABOVE PANEL	L.D. SHANK DIAMETER	HEX CAT. NO.
2-56 THREAD × .156 (4.0) O.D.			
1589-2	.125 (3.2)	.125 (3.2)	1731-2
1590-2	.187 (4.7)	.125 (3.2)	1734-2
1591-2	.250 (6.4)	.125 (3.2)	1740-2
1596-2	.375 (9.5)	.125 (3.2)	1743-2
4-40 THREAD × .187 (4.7) O.D.			
2260-2	.125 (3.2)	.139 (3.5)	2270-2
2261-2	.187 (4.7)	.139 (3.5)	2271-2
2262-2	.250 (6.4)	.139 (3.5)	2272-2
2263-2	.375 (9.5)	.139 (3.5)	2273-2
2264-2	.500 (12.7)	.139 (3.5)	2274-2
4-40 THREAD × .250 (6.4) O.D.			
1560A	.125 (3.2)	.187 (4.7)	1653-2
1790-2	.187 (4.7)	.187 (4.7)	1746-2
1650-2	.250 (6.4)	.187 (4.7)	1627-2
1651-2	.375 (9.5)	.187 (4.7)	1628-2
1623-2	.500 (12.7)	.187 (4.7)	1629-2
1624-2	.625 (15.9)	.187 (4.7)	1654-2
1625-2	.750 (19.1)	.187 (4.7)	1655-2
1792-2	.875 (22.2)	.187 (4.7)	1749-2
1652-2	1.000 (25.4)	.187 (4.7)	1630-2
6-32 THREAD × .250 (6.4) O.D.			
1560B	.125 (3.2)	.187 (4.7)	1620-2
1612-2	.187 (4.7)	.187 (4.7)	1752-2
1546	.250 (6.4)	.187 (4.7)	1621-2
1561B	.375 (9.5)	.187 (4.7)	1622-2
1604-2	.500 (12.7)	.187 (4.7)	1758-2
1605-2	.625 (15.9)	.187 (4.7)	1759-2
1608-2	.750 (19.1)	.187 (4.7)	1761-2
1796-2	.875 (22.2)	.187 (4.7)	1775-2
1609-2	1.000 (25.4)	.187 (4.7)	1784-2

SWAGE CLEAR HOLE SPACERS



CAT. NO.	H HEIGHT ABOVE PANEL	C HOLE
5058-2	.125 (3.2)	.120 (3.0) For # 4
5060-2	.250 (6.4)	
5061-2	.375 (9.5)	
5062-2	.500 (12.7)	
5059-2	.125 (3.2)	.140 (3.5) For # 6
5063-2	.250 (6.4)	
5064-2	.375 (9.5)	
5065-2	.500 (12.7)	

MATERIAL: Brass, ASTM-B16, Ductile Nickel Plate (QQ-N-290)
For .062 (1.57) boards

FORCE-FIT STANDOFFS

ROUND

A broaching-type fastener/standoff for installation in panels and circuit boards .062 (1.57) and thicker made of plastic and other non-ductile materials. Available threaded or with clearance holes. Easy to install, presses into punched or drilled holes.

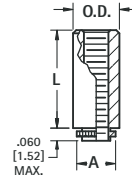
MATERIAL: Stainless Steel per ASTM-A581/A582

MOUNTING HOLES:

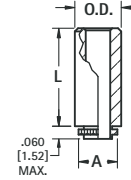
- .147 (3.7) hole for 2-56
- .166 (4.2) hole for 4-40
- .213 (5.4) hole for 6-32

TOLERANCE ON MOUNTING HOLES:

+0.003/-0.000



Threaded



Clear Hole

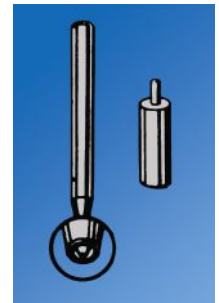
THREADED				
CAT. NO.	L LENGTH	O.D.	A	THREAD
4860	.065 (1.7)	.219 (5.6)	.165 (4.2)	2-56
4861	.065 (1.7)	.219 (5.6)	.184 (4.7)	4-40
4862	.125 (3.2)	.219 (5.6)	.184 (4.7)	
4718	.187 (4.7)	.219 (5.6)	.184 (4.7)	
4863	.250 (6.4)	.219 (5.6)	.184 (4.7)	
4864	.375 (9.5)	.219 (5.6)	.184 (4.7)	
4865 *	.500 (12.7)	.219 (5.6)	.184 (4.7)	
4866	.065 (1.7)	.281 (7.1)	.231 (5.9)	6-32
4867	.125 (3.2)	.281 (7.1)	.231 (5.9)	
4722	.187 (4.7)	.281 (7.1)	.231 (5.9)	
4868	.250 (6.4)	.281 (7.1)	.231 (5.9)	
4869	.375 (9.5)	.281 (7.1)	.231 (5.9)	
4870 *	.500 (12.7)	.281 (7.1)	.231 (5.9)	

*Thread depth .375 (9.5)

CLEAR HOLE				
CAT. NO.	L LENGTH	O.D.	A	HOLE
4850	.065 (1.7)	.219 (5.6)	.184 (4.7)	.116 (2.9) For # 4
4851	.125 (3.2)	.219 (5.6)	.184 (4.7)	
4852	.250 (6.4)	.219 (5.6)	.184 (4.7)	
4853	.375 (9.5)	.219 (5.6)	.184 (4.7)	
4854	.500 (12.7)	.219 (5.6)	.184 (4.7)	.143 (3.6) For # 6
4855	.065 (1.7)	.281 (7.1)	.231 (5.9)	
4856	.125 (3.2)	.281 (7.1)	.231 (5.9)	
4857	.250 (6.4)	.281 (7.1)	.231 (5.9)	
4858	.375 (9.5)	.281 (7.1)	.231 (5.9)	
4859	.500 (12.7)	.281 (7.1)	.231 (5.9)	

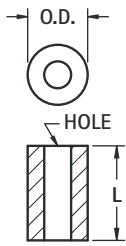
SWAGE STAKING TOOLS

Precision made staking tool kits are made from .250 (6.4) diameter heat treated steel, zinc plated. Each kit includes the correct swage top staking tool anvil to create a professional appearance. These tools may be used with an arbor press or hand tapped.



CAT. NO.	STANDOFF DIA.	THREAD	HOLE SIZE
TL-19	.156 (4.0)	2-56	-
TL-22	.187 (4.7)	4-40	-
TL-20	.250 (6.4)	4-40	-
TL-21	.250 (6.4)	6-32	.120 (3.0)

ROUND CLEAR HOLE SPACERS



MATERIAL: Brass: ASTM-B16, Nickel Plate (QQ-N-290) Aluminum: ASTM B211, Clear Iridite (MIL-C-5541) Nylon: Nylon 6/6, UL Rated 94V-2

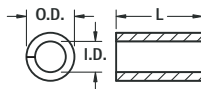
CLEAR HOLE	O.D.	L LENGTH	BRASS CAT. NO.	ALUMINUM CAT. NO.	NYLON CAT. NO.		
.120 (3.0) For #4	.250 (6.4)	.125 (3.2)	1909	2036	875		
		.250 (6.4)	1454A	3457	776		
		.375 (9.5)	1454B	3458	877		
		.500 (12.7)	1454C	3459	878		
		.625 (15.9)	1919	2314	879		
		.750 (19.1)	1454D	3460	880		
		.875 (22.2)	1920	3402	881		
		1.000 (25.4)	1454E	3461	882		
		1.500 (38.1)	1924	3462	779		
		2.000 (50.8)	1925	3463	—		
.140 (3.5) For #6	.250 (6.4)	.125 (3.2)	1934	3403	883		
		.250 (6.4)	1457A	3464	884		
		.375 (9.5)	1457B	3465	885		
		.500 (12.7)	1457C	3466	886		
		.625 (15.9)	1935	3429	887		
		.750 (19.1)	1457D	3467	888		
		.875 (22.2)	1936	3438	889		
		1.000 (25.4)	1457E	3468	890		
		1.500 (38.1)	1937	3469	789		
				2.000 (50.8)	1938	3470	—
.170 (4.3) For #8	.250 (6.4)	.125 (3.2)	1942	4258	891		
		.250 (6.4)	1480	3471	892		
		.375 (9.5)	1481	3472	893		
		.500 (12.7)	1482	3473	894		
		.625 (15.9)	3032	4259	895		
		.750 (19.1)	1483	3474	896		
		.875 (22.2)	2033	4260	897		
		1.000 (25.4)	1484	3475	898		
		1.500 (38.1)	2034	3476	799		
				2.000 (50.8)	2035	3477	—
		.196 (5.0) For #10	.312 (7.9)	.250 (6.4)	1662	4261	790
.375 (9.5)	1663			4262	791		
.500 (12.7)	1664			4263	792		
.625 (15.9)	1665			4264	793		
.750 (19.1)	1666			4265	794		
.875 (22.2)	1667			4266	795		
1.000 (25.4)	1668			4267	796		
1.500 (38.1)	1669			4268	797		
				2.000 (50.8)	1672	4269	—

*Visit our Parts Builder System online (www.keyelco.com) to see all of our spacer offerings.

ALUMINUM ECONOMY SPACERS



- Made of flat strip aluminum and rolled on precision equipment • Assures maximum bearing surface, square ends • Tight Joint on Outside Diameter



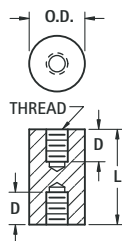
MATERIAL: Aluminum

SPACER FOR	I.D.	O.D. REF.
# 4	.120 (3.0)	.167 (4.2)
# 6	.148 (3.8)	.193 (4.9)
# 8	.176 (4.5)	.232 (5.9)

L LENGTH	SCREW CLEARANCE			L LENGTH	SCREW CLEARANCE		
	# 4 CAT. NO.	# 6 CAT. NO.	# 8 CAT. NO.		# 4 CAT. NO.	# 6 CAT. NO.	# 8 CAT. NO.
.187 (4.7)	397	—	—	.750 (19.1)	418	425	432
.250 (6.4)	398	405	412	.875 (22.2)	419	426	—
.312 (7.9)	399	406	413	1.000 (25.4)	420	427	434
.375 (9.5)	400	407	414	1.250 (31.8)	421	428	435
.437 (11.1)	401	408	415	1.500 (38.1)	422	429	436
.500 (12.7)	402	409	416	1.750 (44.5)	—	430	437
.625 (15.9)	403	410	417	2.000 (50.8)	—	—	438

CERAMIC STANDOFFS

- Ideal for very high temperature conditions
- Commercial and military types available
- Military types meet MIL-1-010, NL # clearly marked
- Exceptional strength in compression and tension
- Withstands very high voltage without flashover
- Special sizes available upon request



MATERIAL: Grade L5 Ceramic

CAT. NO.	L LENGTH	O.D.	T THREAD	D DEPTH
7710	.250 (6.4)	.250 (6.4)	6-32	THRU
7711	.500 (12.7)	.250 (6.4)	6-32	.156 (4.0)
7712	.375 (9.5)	.375 (9.5)	6-32	.156 (4.0)
7713	.500 (12.7)	.375 (9.5)	6-32	.156 (4.0)
7714	.500 (12.7)	.500 (12.7)	6-32	.140 (3.6)
7715	.750 (19.1)	.500 (12.7)	6-32	.250 (6.4)
7716	1.000 (25.4)	.500 (12.7)	6-32	.375 (9.5)
7717	1.500 (38.1)	.500 (12.7)	6-32	.562 (14.3)
7718	2.500 (63.5)	.500 (12.7)	6-32	.500 (12.7)
7719	2.500 (63.5)	.750 (19.1)	1/4 - 20	.750 (19.1)
7720	4.000 (101.6)	.750 (19.1)	1/4 - 20	.750 (19.1)

MILITARY

CAT. NO.	L LENGTH	O.D.	T THREAD	D DEPTH	NL #
7661	.500 (12.7)	.375 (9.5)	6-32	.156 (4.0)	NL523W01-004
7662	.625 (15.9)	.375 (9.5)	6-32	.250 (6.4)	NL523W01-005
7663	.625 (15.9)	.500 (12.7)	8-32	.187 (4.7)	NL523W02-005
7664	.750 (19.1)	.375 (9.5)	6-32	.250 (6.4)	NL523W01-006
7665	.750 (19.1)	.500 (12.7)	8-32	.250 (6.4)	NL523W02-006
7666	1.000 (25.4)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-008
7667	1.000 (25.4)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-008
7668	1.000 (25.4)	.750 (19.1)	10-32	.375 (9.5)	NL523W03-008
7669	1.250 (31.8)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-010
7670	1.250 (31.8)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-010
7671	1.250 (31.8)	1.000 (25.4)	1/4 - 20	.437 (11.1)	NL523W04-010
7672	1.500 (38.1)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-012
7673	1.500 (38.1)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-012
7674	1.500 (38.1)	.750 (19.1)	10-32	.375 (9.5)	NL523W03-012
7675	1.500 (38.1)	1.000 (25.4)	1/4 - 20	.500 (12.7)	NL523W04-012
7676	2.000 (50.8)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-016
7677	2.000 (50.8)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-016
7678	2.000 (50.8)	.750 (19.1)	10-32	.375 (9.5)	NL523W03-016

METRIC STANDOFFS

METRIC NYLON STANDOFFS

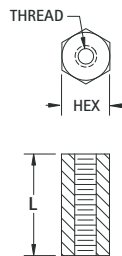
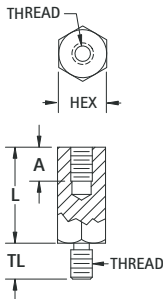
Material: Nylon 6/6, UL Rated 94V-2

MALE/FEMALE

FEMALE



THREAD SIZE	TL	A
M2.5	4.0	5.0
M3	8.0	8.0
M4	10.0	11.0



CHOICE OF:

Stainless: ASTM A581/A582	Brass: ASTM-B16 Plating: Nickel (QQ-N-290)	Aluminum: ASTM B211 Plating: Clear Iridite (Mil-C-5541)
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MALE/FEMALE				FEMALE		
STAINLESS CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.	L	STAINLESS CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.
4.5 HEX DIA. (M2.5 THREAD)						
—	—	—	5.0	24460	24380	24420
—	—	—	6.0	24461	24381	24421
—	—	—	8.0	24462	24382	24422
24283	24307	24331	10.0	24463	24383	24423
24284	24308	24332	12.0	24464	24384	24424
24285	24309	24333	15.0	24465	24385	24425
24286	24310	24334	18.0	24466	24386	24426
24287	24311	24335	20.0	24467	24387	24427
24288	24312	24336	25.0	24468	24388	24428
5.0 HEX DIA. (M3 THREAD)						
—	—	—	5.0	24470	24390	24430
—	—	—	6.0	24471	24391	24431
—	—	—	8.0	24472	24392	24432
24289	24313	24337	10.0	24473	24393	24433
24290	24314	24338	12.0	24474	24394	24434
24291	24315	24339	15.0	24475	24395	24435
24292	24316	24340	18.0	24476	24396	24436
24293	24317	24341	20.0	24477	24397	24437
24294	24318	24342	25.0	24478	24398	24438
5.5 HEX DIA. (M3 THREAD)						
—	—	—	5.0	24480	24400	24440
—	—	—	6.0	24481	24401	24441
—	—	—	8.0	24482	24402	24442
24295	24319	24343	10.0	24483	24403	24443
24296	24320	24344	12.0	24484	24404	24444
24297	24321	24345	15.0	24485	24405	24445
24298	24322	24346	18.0	24486	24406	24446
24299	24323	24347	20.0	24487	24407	24447
24300	24324	24348	25.0	24488	24408	24448
6.0 HEX DIA. (M4 THREAD)						
—	—	—	5.0	24490	24410	24450
—	—	—	6.0	24491	24411	24451
—	—	—	8.0	24492	24412	24452
24301**	24325**	24349**	10.0	24493	24413	24453
24302*	24326*	24350*	12.0	24494	24414	24454
24303	24327	24351	15.0	24495	24415	24455
24304	24328	24352	18.0	24496	24416	24456
24305	24329	24353	20.0	24497	24417	24457
24306	24330	24354	25.0	24498	24418	24458

* Internal Thread: 8.0mm deep ** Internal Thread: 6.0mm deep

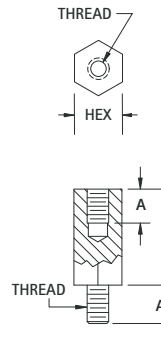
Note: Female standoffs longer than 19mm may be tapped from both ends

MALE/FEMALE

FEMALE



THREAD SIZE	A
M3	8.0
M4	9.5

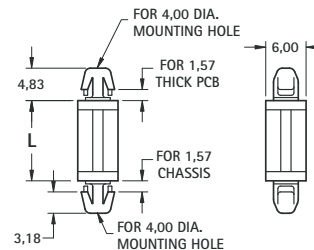


MALE/FEMALE CAT. NO.		L	FEMALE CAT. NO.
5.0 HEX (M3 THREAD)			
—	—	6.0	25508
—	—	8.0	25509
25501	—	10.0	25510
25502	—	12.0	25511
25503	—	15.0	25512
25504	—	18.0	25513
25505	—	20.0	25514
25506	—	25.0	25515
6.0 HEX (M4 THREAD)			
—	—	6.0	25528
—	—	8.0	25529
25521	—	10.0	25530
25522	—	12.0	25531
25523	—	15.0	25532
25524	—	18.0	25533
25525	—	20.0	25534
25526	—	25.0	25535

Note: Female standoffs longer than 19mm may be tapped from both ends

METRIC NYLON LOCK-IN SUPPORT

- One end locks into chassis, the other end locks into the PC Board.

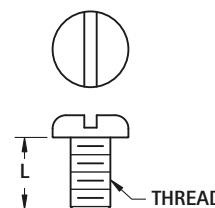


CAT. NO.	L DIM
8843	3.0
8844	4.0
8845	6.0
8846	8.0
8847	10.0
8848	12.0
8849	14.0
8850	16.0
8851	18.0

Material: Nylon 6/6, UL Rated 94V-0

METRIC SCREWS

Choice of: Steel, Zinc Plate • Nylon: 6/6, UL Rated 94V-2

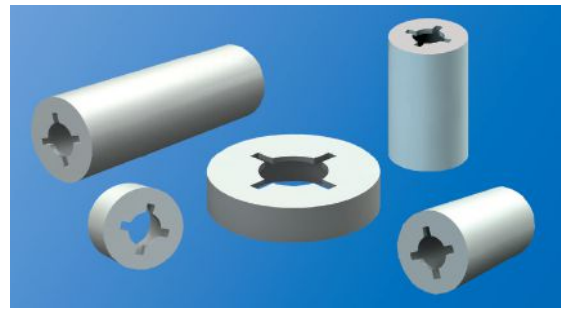
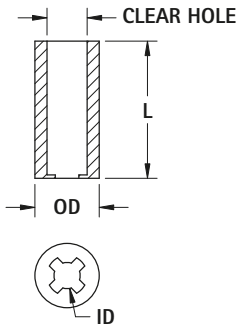


STEEL CAT. NO.	L	NYLON 6/6 CAT. NO.
M2.5 THREAD		
29300	4.00	29330
29301	6.00	29331
29304	12.00	29334
29306	16.00	29336
M3 THREAD		
29311	6.00	29341
29314	12.00	29344
29316	16.00	29346
29318	25.00	29348
M4 THREAD		
29321	6.00	29351
29324	12.00	29354
29326	16.00	29356
29328	25.00	29358

See page 131 for metric nuts

NYLON RETAINING SPACERS

Similar to our standard spacers, but with a specially configured I.D. designed to grip the outside of the screw shank. The spacer slides on the screw easily, but is retained on the screw. For use in applications requiring pre-assembly of the screw and spacer, to reduce final assembly cost.



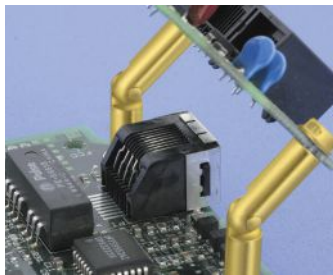
CAT. NO.	.156 (3.9) Clear Hole for #4 Screw		
	LENGTH	O.D.	I.D.
2341	.125 (3.2)	.250 (6.4)	.102 (2.6)
2342	.250 (6.4)		
2343	.375 (9.5)		
2344	.500 (12.7)		
2345	.625 (15.9)		
2346	.750 (19.1)		
2347	.875 (22.2)		
2348	1.00 (25.4)		

CAT. NO.	.198 (5.0) Clear Hole for #6 Screw		
	LENGTH	O.D.	I.D.
2361	.125 (3.2)	.312 (7.9)	.128 (3.3)
2362	.250 (6.4)		
2363	.375 (9.5)		
2364	.500 (12.7)		
2365	.625 (15.9)		
2366	.750 (19.1)		
2367	.875 (22.2)		
2368	1.00 (25.4)		

CAT. NO.	.240 (6.1) Clear Hole for #8 Screw		
	LENGTH	O.D.	I.D.
2381	.125 (3.2)	.375 (9.5)	.152 (3.8)
2382	.250 (6.4)		
2383	.375 (9.5)		
2384	.500 (12.7)		
2385	.625 (15.9)		
2386	.750 (19.1)		
2387	.875 (22.2)		
2388	1.00 (25.4)		

CAT. NO.	.277 (7.0) Clear Hole for #10 Screw		
	LENGTH	O.D.	I.D.
2391	.125 (3.2)	.500 (12.7)	.177 (4.5)
2392	.250 (6.4)		
2393	.375 (9.5)		
2394	.500 (12.7)		
2395	.625 (15.9)		
2396	.750 (19.1)		
2397	.875 (22.2)		
2398	1.00 (25.4)		

HINGED STANDOFFS



- Applications unlimited
- Time saving
- Space saving
- Interconnect circuits or services without danger of shorting

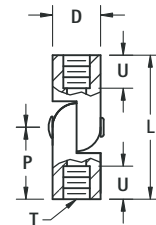
MATERIAL:
Brass, ASTM-B16. Zinc Plate and Yellow Chromate



EMALE/FEMALE



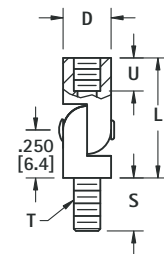
CAT. NO.	L LENGTH	U	P	D DIAMETER	T THREAD
351	.750 (19.1)	.172 (4.4)	.375 (9.5)	.187 (4.7)	4-40
352	1.000 (25.4)	.250 (6.4)	.625 (15.9)		
330	1.250 (31.8)	.250 (6.4)	.625 (15.9)	.250 (6.4)	6-32
353	.750 (19.1)	.172 (4.4)	.375 (9.5)		
354	1.000 (25.4)	.250 (6.4)	.625 (15.9)	.250 (6.4)	6-32
331	1.250 (31.8)	.250 (6.4)	.625 (15.9)		
355	.750 (19.1)	.172 (4.4)	.375 (9.5)	.250 (6.4)	8-32
356	1.000 (25.4)	.250 (6.4)	.625 (15.9)		
332	1.250 (31.8)	.250 (6.4)	.625 (15.9)		



MALE/FEMALE



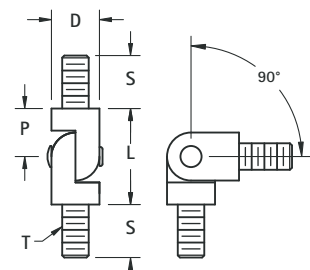
CAT. NO.	L LENGTH	S	U	D DIAMETER	T THREAD
333	.625 (15.9)	.250 (6.4)	.172 (4.4)	.187 (4.7)	4-40
334	.875 (22.2)	.250 (6.4)	.250 (6.4)		
335	.625 (15.9)	.312 (7.9)	.172 (4.4)	.250 (6.4)	6-32
336	.875 (22.2)	.312 (7.9)	.250 (6.4)		
337	.625 (15.9)	.312 (7.9)	.172 (4.4)	.250 (6.4)	8-32
338	.875 (22.2)	.312 (7.9)	.250 (6.4)		



MALE/MALE



CAT. NO.	L LENGTH	S	P	D DIAMETER	T THREAD
357	.500 (12.7)	.250 (6.4)	.250 (6.4)	.187 (4.7)	4-40
358	.500 (12.7)	.312 (7.9)	.250 (6.4)	.250 (6.4)	6-32
359	.500 (12.7)	.312 (7.9)	.250 (6.4)	.250 (6.4)	8-32




INSULATED PC SPACER/SUPPORTS

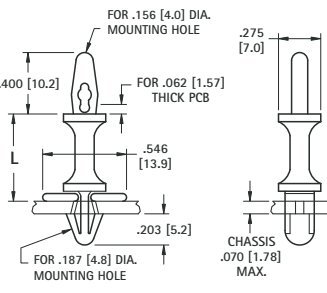
- Board will be electrically insulated, eliminates need for insulating washers
- No tool required for installation
- Easy snap-in assembly
- One pieces design eliminates the need for additional screws and nuts
- Fits snug onto board
- Accommodates varying board thicknesses
- Flame retardant

INSULATED PC SPACERS/SUPPORTS

.156 (4.0) **SLIM-LINE TENSION-FIT**




- One end permanently attaches to .070 (1.78) max. thick chassis
- Other end tension fits to .062 (1.57) max. thick PC board
- Board is easily releasable for repairs or upgrades
- Low insertion force



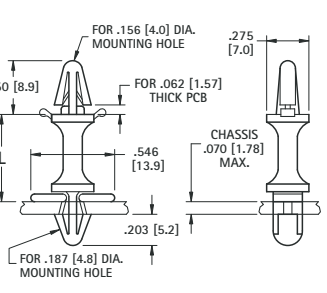
CAT. NO.	L LENGTH
1927A	.250 (6.4)
1928A	.375 (9.5)
1929A	.500 (12.7)
1930A	.625 (15.9)
1931A	.750 (19.1)
1932A	.875 (22.2)
1933A	1.000 (25.4)

MATERIAL: Nylon 6/6, UL Rated 94V-0

.156 (4.0) **SLIM-LINE LOCK-IN**




- One end permanently attaches to .070 (1.78) max. thick chassis
- Other end permanently attaches to .062 (1.57) max. thick PC board
- Low insertion force
- Small footprint frees up board space



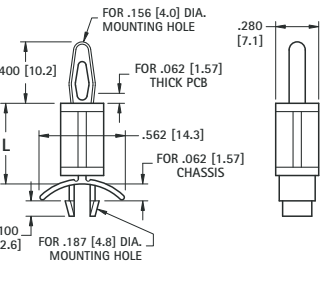
CAT. NO.	L LENGTH
1927B	.250 (6.4)
1928B	.375 (9.5)
1929B	.500 (12.7)
1930B	.625 (15.9)
1931B	.750 (19.1)
1932B	.875 (22.2)
1933B	1.000 (25.4)

MATERIAL: Nylon 6/6, UL Rated 94V-0

.156 (4.0) **STURDY TENSION-FIT**




- One end permanently attaches to .031(.79) - .078 (2.0) thick chassis
- Other end tension fits to .062 (1.57) max. thick PC board
- Board is easily releasable for repairs or upgrades
- Sturdy support due to high contact area



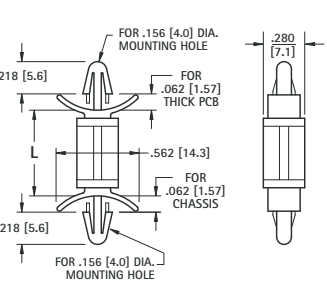
CAT. NO.	L LENGTH
8800	.187 (4.7)
8801	.250 (6.4)
8802	.375 (9.5)
8803	.500 (12.7)
8804	.625 (15.9)
8805	.750 (19.1)
8806	.875 (22.2)

MATERIAL: Nylon 6/6, UL Rated 94V-0

.156 (4.0) **STURDY LOCK-IN**




- Both ends permanently attaches to .031 (.79) - .078 (2.0) thick chassis or board
- Sturdy support due to high contact area



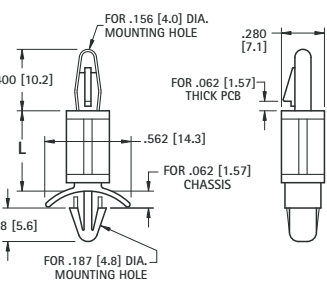
CAT. NO.	L LENGTH
8815	.187 (4.7)
8816	.250 (6.4)
8817	.375 (9.5)
8818	.500 (12.7)
8819	.625 (15.9)
8820	.750 (19.1)
8821	.875 (22.2)

MATERIAL: Nylon 6/6, UL Rated 94V-0

.156 (4.0) **STURDY LOCK-IN RELEASE**




- Locks onto .062 (1.57) thick PC board
- Board is positively locked until manually released
- Board is easily releasable for repairs or upgrades
- Sturdy support due to high contact area with chassis



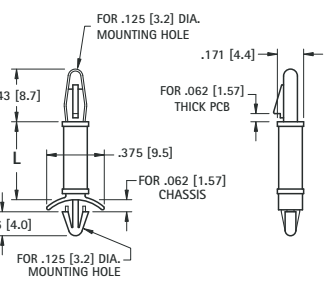
CAT. NO.	L LENGTH
8807	.187 (4.7)
8808	.250 (6.4)
8809	.375 (9.5)
8810	.500 (12.7)
8811	.625 (15.9)
8812	.750 (19.1)
8813	.875 (22.2)
8814	1.000 (25.4)

MATERIAL: Nylon 6/6, UL Rated 94V-0

.125 (3.2) **SLIM-LINE LOCK-IN RELEASE**



- Locks onto .062 (1.57) thick PC board
- Board is positively locked until manually unlocked
- Board is easily releasable for repairs or upgrades
- Compact design uses smaller mounting holes



CAT. NO.	L LENGTH
8871	.187 (4.7)
8872	.250 (6.4)
8873	.375 (9.5)
8874	.500 (12.7)
8875	.625 (15.9)

MATERIAL: Nylon 6/6, UL Rated 94V-0

INSULATED PC SPACERS/SUPPORTS

- Board will be electrically insulated, eliminates need for insulating washers
- Easy snap-in assembly
- No tool required for installation
- Designed for .062 (1.57) thick boards

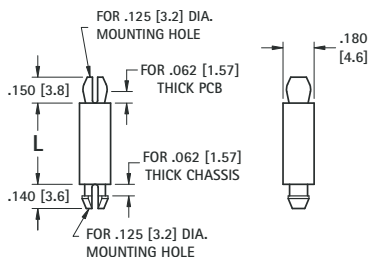
- One piece design eliminates the need for additional screws and nuts
- Slim design frees up board space

.125 (3.2)

TENSION-FIT



- One end permanently attaches to chassis
- Other end secures board with tension fit
- Board easily releasable for repairs or upgrades



CAT. NO.	L LENGTH
8879	.125 (3.2)
8880	.187 (4.7)
8881	.250 (6.4)
8882	.375 (9.5)
8883	.500 (12.7)
8884	.625 (15.9)
8885	.750 (19.1)
8886	.875 (22.2)
8887	1.000 (25.4)

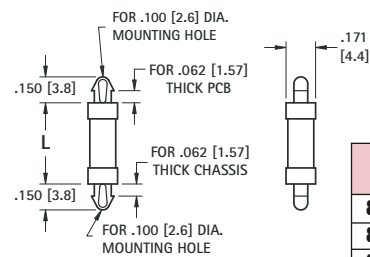
MATERIAL: Nylon 6/6, UL Rated 94V-0

.100 (2.6)

EASY LOCK-IN



- Both ends permanently attach to chassis and board
- Teardrop style mounting end eases assembly
- Low protrusion above board and under chassis



CAT. NO.	L LENGTH
8888	.125 (3.2)
8889	.187 (4.7)
8890	.250 (6.4)
8891	.375 (9.5)
8892	.500 (12.7)
8893	.625 (15.9)

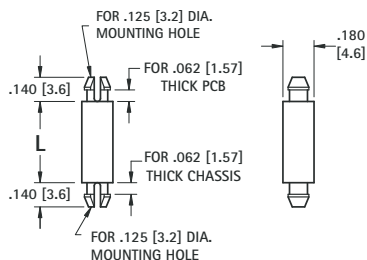
MATERIAL: Nylon 6/6, UL Rated 94V-0

.125 (3.2)

LOCK-IN



- Both ends permanently attach to chassis and board
- Secure mounting end design allows for taller spacing



CAT. NO.	L LENGTH
9018	.125 (3.2)
9019	.187 (4.7)
9020	.250 (6.4)
9021	.375 (9.5)
9022	.500 (12.7)
9023	.625 (15.9)
9024	.750 (19.1)
9025	.875 (22.2)
9026	1.000 (25.4)

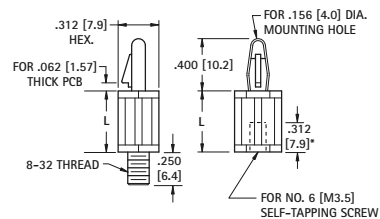
MATERIAL: Nylon 6/6, UL Rated 94V-0

.156 (4.0)

THREADED



THREAD



- One end attaches to chassis with screw or tapped hole
- Other end snap locks onto .062 (1.6) board
- Board is releasable for easy repair or upgrades

MALE CAT. NO.	L LENGTH	FEMALE CAT. NO.
9048	.250 (6.4)	9041
9049	.375 (9.5)	9042
9050	.500 (12.7)	9043
9051	.625 (15.9)	9044
9052	.750 (19.1)	9045
9053	.875 (22.2)	9046
9054	1.000 (25.4)	9047

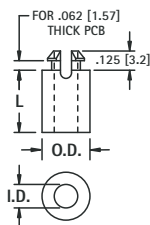
MATERIAL: Nylon 6/6, UL Rated 94V-0

THRU HOLE SPACERS

One end locks into panel. Clear hole designs for #4, #6 or #8 screw.



- Base has larger surface area. Will not deform under heavy pre-load



CAT. NO.	L LENGTH	Outside Diameter	Inside Diameter	Mounting Hole	Screw Size
9027	.125 (3.2)	.260 (6.6)	.125 (3.2)	.187 (4.7)	#4
9028	.187 (4.7)				
9029	.250 (6.4)				
9030	.375 (9.5)				
9031	.500 (12.7)	.281 (7.1)	.153 (3.9)	.234 (5.9)	#6
9032	.625 (15.9)				
9033	.250 (6.4)				
9034	.375 (9.5)				
9035	.500 (12.7)	.281 (7.1)	.169 (4.3)	.234 (5.9)	#8
9036	.625 (15.9)				
9037	.250 (6.4)				
9038	.375 (9.5)				
9039	.500 (12.7)				
9040	.625 (15.9)				

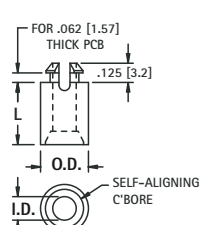
MATERIAL: Nylon 6/6, UL Rated 94V-0

STACKING SPACERS

One end locks into panel. Clear hole designs for #4, #6 or #8 screw.



- Spacers can be stacked for multiple level PC board applications
- Self-aligning



CAT. NO.	L LENGTH	Outside Diameter	Inside Diameter	Mounting Hole	Screw Size
8829	.125 (3.2)	.260 (6.6)	.125 (3.2)	.187 (4.7)	#4
8830	.187 (4.7)				
8831	.250 (6.4)				
8832	.375 (9.5)				
8833	.500 (12.7)	.312 (7.9)	.153 (3.9)	.234 (5.9)	#6
8834	.625 (15.9)				
8835	.250 (6.4)				
8836	.375 (9.5)				
8837	.500 (12.7)	.312 (7.9)	.169 (4.3)	.234 (5.9)	#8
8838	.625 (15.9)				
8839	.250 (6.4)				
8840	.375 (9.5)				
8841	.500 (12.7)				
8842	.625 (15.9)				

MATERIAL: Nylon 6/6, UL Rated 94V-0

INSULATED PC SPACERS/SUPPORTS

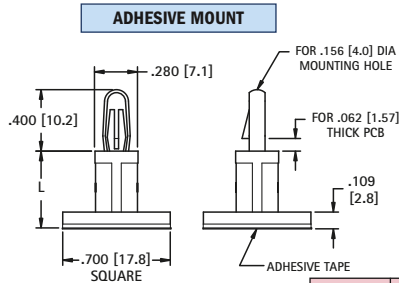
- Board will be electrically insulated, eliminates need for insulating washers
- No tool required for installation • Easy snap-in assembly

ADHESIVE LOCK-IN RELEASE SUPPORTS

- One end attaches to chassis with self adhesive pads
- No drilling to chassis required leaving outside in perfect condition
- Other end snap into .062 (1.57) board
- Board is easily releasable for repair or upgrade



.156 (4.0)

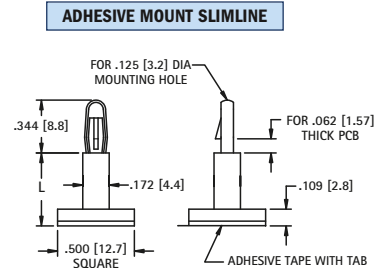


CAT. NO.	L LENGTH
9080	.187 (4.7)
9081	.250 (6.4)
9082	.375 (9.5)
9083	.500 (12.7)
9084	.625 (15.9)

Material: Nylon 6/6, UL Rated 94V-0



.125 (3.2)



CAT. NO.	L LENGTH
9070	.187 (4.7)
9071	.250 (6.4)
9072	.375 (9.5)
9073	.500 (12.7)
9074	.625 (15.9)

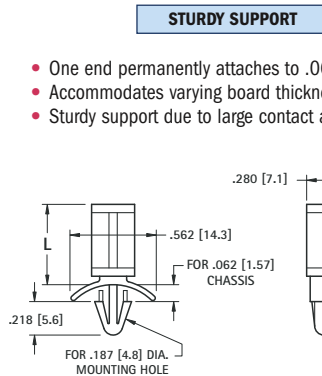
Material: Nylon 6/6, UL Rated 94V-0

PC SPACER SUPPORTS

- One end locks into chassis • Other end supports the PC Board
- Ideal for mid supports of large boards
- Simplifies assembly for multiple support applications • Reduces the amount of holes required in PC board



.187 (4.8)

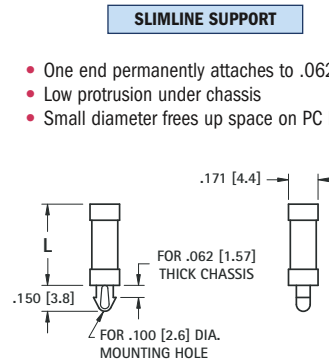


CAT. NO.	L LENGTH
8822	.187 (4.7)
8823	.250 (6.4)
8824	.375 (9.5)
8825	.500 (12.7)
8826	.625 (15.9)
8827	.750 (19.1)
8828	.875 (22.2)

Material: Nylon 6/6, UL Rated 94V-0



.100 (2.8)



CAT. NO.	L LENGTH
9055	.125 (3.2)
9056	.187 (4.7)
9057	.250 (6.4)
9058	.375 (9.5)
9059	.500 (12.7)
9060	.625 (15.9)

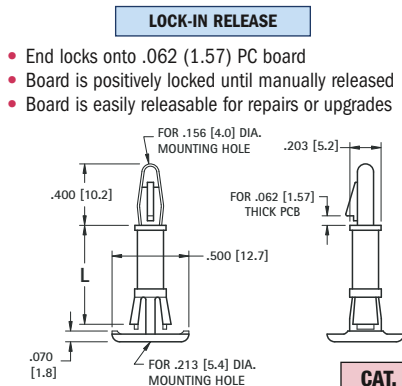
Material: Nylon 6/6, UL Rated 94V-0

REVERSE CHASSIS MOUNT SUPPORTS

- Permanently attaches to .059 (1.51) - .065 (1.65) thick case from outside
- Provides flat clean cosmetic appearance • Ideal for low clearance applications or for mounting directly to case walls



.156 (4.0)

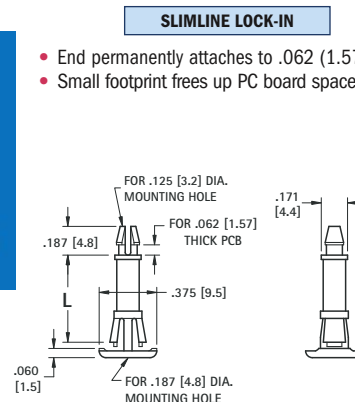


CAT. NO.	L LENGTH
9061	.250 (6.4)
9062	.375 (9.5)
9063	.500 (12.7)
9064	.625 (15.9)

Material: Nylon 6/6, UL Rated 94V-0



.125 (3.2)



CAT. NO.	L LENGTH
9065	.250 (6.4)
9066	.375 (9.5)
9067	.500 (12.7)
9068	.625 (15.9)

Material: Nylon 6/6, UL Rated 94V-0

SPACERS/STANDOFF ORGANIZER KITS



Maintain a neat complete inventory of the most frequently used spacers and standoffs in day-to-day operations. Choice of 14 different kits of the most popular spacers and standoffs. An assortment of various sizes and styles in Brass, Aluminum and Nylon with tapped or thru hole. Supplied with clear draw cabinet labeled for easy identification.

Kits combine the most frequently used spacers or standoffs for stacking and a multi-stacking prototyping.

SPACERS/STANDOFF KITS

SPACER ASSORTMENT KITS



Assortment of 1500 pieces in .250, .375, .500, .750 and 1.000 lengths, with clearance holes for #4, #6 and #8.

100 pieces of each size. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
SPR-13	Brass Nickel Plated Spacers
SPR-34	Aluminum Spacers with Iridite Finish
SPR-8	Nylon 6/6 Spacers

CLEAR HOLE SPACER KITS



Assortment of 400 total spacers: Brass, Aluminum, Nylon, Rolled Aluminum, with lengths of .250, .500, .750 and 1.000.

25 pieces of each size. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
SCR-4	#4 Clear Hole Spacers
SCR-6	#6 Clear Hole Spacers
SCR-8	#8 Clear Hole Spacers

HEX STANDOFF KITS



Assortment of 400 total standoffs: Female-Female standoffs and Male-Female standoffs both Aluminum and Nylon, with lengths of .250, .500, .750 and 1.000.

25 pieces of each size. Complete with cabinet and 25 machine screws with matching thread.

CAT. NO.	KIT SUPPLIED WITH
STR-440	4-40 Threaded Standoffs
STR-632	6-32 Threaded Standoffs
STR-832	8-32 Threaded Standoffs

THREADED STANDOFF KITS



Assortment of 425 total pieces. Female-Female standoffs and Male-Female standoffs both aluminum and nylon, with lengths of 10mm, 12mm, 15mm and 20mm.

25 pieces of each size. Complete with cabinet and 25 machine screws with matching threads.

CAT. NO.	KIT SUPPLIED WITH
STR-M3	M3 Threaded Standoffs
STR-M4	M4 Threaded Standoffs

FEMALE-FEMALE STANDOFF KITS



Assortment of 1500 pieces in .250, .375, .500, .750 and 1.000 lengths, with thread sizes of 4-40, 6-32, and 8-32.

100 pieces of each size. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
STR-15	Round Brass Zinc Plated Standoffs
STR-35	Round Aluminum Standoffs with Iridite Finish
STH-14	Hex Brass Zinc Plated Standoffs
STH-22	Hex Aluminum Standoff with Iridite Finish

MALE-FEMALE STANDOFF KITS



Brass kit is an assortment of 750 pieces of .500, .750, 1.000, and 1.500 long standoffs with 4-40, 6-32 and 8-32 thread.

Complete with cabinet.

Stainless kit is an assortment of 250 pieces of .250, .500, .750, and 1.000 long standoffs with 4-40, 6-32 and 8-32 thread.

Complete with cabinet and 25 pieces of each screw size.

CAT. NO.	KIT SUPPLIED WITH
STH-18	Aluminum-Clear Iridite Standoffs
STH-19	Brass-Nickel Plate Standoffs
STH-20	Stainless Steel Standoffs

SELF-RETAINING SPACER ENGINEERING DESIGN KIT



Assortment of 400 total pieces per kit of Self Retaining Round Nylon Spacers. Lengths of .125, .250, .500 and .750

25 pieces of each size/style.
Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
SCR-10	#4, #6, #8 & #10 Spacers

CIRCUIT BOARD SPACER/SUPPORT ENGINEERING DESIGN KITS



Assortment of 400 total pieces per kit of a variety of Circuit Board Hardware in .125, .250, .375 and .500 lengths in Nylon 6/6 material.

25 pieces of each size/style.
Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
CBH-1	SlimLine Products - Tension Fit; Lock-In, Easy Lock and Single Sided
CBH-2	Lock-In Products - Tension Fit; Lock-In, Easy Lock and Single Sided
CBH-3	Stacking Products - Thru-Hole and Self Aligning



Spacers & Standoffs

Certified Quality & Proven Performance
ISO 9001:2015 Quality System



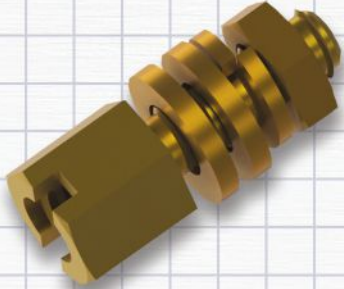
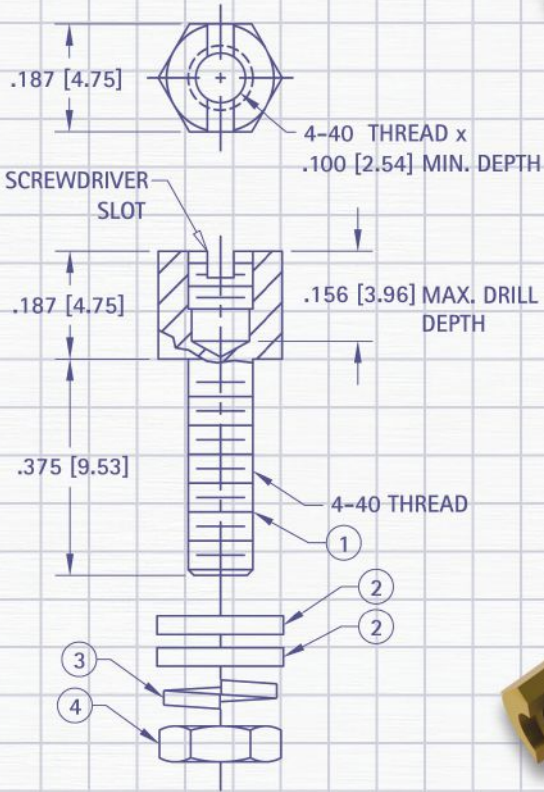
www.keyelco.com

Access 3D Data Sheets
& Check Availability



THiNK Design Solutions with Keystone Spacers & Standoffs

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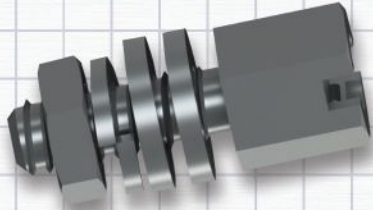


PANEL HARDWARE

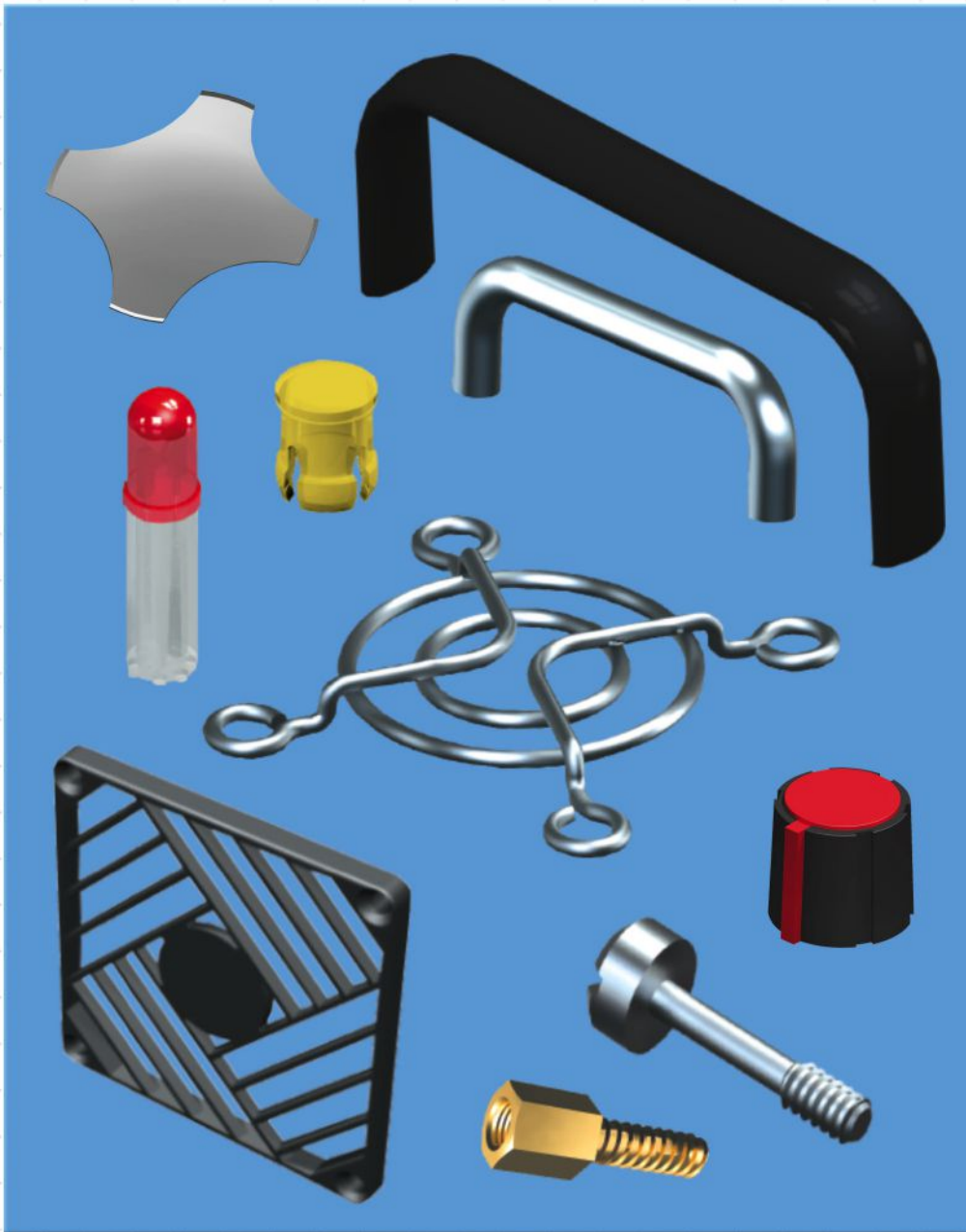
Our diverse selection of panel hardware is second to none in the marketplace. Our Handles, Screws, Knobs, Fan Guards, Dome Switches and LED lens and mounting spacers provides the right solution for a variety of applications, including:

- Rack Mounted Equipment
- Carrying Cases
- Low Friction Assemblies
- Key Pad & Tactile Switch Arrays
- D Subminiature connector Hardware
- Instrumentation Panels and Gauges
- Environments where mounting hardware is subject to loss
- For protection from damage or debris
- To dress up chassis access panels, racks or controls

Our quality system is ISO 9001:2015 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.



DATE	DESCRIPTION	REV.



SECTION 5 CONTENTS

CASES, INSTRUMENTATION	108	KNOBS, INSTRUMENTATION	102
COMPUTER HARDWARE		LED HARDWARE	
Captive Panel	101	Holders	106
Jack Screw	100	Lens & Caps	106
Panel Mounting	100	LED Spacer Mounts	107
Precision Shoulder Screws	102	PANEL HARDWARE	
Thumb Screw	101	Shaft Coupling	108
FAN FILTER & GUARDS	104-105	Shaft Locks	108
INSTRUMENTATION HANDLES	103	Panel Nuts	108
KEY PAD DOMES	98-99	Panel Bearing	108
		Volume Control Extenders	108

METAL "KEY-PAD" DOME SWITCHES



- Exceptional tactile feel for single or double-sided printed circuit boards
- Ideal for keypad arrays
- "Key-Pad" Domes float on PCB, no soldering recommended
- Supplied on tape and reel compatible with vacuum and mechanical pick and place systems
- Adhesive backed spacer material for creating custom "Key-Pad" arrays is also available
- Provides the proper spacing between the circuit board, the dome and the device graphic layer



Specifications:

Material: Stainless Steel, Nickel Plated.
 Gold plating available.
Operating Temperature: -40°F to 220°F (-40°C to 104°C)
Storage Temperature: -67°F to 257°F (-55°C to 125°C)

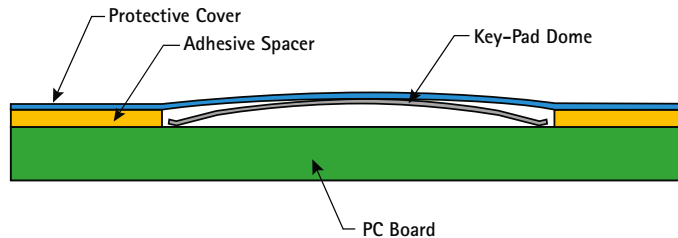
Electrical:

Contact Resistance: less than 100 mOhm
Switching Voltage: 0.1 to 100VDC
Switching Current: 5 µAmp to 100 mAmp DC
Switching Capacity: 1 Watt



"Key-Pad" Domes are ideal for Keypad arrays that require long life or a sealed interface. These snap action switches provide positive feedback with an audible and tactile click. "Key-Pad" domes are made from nickel plated stainless steel which provides a very reliable user interface (over one million cycles). "Key-Pad" domes can be placed directly to a PCB which will save on assembly cost and increase reliability. Available on tape and reel for automated pick and place assembly applications, as well as packed stacked in tubes. For pack stacked in tubes, the contour of the dome keeps an air pocket in between each dome. The air pocket allows only one dome to be picked off the stack eliminating double stacked domes.

The "Key-Pad" dome is designed to be placed on the PCB, not soldered. The domes are held in place by using a "Key-Pad" adhesive spacer (Cat. No. 5200) which requires cut outs to be added in the proper locations. If the top sealing surface has an adhesive bottom side, it will help to keep the dome in the proper location (optional).



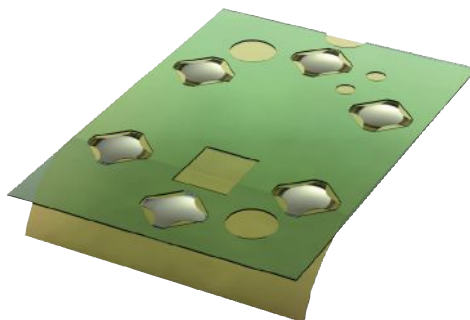
The low profile of the dome is ideal for thin, lightweight applications or applications that need to be sealed or easily cleaned. The domes can be activated from finger pressure thru a thin flexible membrane that can be sealed against the product chassis so cleaning fluids, dust or weather will not damage the circuitry.

If the device has a thicker or sculpted exterior package, the dome can be activated with an actuator. The actuator will give the "Key-Pad" dome a more conventional push button feel.

A "Key-Pad" Dome is available for almost any application with trip forces ranging from 8 oz. to 14 oz. and dome diameters from 8.4mm to 12.2mm. Trip forces are consistent from switch to switch per batch. This insures that a switch array will have a consistent feel from switch to switch. "Key-Pad" domes have a large sweet spot which allows the dome to be easily activated even though it was pushed off center. Gold plated domes are available upon request.



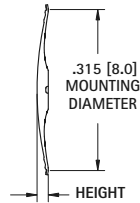
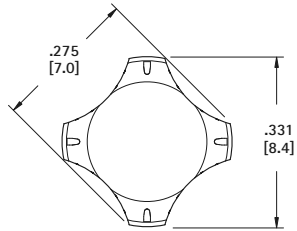
**COMPLETE
 DOME ASSEMBLIES
 AVAILABLE**



For quote, please forward dome sketch layout to:
sales@keyelco.com

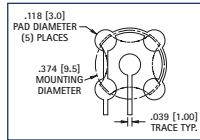
METAL "KEY-PAD" DOME SWITCHES

MINI SERIES KEY-PAD DOME SWITCHES - .331 (8.4) DIA



SUPPLIED ON TAPE AND REEL

Mounting Detail

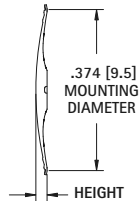
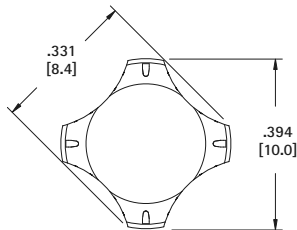


* Key-Pad Domes are designed to be placed on board, not soldered

TAPE & REEL (5000 PER)	MINI SERIES - .331 (8.4) DIAMETER			
CAT. NO.	HEIGHT ± 0.04 (± 0.10)	TRIP FORCE	REBOUND FORCE	CLICK RATIO
5133TR	.018 (0.45)	7.8 oz (220g)	3.2 oz (90g)	40%-70%
5134TR	.020 (0.50)	9.9 oz (280g)	3.2 oz (90g)	50%-80%
5135TR	.022 (0.55)	12.0 oz (340g)	4.6 oz (130g)	50%-80%
5136TR	.022 (0.55)	14.1 oz (400g)	5.3 oz (150g)	50%-80%

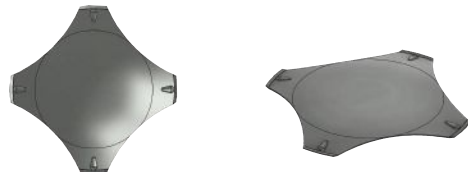
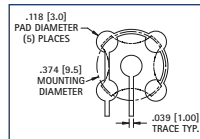
Click Ratio: (Trip Force - Rebound Force)/Trip Force. Choose a higher click ratio for switches that will click or snap when activated. Use lower click ratios for a more conventional feeling switch.

COMPACT SERIES KEY-PAD DOME SWITCHES - .394 (10.0) DIA



SUPPLIED ON TAPE AND REEL

Mounting Detail

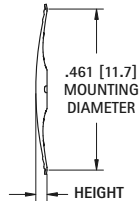
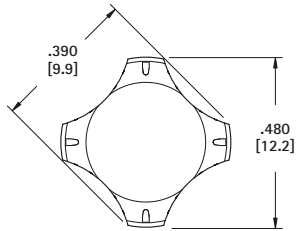


* Key-Pad Domes are designed to be placed on board, not soldered

TAPE & REEL (4000 PER)	COMPACT SERIES - .394 (10.0) DIAMETER			
CAT. NO.	HEIGHT ± 0.04 (± 0.10)	TRIP FORCE	REBOUND FORCE	CLICK RATIO
5153TR	.030 (0.75)	7.8 oz (220g)	3.2 oz (90g)	40%-70%
5154TR	.030 (0.75)	9.9 oz (280g)	3.2 oz (90g)	50%-80%
5155TR	.031 (0.80)	12.0 oz (340g)	3.5 oz (100g)	60%-80%
5156TR	.031 (0.80)	14.1 oz (400g)	3.5 oz (100g)	60%-85%

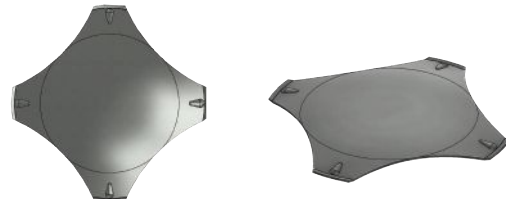
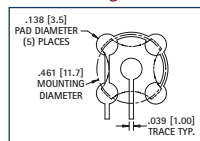
Click Ratio: (Trip Force - Rebound Force)/Trip Force. Choose a higher click ratio for switches that will click or snap when activated. Use lower click ratios for a more conventional feeling switch.

MAXI SERIES - .480 (12.2) DIA



SUPPLIED ON TAPE AND REEL

Mounting Detail



* Key-Pad Domes are designed to be placed on board, not soldered

TAPE & REEL (4000 PER)	MAXI SERIES - .480 (12.2) DIAMETER			
CAT. NO.	HEIGHT ± 0.04 (± 0.10)	TRIP FORCE	REBOUND FORCE	CLICK RATIO
5173TR	.026 (0.65)	7.8 oz (220g)	3.0 oz (85g)	40%-70%
5174TR	.030 (0.75)	9.9 oz (280g)	3.2 oz (90g)	50%-80%
5175TR	.030 (0.75)	12.0 oz (340g)	3.5 oz (100g)	50%-80%
5176TR	.031 (0.80)	14.8 oz (420g)	4.2 oz (120g)	50%-80%

Click Ratio: (Trip Force - Rebound Force)/Trip Force. Choose a higher click ratio for switches that will click or snap.

ADHESIVE SPACER



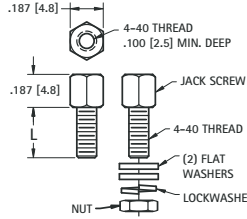
ADHESIVE SPACER - SINGLE SIDED			
CAT. NO.	WIDTH	LENGTH	THICKNESS
5200	36.00 (970)	24.00 (610)	.009 (235 μ m)

JACK SCREWS

- Equivalent to AMP, CANNON & TRW Jack Screws
- "D" subminiature connector mounting screw
- Custom lengths available
- Hardware supplied unassembled and in bulk

SPECIFICATIONS: **YELLOW:** Steel, Zinc Plate and Yellow Chromate; **CLEAR:** Steel, Zinc Plate and Clear Chromate; **STAINLESS:** Stainless Steel

STANDARD JACK SCREWS

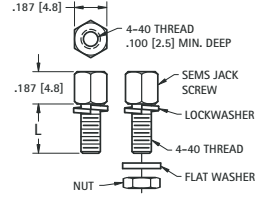


JACK ONLY			L LENGTH	JACK WITH HARDWARE*		
YELLOW	CLEAR	STAINLESS		YELLOW	CLEAR	STAINLESS
CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
7226	7226-5	7246	.187 (4.8)	7227	7227-5	7247
7228	7228-5	7248	.250 (6.4)	7229	7229-5	7249
7230	7230-5	7250	.312 (7.9)	7231	7231-5	7251
7241	7241-5	7252	.375 (9.5)	7242	7242-5	7253
7243	7243-5	7254	.500 (12.7)	7244	7244-5	7255
7232	7232-5	7256	.625 (15.9)	7233	7233-5	7257

*Hardware supplied unassembled in bulk

SEMS JACK SCREWS

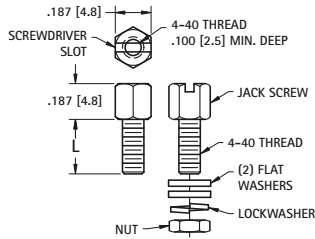
- Captivated helical spring lockwasher, simplifies use



SEMS JACK ONLY		L LENGTH	SEMS JACK WITH HARDWARE*	
CLEAR	CAT. NO.		CLEAR	CAT. NO.
7235	7235	.285 (7.2)	7236	7236
7237	7237	.347 (8.8)	7238	7238
7239	7239	.660 (16.8)	7240	7240

*Hardware supplied unassembled in bulk

SLOTTED JACK SCREWS

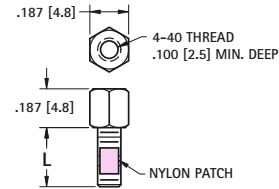


- Slot provides ability to install jack with a screwdriver.

JACK ONLY			L LENGTH	JACK WITH HARDWARE*	
YELLOW	CLEAR	CAT. NO.		YELLOW	CLEAR
CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
7270	7275	7290	.250 (6.4)	7290	7295
7271	7276	7291	.312 (7.9)	7291	7296
7272	7277	7292	.375 (9.5)	7292	7297
7273	7278	7293	.500 (12.7)	7293	7298
7274	7279	7294	.625 (15.9)	7294	7299

*Hardware supplied unassembled in bulk

JACK SCREWS WITH NYLON PATCH

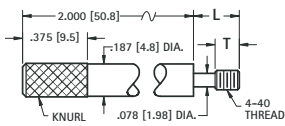


- Nylon patch holds jack firmly in vibration applications.

JACK WITH NYLON PATCH			
YELLOW	CLEAR	STAINLESS	L LENGTH
CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
7260	7261	7262	.250 (6.4)
7263	7264	7265	.312 (7.9)
7266	7267	7268	.375 (9.5)

TURNABLE JACK SCREWS

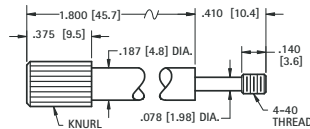
DIRECT ACCESS



MATERIAL: Steel, Black Oxide

WITHOUT SLOT	WITH SLOT	T DIM.	L DIM.
CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
2064	2065	.125 (3.2)	.250 (6.4)
2066	2067	.250 (6.4)	.437 (11.1)

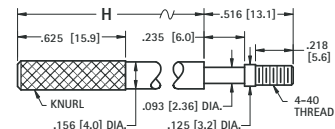
STRAIGHT KNURL



MATERIAL: Steel, Zinc Plate & Clear Chromate

WITHOUT SLOT	WITH SLOT
CAT. NO.	CAT. NO.
2072	2073

SLIM-LINE



MATERIAL: Steel, Nickel Plate

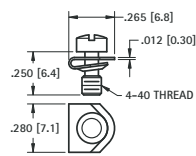
WITHOUT SLOT	WITH SLOT	H DIM.
CAT. NO.	CAT. NO.	CAT. NO.
2068	2069	1.250 (31.8)
2070	2071	1.750 (44.5)

PANEL MOUNTING HARDWARE

"U" CLIP



Supplied Unassembled



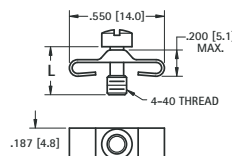
MATERIAL:
Clip & Screw: Steel, Zinc Plate & Yellow Chromate

CAT. NO. 2062

"BOW TIE" RETAINING CLIP



Supplied Unassembled



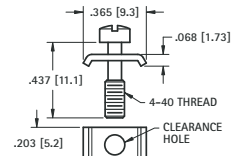
MATERIAL:
Clip & Screw: Steel, Zinc Plate & Yellow Chromate

CAT. NO.	L
2060	.250 (6.4)
2061	.281 (7.1)

SADDLE WASHER



Supplied Unassembled

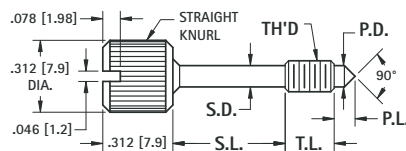
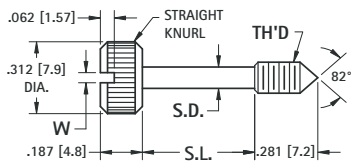


MATERIAL:
Clip & Screw: Steel, Zinc Plate & Yellow Chromate

CAT. NO. 2063

CAPTIVE PANEL SCREWS

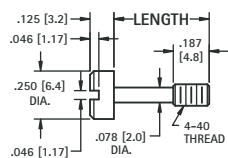
MATERIAL: Stainless Steel per ASTM-A581/A-582



CAT. NO.	THREAD	S.D. ± .005 (.13)	S.L. ± .010 (.25)	W + .015 (+.38)-.000
8700	4-40	.078 (2.0)	.375 (9.5)	.036 (.91)
8701	4-40	.078 (2.0)	.500 (12.7)	.036 (.91)
8702	4-40	.078 (2.0)	.625 (15.9)	.036 (.91)
8703	6-32	.095 (2.4)	.375 (9.5)	.045 (1.14)
8704	6-32	.095 (2.4)	.500 (12.7)	.045 (1.14)
8705	6-32	.095 (2.4)	.625 (15.9)	.045 (1.14)

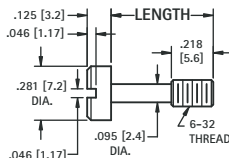
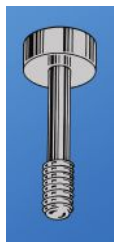
CAT. NO.	THREAD	T.L. ± .015 (.38)	S.D. ± .005 (.13)	S.L. ± .010 (.25)	P.D. +0.00, -.016 (-.40)	P.L. ± .015 (.38)
8706	4-40	.125 (3.2)	.078 (2.0)	.171 (4.3)	.078 (2.0)	.078 (2.0)
8707	4-40	.125 (3.2)	.078 (2.0)	.296 (7.5)	.078 (2.0)	.078 (2.0)
8708	4-40	.125 (3.2)	.078 (2.0)	.421 (10.7)	.078 (2.0)	.078 (2.0)
8709	6-32	.218 (5.5)	.095 (2.4)	.187 (4.7)	.095 (2.4)	.093 (2.36)
8710	6-32	.218 (5.5)	.095 (2.4)	.312 (7.9)	.095 (2.4)	.093 (2.36)
8711	6-32	.218 (5.5)	.095 (2.4)	.437 (11.1)	.095 (2.4)	.093 (2.36)

4-40



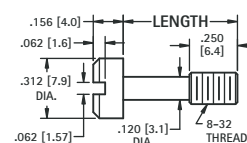
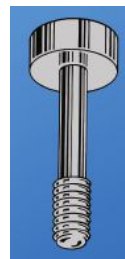
CAT. NO.	LENGTH
2413	.469 (11.9)
2414	.531 (13.4)

6-32



CAT. NO.	LENGTH
2415	.531 (13.5)
2416	.593 (15.1)
2417	.656 (16.7)

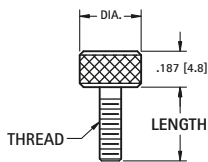
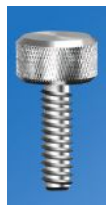
8-32



CAT. NO.	LENGTH
2418	.656 (16.7)
2419	.718 (18.2)
2420	.781 (19.8)

THUMB SCREWS

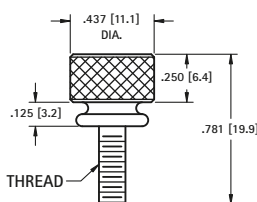
STAINLESS



MATERIAL: Stainless Steel

CAT. NO.	LENGTH	THREAD	DIA
2400	.312 (7.9)	4-40	.312 (7.9)
2401	.375 (9.5)		
2402	.437 (11.1)		
2403	.500 (12.7)		
2404	.312 (7.9)	6-32	.312 (7.9)
2405	.375 (9.5)		
2406	.437 (11.1)		
2407	.500 (12.7)		
2408	.375 (9.5)	8-32	.375 (9.5)
2409	.437 (11.1)		
2410	.500 (12.7)		

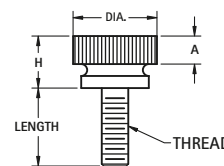
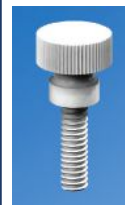
BRASS



MATERIAL: Brass, Nickel Plate

CAT. NO.	THREAD
1708	6-32
1709	8-32
1710	10-32

NYLON

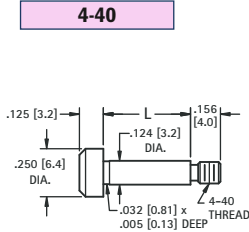


MATERIAL: Nylon 6/6, UL Rated 94V-2

CAT. NO.	LENGTH	THREAD	DIA.	H	A
2500	.250 (6.4)	4-40	.300 (7.6)	.280 (7.1)	.125 (3.2)
2501	.375 (9.5)				
2502	.500 (12.7)				
2503	.250 (6.4)	6-32	.360 (9.1)	.275 (7.0)	.125 (3.2)
2504	.375 (9.5)				
2505	.500 (12.7)				
2506	.250 (6.4)	8-32	.425 (10.8)	.305 (7.7)	.140 (3.6)
2507	.375 (9.5)				
2508	.500 (12.7)				

PRECISION GROUND SHOULDER SCREWS

Shoulder ground to $+.000/-0.001$ Dia, $+.002/-0.000$ Length. **Material:** Stainless Steel, ASTM A581/A582

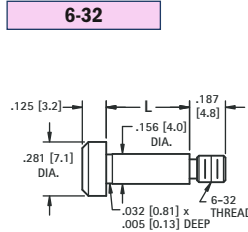


SLOTTED



SOCKET

CAT. NO.	LENGTH	CAT. NO.
2421	.125 (3.2)	2441
2422	.250 (6.4)	2442
2423	.375 (9.5)	2443
2424	.500 (12.7)	2444

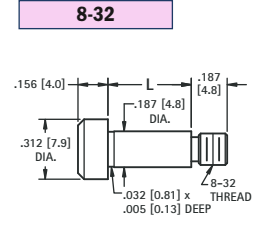


SLOTTED



SOCKET

CAT. NO.	LENGTH	CAT. NO.
2425	.125 (3.2)	2445
2426	.250 (6.4)	2446
2427	.375 (9.5)	2447
2428	.500 (12.7)	2448



SLOTTED








SOCKET

CAT. NO.	LENGTH	CAT. NO.
2431	.125 (3.2)	2451
2432	.250 (6.4)	2452
2433	.375 (9.5)	2453
2434	.500 (12.7)	2454
2435	.625 (15.9)	2455

INSTRUMENTATION POINTER KNOBS

All knobs supplied with brass insert and two set screws to hold knob securely to shaft

SPECIFICATIONS Knob: ABS Inlay: Spun Aluminum Insert: Brass, Nickel Plate	CAT. NO.	SHAFT (DIA.)	D (DIA.)	H (HEIGHT)	M (MAX.)	SHAFT ATTACHMENT DETAILS		NUT CLEARANCE	
						L (LOCATION)	B (DEPTH)	I.D. (DIA.)	C (C'BORE DEPTH)
	8554	.125 (3.2)	.500 (12.7)	.660 (16.8)	-	.320 (8.1)	.570 (14.5)	.360 (9.1)	.170 (4.3)
	8555	.250 (6.4)	.700 (17.8)	.780 (19.8)	-	.360 (9.1)	.680 (17.3)	.500 (12.7)	.180 (4.6)
	8556	.250 (6.4)	.920 (23.4)	1.010 (25.7)	-	.460 (11.7)	.910 (23.1)	.640 (16.3)	.330 (8.4)
	8557	.250 (6.4)	1.250 (31.8)	.828 (21.0)	-	.400 (10.2)	.700 (17.8)	1.010 (25.7)	.250 (6.4)
	8558	.125 (3.2)	.500 (12.7)	.660 (16.8)	.915 (23.4)	.320 (8.1)	.570 (14.5)	.360 (9.1)	.170 (4.3)
	8559	.250 (6.4)	.700 (17.8)	.780 (19.8)	1.150 (29.2)	.357 (9.1)	.660 (16.7)	.480 (12.2)	.180 (4.6)
	8560	.250 (6.4)	.920 (23.4)	1.010 (25.7)	1.520 (38.6)	.500 (12.7)	.910 (23.1)	.640 (16.3)	.240 (6.1)
	8561	.250 (6.4)	1.250 (31.8)	.920 (23.4)	1.860 (47.2)	.470 (11.9)	.800 (20.3)	.780 (19.8)	.350 (8.9)
	8567	.125 (3.2)	.500 (12.7)	.500 (12.7)	.610 (15.5)	.160 (4.0)	.405 (10.3)	.410 (10.4)	.030 (0.8)
	8568	.250 (6.4)	.700 (17.8)	.625 (15.9)	.820 (20.8)	.210 (5.3)	.480 (12.2)	.468 (11.9)	.030 (0.8)
	8569	.250 (6.4)	.920 (23.4)	.780 (19.8)	1.090 (27.7)	.240 (6.1)	.660 (16.8)	.640 (16.3)	.100 (2.5)
	8565	.250 (6.4)	.700 (17.8)	.630 (16.0)	1.187 (30.2)	.210 (5.3)	.510 (13.0)	.570 (14.5)	.030 (0.8)
	8566	.250 (6.4)	.920 (23.4)	.640 (16.3)	1.510 (38.6)	.260 (6.6)	.540 (13.7)	.730 (18.5)	.120 (3.1)

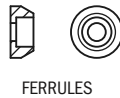
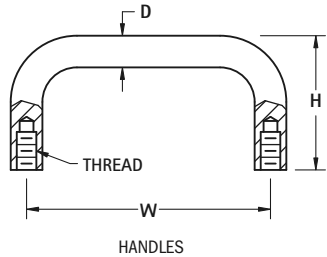
SPECIFICATIONS Material: Colored Polypropylene hub. Thermoplastic Elastomer (TPE) - Soft-Touch gripping surface Insert: Brass, Nickel Plate	CAT. NO.	COLOR		KNOB DIMENSIONS			NUT CLEARANCE	
		OUTSIDE	INSIDE	SHAFT (DIA.)	D (DIA.)	H (HEIGHT)	I.D. (DIA.)	C (C'BORE DEPTH)
	8570	Black	Yellow	.250 (6.4)	.610 (15.5)	.550 (14.0)	.430 (10.9)	.090 (2.3)
	8571	Black	Red					
	8572	Black	Gray					
	8573	Black	Black					

INSTRUMENTATION HANDLES

ROUND



MATERIAL:
Brass: ASTM-B16, Nickel Plate
Aluminum: 6061-T6, Black Anodized

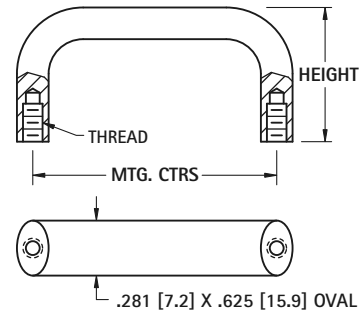


HANDLES				FERRULES			
BRASS CAT. NO.	ALUMINUM CAT. NO.	W MTG. CTRS.	H HEIGHT	THREAD	D DIAMETER	BRASS CAT. NO.	ALUMINUM CAT. NO.
7140	7170	1.250 (31.8)	1.000 (25.4)	4-40	.156 (4.0)	7176	7192
7141	7171	2.000 (50.8)	1.000 (25.4)				
7142	7172	3.000 (76.2)	1.000 (25.4)				
9100	9110	1.250 (31.8)	.625 (15.9)	4-40	.187 (4.7)	9120	9122
9101	9111	1.500 (38.1)	.625 (15.9)				
9104	9114	1.500 (38.1)	.750 (19.1)				
9102	9112	1.750 (44.5)	.625 (15.9)				
9105	9115	1.750 (44.5)	.750 (19.1)				
9103	9113	2.000 (50.8)	.625 (15.9)				
9106	9116	1.250 (31.8)	1.000 (25.4)				
9107	9117	1.500 (38.1)	1.000 (25.4)				
9108	9118	2.000 (50.8)	1.000 (25.4)				
9109	9119	3.000 (76.2)	1.000 (25.4)				
7143	7173	3.000 (76.2)	1.500 (38.1)	8-32	.250 (6.4)	7163	7193
485	515	3.000 (76.2)	1.750 (44.5)				
480	510	3.500 (88.9)	1.500 (38.1)				
7144	7174	4.000 (101.6)	1.500 (38.1)				
486	516	4.000 (101.6)	1.750 (44.5)				
481	511	4.500 (114.3)	1.500 (38.1)				
487	517	4.500 (114.3)	1.750 (44.5)				
482	512	5.000 (127.0)	1.500 (38.1)				
488	518	5.000 (127.0)	1.750 (44.5)				
483	513	5.500 (139.7)	1.500 (38.1)				
484	514	6.000 (152.4)	1.500 (38.1)				
489	519	6.000 (152.4)	1.750 (44.5)				
7145	7175	3.000 (76.2)	1.500 (38.1)				
7146	7176	4.000 (101.6)	1.500 (38.1)				
493	523	4.000 (101.6)	1.750 (44.5)				
490	520	4.500 (114.3)	1.500 (38.1)				
494	524	4.500 (114.3)	1.750 (44.5)				
7147	7177	4.562 (115.9)	1.500 (38.1)				
491	521	5.000 (127.0)	1.500 (38.1)				
495	525	5.000 (127.0)	1.750 (44.5)				
492	522	5.500 (139.7)	1.500 (38.1)				
7148	7178	6.000 (152.4)	1.500 (38.1)				
496	526	6.000 (152.4)	1.750 (44.5)				
7149	7179	6.437 (163.5)	1.750 (44.5)				
7150	7180	4.000 (101.6)	1.375 (34.9)	10-32	.375 (9.5)	—	—
7151	7181	6.000 (152.4)	1.375 (34.9)				

OVAL



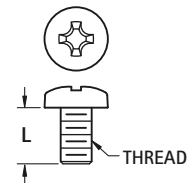
MATERIAL:
Aluminum: 6061-T6, Black Anodized



CAT. NO.	MTG. CTRS.	HEIGHT
7186	4.000 (101.6)	1.750 (44.5)
544	4.000 (101.6)	2.000 (50.8)
540	4.500 (114.3)	1.750 (44.5)
545	4.500 (114.3)	2.000 (50.8)
541	5.000 (127.0)	1.750 (44.5)
546	5.000 (127.0)	2.000 (50.8)
542	5.500 (139.7)	1.375 (34.9)
547	5.500 (139.7)	2.000 (50.8)
7187	6.000 (152.4)	1.375 (34.9)
543	6.000 (152.4)	1.750 (44.5)
548	6.000 (152.4)	2.000 (50.8)
7188	6.437 (163.5)	1.750 (44.5)

HANDLE MOUNTING SCREWS

Phillips drive pan head machine screws



MATERIAL: Stainless Steel

CAT. NO.	L LENGTH	THREAD
9900	.250 (6.4)	4-40
9901	.375 (9.5)	
9902	.500 (12.7)	
9903	.250 (6.4)	6-32
9904	.375 (9.5)	
9905	.500 (12.7)	8-32
9906	.375 (9.5)	
9907	.500 (12.7)	
9908	.750 (19.1)	
9909	.375 (9.5)	10-32
9910	.500 (12.7)	
9911	.750 (19.1)	

PLASTIC FAN FILTER ASSEMBLIES

A unique package consisting of guard, filter media and retainer. The guard and retainer are manufactured with UL Rated 94V-HB material. The filter media is made of polyester foam and aluminum mesh which allows free passage of air (24 CFM) with minimum air resistance and pressure drop. A major feature of this assembly is that when the filter media requires maintenance you simply remove the snap-fit retainer to clean or replace the filter, leaving the guard and fan in place. This assures protection to the fan blades and eliminates damage to the fan or equipment during cleaning.

RETAINER

MATERIAL: Glass filled Nylon 6/6, UL Rated HB

- Snap-fit construction
- Designed for minimum air restriction

MEDIA

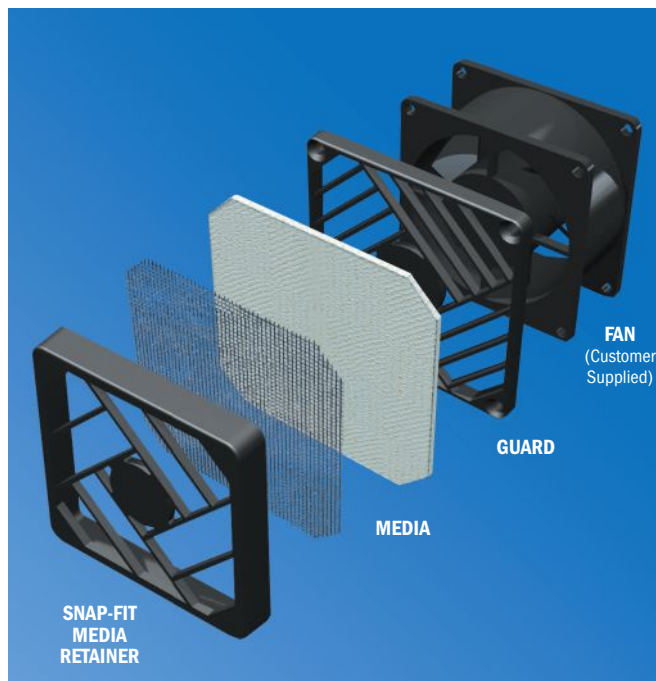
MATERIAL: White Polyester foam and Aluminum screen

- Constructed to allow free passage of air with minimum resistance and pressure drop (24 CFM)
- Has a high surface-area contact for impingement of dust particles
- Helps reduce external fan noise
- Easily cleaned by vacuuming or washing with mild soap, detergent or cleaning solvent
- Replacement media available

GUARD

MATERIAL: Glass filled Nylon 6/6, UL Rated HB

- .250 (6.4) maximum ring spacing
- Decreased noise level
- Countersunk mounting holes (4)
- Withstands high impact



FAN GUARD & FILTER ASSEMBLIES

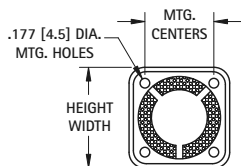


Fig. 1

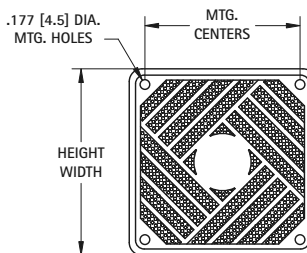


Fig. 2

ASSEMBLY CAT. NO.	FIG. NO.	FOR FAN SIZE	HEIGHT/WIDTH	THICKNESS	MTG. CENTERS	FILTER MEDIA ONLY CAT. NO.
8443	1	1.50 (40mm)	1.839 (46.7)	.327 (8.3)	1.260 (32.0)	8443-MO
8444	2	2.50 (60mm)	2.559 (65.0)	.488 (12.4)	1.970 (50.0)	8444-MO
8487	2	3.12 (80mm)	3.408 (86.6)	.488 (12.4)	2.840 (72.0)	8487-MO
8488	2	3.62 (92mm)	3.815 (96.9)	.488 (12.4)	3.250 (82.5)	8488-MO
8489	2	4.50 (120mm)	4.961 (126.0)	.496 (12.6)	4.130 (105.0)	8489-MO

FAN GUARDS

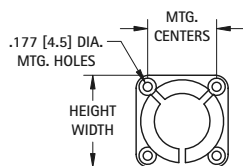


Fig. 3

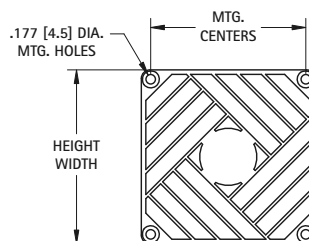


Fig. 4

GUARD CAT. NO.	FIG. NO.	FOR FAN SIZE	HEIGHT/WIDTH	THICKNESS	MTG. HOLE CENTER SPACING
8445	3	1.50 (40mm)	1.681 (42.7)	.169 (4.3)	1.260 (32.0)
8446	4	2.50 (60mm)	2.378 (60.4)	.236 (6.0)	1.970 (50.0)
8497	4	3.12 (80mm)	3.177 (80.7)	.236 (6.0)	2.840 (72.0)
8498	4	3.62 (92mm)	3.634 (92.3)	.236 (6.0)	3.250 (82.5)
8499	4	4.50 (120mm)	4.741 (120.4)	.244 (6.2)	4.130 (105.0)

METAL FAN GUARDS

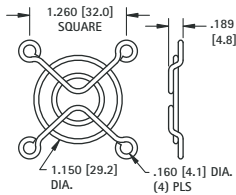
Made of high quality steel wire which combines strength with superior forming. The units offer clean, strong butt welds with minimum flash and have consistent guard diameters to enhance maximum air-flow and venting.

- Available for most popular size fans
- Protects fingers as well as fan blades
- Same mounting hole pattern as standard fans
- Chrome Plate offers a high luster finish



MATERIAL: Steel, Nickel Chrome Plate

FITS 1.50" (40mm) FANS

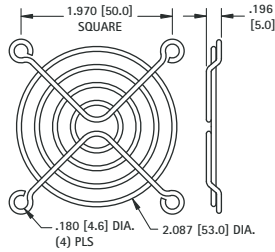


CONSTRUCTION

Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8447

FITS 2.50" (60mm) FANS

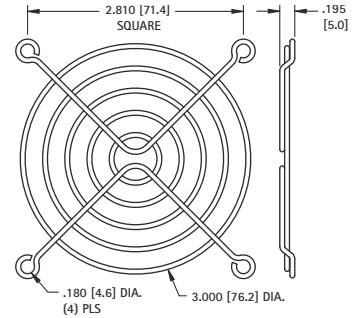


CONSTRUCTION

Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8449

FITS 3.12" (80mm) FANS

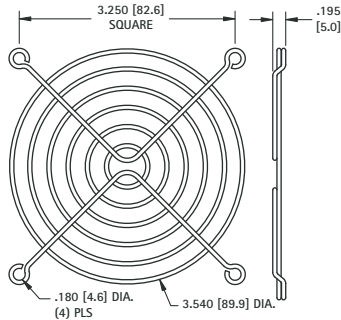


CONSTRUCTION

Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8450

FITS 3.62" (92mm) FANS

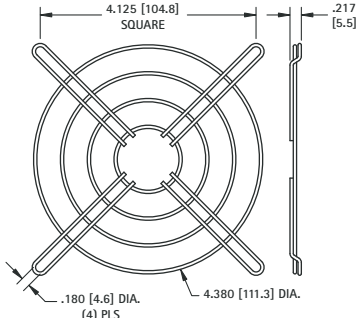


CONSTRUCTION

Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8451

FITS 4.50" (120mm) FANS

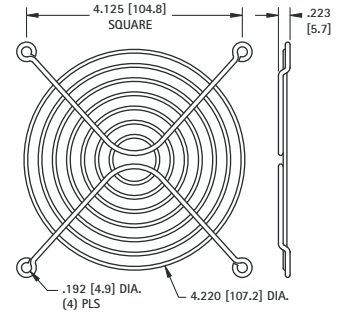


CONSTRUCTION

Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8448

FITS 4.50" (120mm) FANS

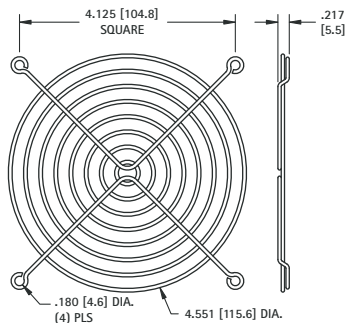


CONSTRUCTION

Rings: .071 (1.80) wire diameter
Ribs: .091 (2.31) wire diameter

CAT. NO. 8452

FITS 4.50" (120mm) FANS

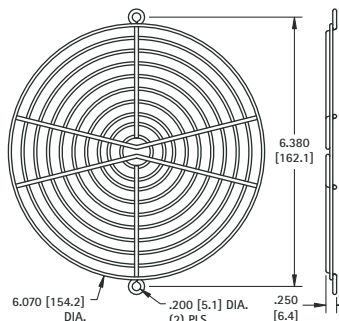


CONSTRUCTION

Rings: .071 (1.80) wire diameter
Ribs: .071 (1.80) wire diameter

CAT. NO. 8453

FITS 6.00" (150mm) FANS

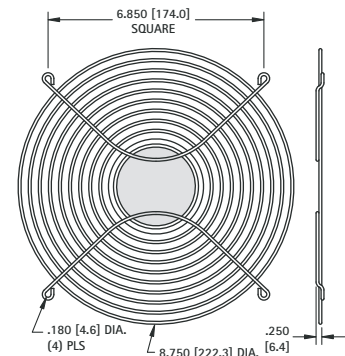


CONSTRUCTION

Rings: .071 (1.80) wire diameter
Ribs: .091 (2.31) wire diameter

CAT. NO. 8455

FITS 10.00" (250mm) FANS



CONSTRUCTION

Rings: .091 (2.31) wire diameter
Ribs: .091 (2.31) wire diameter

CAT. NO. 8457

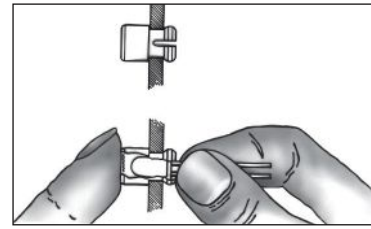
LED LENS CAPS

Designed for use with T-1 or T-1 3/4 LEDs, these Lens Caps are available in round or square configurations. They snap-mount through the front panel for easy, light-finger pressure, installation. The LED is inserted into the cap from behind the panel and held securely in place.

The Lens Cap protects the LED from physical damage while guarding the components from electrostatic discharge (ESD), up to 16KV. More economical than indicator light assemblies, the caps feature striated lines and fresnel rings which permit up to 180 viewing angles with either diffused or non-diffused LED's. They provide exceptionally high contrast and visibility.



MATERIAL: Polycarbonate
Available in Red, Green, Yellow and Clear



ROUND CAPS

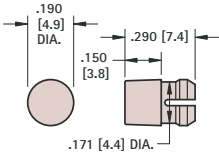


FIG. 1 T-1

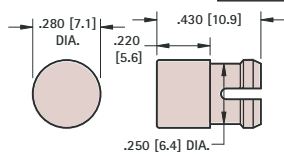


FIG. 2 T-1 3/4

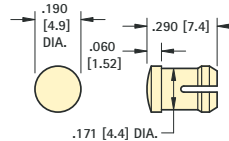


FIG. 3 T-1

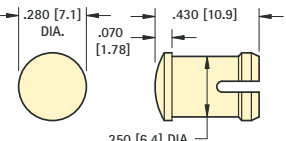


FIG. 4 T-1 3/4

STANDARD HEIGHT

CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8650	RED	1	T-1	.171 (4.3)	.250 (6.4)	.031 - .062 (.79/1.57)
8651	GREEN					
8652	YELLOW					
8653	CLEAR					
8662	RED	2	T-1 3/4	.250 (6.4)	.375 (9.5)	.062 - .125 (1.57/3.18)
8663	GREEN					
8664	YELLOW					
8665	CLEAR					

LOW PROFILE

CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8656	RED	3	T-1	.171 (4.3)	.250 (6.4)	.062 - .125 (1.57/3.18)
8657	GREEN					
8658	YELLOW					
8659	CLEAR					
8668	RED	4	T-1 3/4	.250 (6.4)	.375 (9.5)	.031 - .250 (.79/6.4) (See Note)
8669	GREEN					
8670	YELLOW					
8671	CLEAR					

SQUARE CAPS

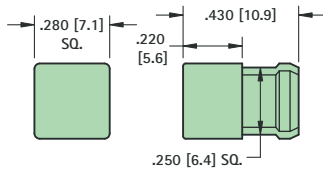


FIG. 5 T-1 3/4

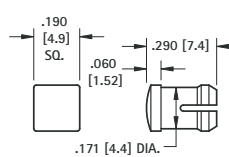


FIG. 6 T-1

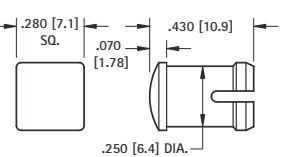


FIG. 7 T-1 3/4

STANDARD HEIGHT

CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8680	RED	5	T-1 3/4	.250 (6.4) SQUARE	.375 (9.5)	.062 - .125 (1.57/3.18)
8681	GREEN					
8682	YELLOW					
8683	CLEAR					

LOW PROFILE

CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8674	RED	6	T-1	.171 (4.3)	.250 (6.4)	.062 - .125 (1.57/3.18)
8675	GREEN					
8676	YELLOW					
8677	CLEAR					
8686	RED	7	T-1 3/4	.250 (6.4)	.375 (9.5)	.031 - .250 (.79/6.4) (See Note)
8687	GREEN					
8688	YELLOW					
8689	CLEAR					

Note: When mounting T-1 3/4 Low Profile Caps (Fig. 4 or Fig. 7) in panels .125 (3.2) thick or less a spacer must be used. **Spacer CAT. NO. 8692 MATERIAL:** White Nylon .360 (9.1) O.D. x 1/4 I.D. x 1/8 Lg.

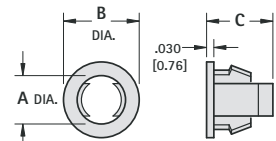
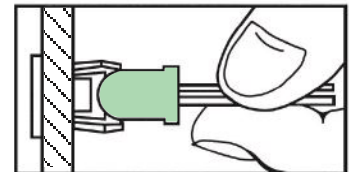
"SNAP-IN" T-1 & T-1 3/4 LED HOLDERS

Designed for use with T-1 or T-1 3/4 LED's in .060 (1.52) - .070 (1.78) thick panels. The holder snaps into the front panel with easy, light-finger pressure. The LED snaps into the holder from behind the panel and is held securely in place.



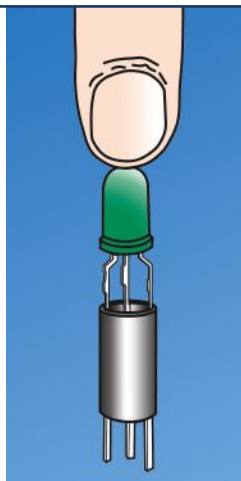
MATERIAL: Nylon 6/6, Black

CAT. NO.	LED SIZE	A	B	C	MTG. HOLE SIZE
8309	T-1	.114 (2.9)	.232 (5.9)	.188 (4.8)	.171 (4.3)
8310	T-1 3/4	.200 (5.0)	.315 (8.0)	.274 (6.9)	.250 (6.4)

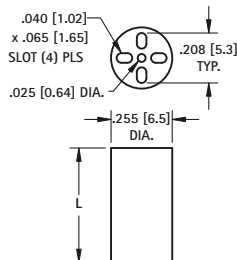


"UNIVERSAL" FOR T-1 & T-1 3/4

- Unique design separates leads and retains Tri-Lead and Bi-Lead components
- Designed for PC board mounting of Tri-Lead and Bi-Lead T-1 and T-1 3/4 LEDs
- Provides height control, lead retention and stability
- Also suitable for mounting lamps, resistors, transistors, diodes, capacitors, etc.



T1 & T-1 3/4



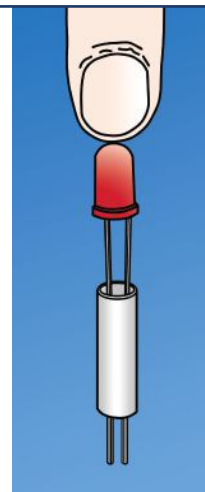
MATERIAL: Black PVC, UL Rated 94V-0

FOR T-1 and T-1 3/4			
CAT. NO.	L LENGTH	CAT. NO.	L LENGTH
8900	.120 (3.0)	8916	.400 (10.2)
8901	.140 (3.6)	8917	.420 (10.7)
8902	.160 (4.1)	8918	.440 (11.2)
8903	.180 (4.6)	8919	.450 (11.4)
8904	.200 (5.1)	8920	.460 (11.7)
8905	.220 (5.6)	8921	.480 (12.2)
8906	.240 (6.1)	8922	.500 (12.7)
8907	.250 (6.4)	8923	.550 (14.0)
8908	.260 (6.6)	8924	.600 (15.2)
8909	.280 (7.1)	8925	.650 (16.5)
8910	.300 (7.6)	8926	.700 (17.8)
8911	.320 (8.1)	8927	.750 (19.1)
8912	.340 (8.6)	8928	.800 (20.3)
8913	.350 (8.9)	8929	.850 (21.6)
8914	.360 (9.1)	8930	.900 (22.9)
8915	.380 (9.7)	8931	.925 (23.5)

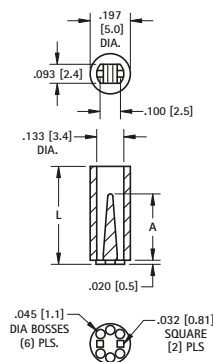
"SELF-ALIGNING" FOR BI-LEAD T-1 & T-1 3/4

KEY FEATURES

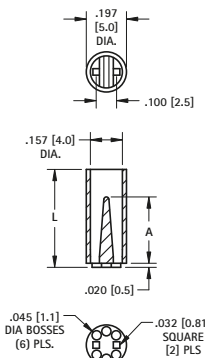
- Positive self-alignment of leads on .100 (.25) centers.
- No special tools required
- This features an internally tapered barrier which guides the leads and eliminates crimping or shorting
- The bottom bosses serve the dual purpose of heat dissipation and easy post soldering cleanup



T-1



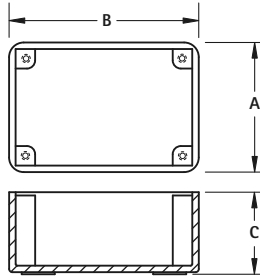
T-1 3/4



MATERIAL: Natural Nylon, UL Rated 94V-2

T-1	T-1 3/4	L	A	T-1	T-1 3/4	L	A		
CAT. NO.	CAT. NO.	LENGTH	REF.	CAT. NO.	CAT. NO.	LENGTH	REF.		
7351	8311	.120 (3.0)	.075 (1.9)	7367	8327	.400 (10.2)	.325 (8.3)		
7352	8312	.140 (3.6)		7368	8328	.420 (10.7)			
7353	8313	.160 (4.1)		7369	8329	.440 (11.2)			
7354	8314	.180 (4.6)		7370	8330	.450 (11.4)			
7355	8315	.200 (5.1)		7371	8331	.460 (11.7)			
7356	8316	.220 (5.6)		7372	8332	.480 (12.2)			
7357	8317	.240 (6.1)		7373	8333	.500 (12.7)			
7358	8318	.250 (6.4)		7374	8334	.550 (14.0)			
7359	8319	.260 (6.6)		7375	8335	.600 (15.2)			
7360	8320	.280 (7.1)		7376	8336	.650 (16.5)			
7361	8321	.300 (7.6)	.190 (4.8)	7377	8337	.700 (17.8)	.450 (11.4)		
7362	8322	.320 (8.1)		7378	8338	.750 (19.1)			
7363	8323	.340 (8.6)		7379	8339	.800 (20.3)			
7364	8324	.350 (8.9)		7380	8340	.850 (21.6)			
7365	8325	.360 (9.1)		7381	8341	.900 (22.9)			
7366	8326	.380 (9.7)		7382	8342	.925 (23.5)			
				.200 (5.1)					.575 (14.6)
			.325 (8.3)				.690 (17.5)		

PHENOLIC INSTRUMENT CASES



MATERIALS:

Phenolic Panels: .062 (1.57) Glossy Black Phenolic, MIL-P3115C
Aluminum Panels: .062 (1.57), 5052-H34 per QQ 318 C; Bright finished surface with pressure sensitive protective covering tape

MATERIALS:

Phenolic Cases: .125 (3.2) Wall thickness, Molded Glossy Black Phenolic, MIL-M-14, CFG

- Cases and panels are sold separately
- Covers available in Phenolic or Aluminum
- Covers can be machined to accept dials, switches, displays
- Panel mounting screws available - Refer to page 131
- Sturdy case can be machined for wiring access
- Ideal for prototype or lab use

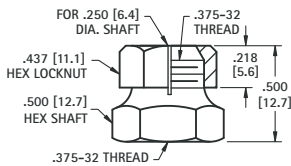
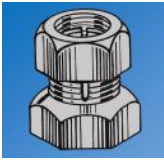
COVER PANEL	
PHENOLIC PANEL	ALUMINUM PANEL
CAT. NO.	CAT. NO.
2050	2051
2042	2044
2043	2045
2037*	2046
2052*	2053
2038*	2047
2039*	2048

PHENOLIC CASE				
CAT. NO.	A	B	C	THREAD SIZE AND TYPE
715	2.500 (63.5)	3.500 (88.9)	1.250 (31.8)	4-40 TAPPED
703	2.875 (73.0)	4.000 (101.6)	1.562 (39.7)	4-40 TAPPED
705	2.875 (73.0)	4.000 (101.6)	1.562 (39.7)	USE #4 SELF TAPPING SCREW
704	3.125 (79.4)	5.875 (149.2)	2.250 (57.2)	4-40 TAPPED
700	3.750 (95.3)	6.250 (158.8)	2.000 (50.8)	6-32 BRASS INSERT
716	4.250 (108.0)	5.000 (127.0)	1.750 (44.5)	6-32 BRASS INSERT
701	5.250 (133.4)	6.812 (173.0)	2.312 (58.7)	6-32 BRASS INSERT
702	7.375 (187.3)	8.375 (212.7)	3.000 (76.2)	6-32 BRASS INSERT

*.093 (2.36)

SHAFT LOCKS

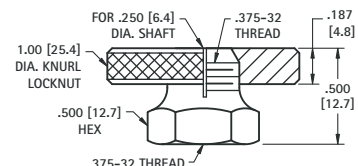
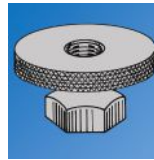
For .250 (6.4) SHAFT



MATERIAL: Brass, Nickel Plate

CAT. NO. 1701

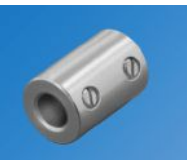
For .250 (6.4) SHAFT



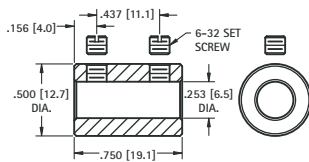
MATERIAL: Brass, Nickel Plate

CAT. NO. 1702

.250 (6.4) SHAFT COUPLING



Two set screws hold shaft securely

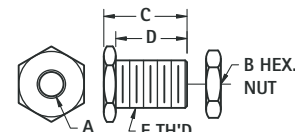


MATERIAL: Brass, Nickel Plate
 Set Screws: Steel, Zinc Plate
 Supplied unassembled

CAT. NO. 1453

PANEL BEARINGS

STANDARD and MINIATURE



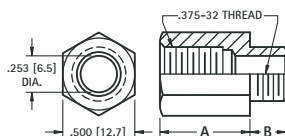
MATERIAL: Brass, Nickel Plate
 Supplied unassembled

CAT. NO.	A	B (HEX)	C	D	E THREAD
1705	.253 (6.4)	.437 (11.1)	.500 (12.7)	.437 (11.1)	.375-32 Standard
1706	.128 (3.3)	.343 (8.7)	.437 (11.1)	.375 (9.5)	.250-32 Miniature

VOLUME CONTROL EXTENDERS



For .250 (6.4) volume control shafts having .375-32 threaded bushings.



CAT. NO.	A	B
1464	.625 (15.9)	.250 (6.4)
1465	.625 (15.9)	.375 (9.5)
1466	.687 (17.4)	.500 (12.7)
1467	.750 (19.1)	.250 (6.4)

MATERIAL: Brass, Nickel Plate

PANEL NUTS



For Volume Controls, Switches, Tip Jacks, etc.

CAT. NO.	FOR	THREAD	DIAMETER	THICKNESS
1448	Mounting	1/4-32	.375 Hex	.093 (2.36)
1449	Mini. Control	1/4-32	.312 Hex	.078 (1.98)
1456	Vol. Control	3/8-32	.500 Hex	.093 (2.36)
1458	Switch	15/32-32	.562 Hex	.078 (1.98)
1459	Switch Ring	15/32-32	.625 Knurled	.062 (1.57)
1472	Filter	5/16-32	.375 Hex	.093 (2.36)

MATERIAL: Brass, Nickel Plate

DESIGNERS AND MANUFACTURERS
THINKKEYSTONE
ELECTRONICS CORP.

Panel and Computer Hardware and Accessories

Certified Quality & Proven Performance
ISO 9001:2015 Quality System

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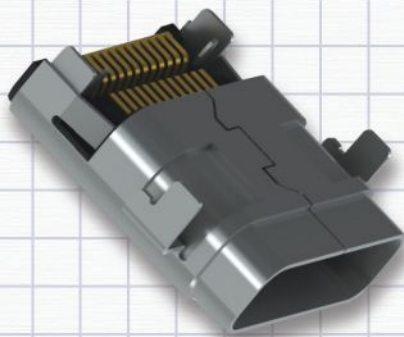
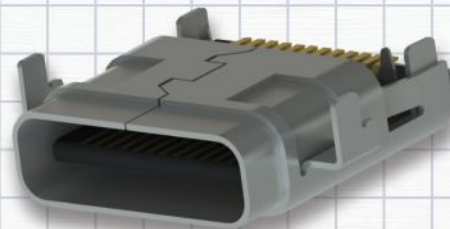
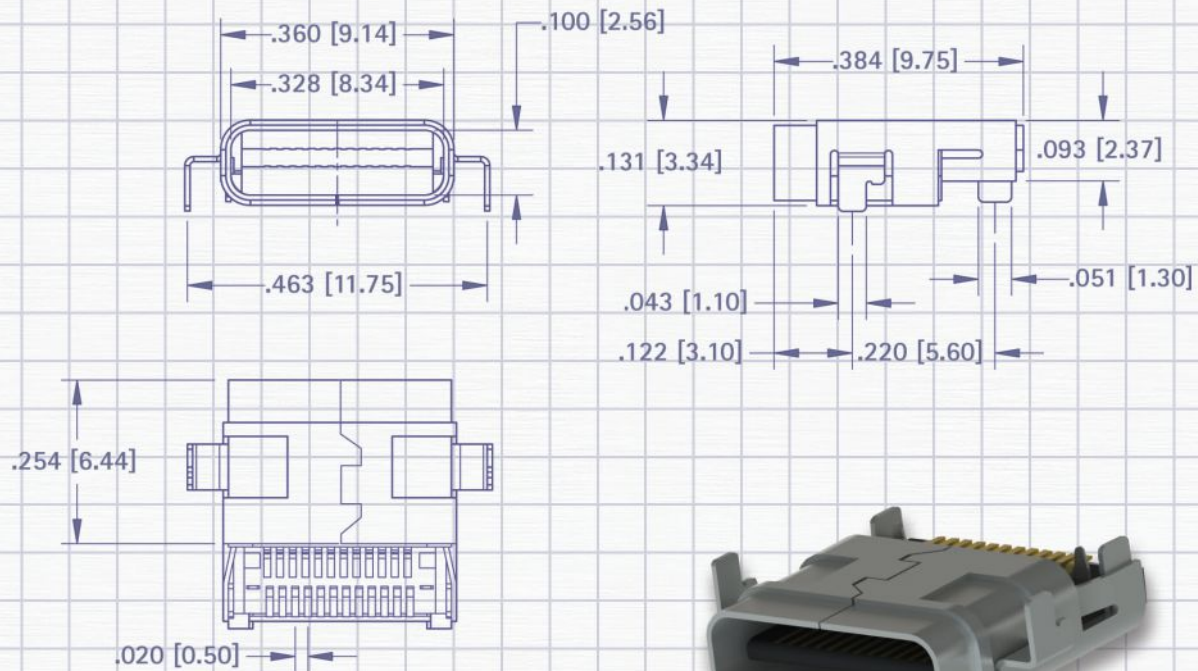
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Our PCB pins & receptacles, solder terminals, tip, test, banana and binding post receptacles & terminals, transistor mounting hardware, RJ45 and USB connectors and sockets offer the most versatility for virtually any device requirements such as:

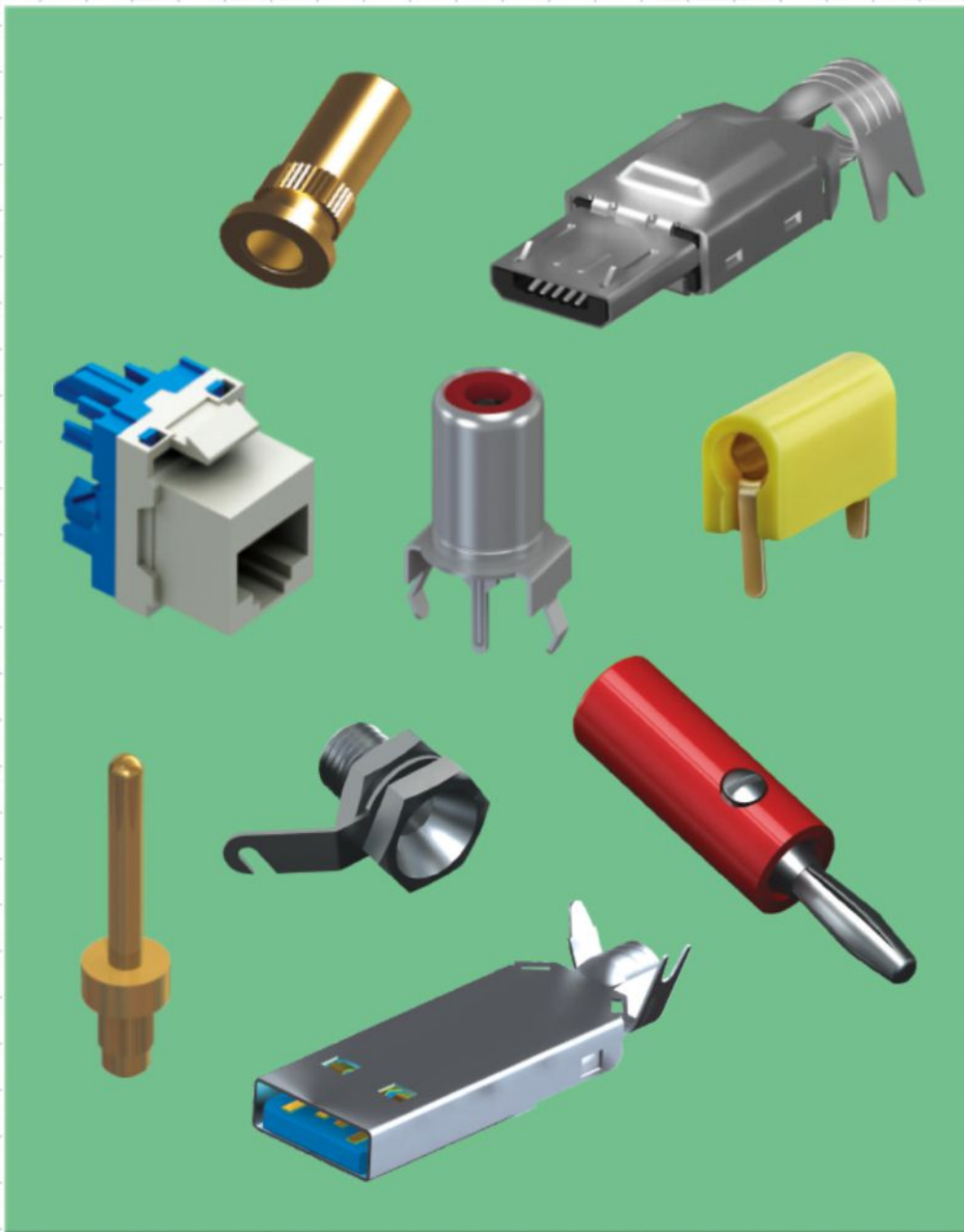
- Audio Circuitry
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- High Speed computer network connections
- Telecommunication hook ups
- CATV equipment hook ups

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DATE

DESCRIPTION

REV.



SECTION 6 CONTENTS

AUDIO JACKS	121	TEST PINS & JACKS	
BANANA PLUGS & JACKS		Jacks, Panel Mount.....	116
Mini, Standard, Large.....	122-123	Jacks, PC Mount	117
BINDING POSTS	121	Jacks, PTFE Insulated	117
MICRO PINS & JACKS		Pins, Test (Tip Plugs)	116
Micro Jacks.....	112-113	TRANSISTOR SOCKETS & HARDWARE	
Micro Pins	114-115	Mica Insulators.....	126
Shorting Pins & Jacks	115	Mounting Kits.....	126
NETWORK / ETHERNET JACKS	124-125	Sockets	127
PHONO PLUGS & JACKS	128	USB PLUGS & SOCKETS	
		USB 2.0.....	118-119
		USB 3.0	120
		USB 3.1 (Type C).....	120

MICRO JACKS



- Space saving design for high density packaging
- Beryllium Copper multi-spring contact maintains retention after multiple insertions
- Ideal for mounting transistors, resistors, diodes, IC's and similar miniature components
- Custom micro jacks manufactured to your specifications
- Other platings available upon request

SPECIFICATIONS

Body: Brass, ASTM-B16
Spring: Beryllium Copper (QQ-C-533)

Plating:

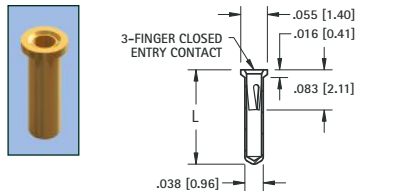
Gold: .000005 per MIL-G-45204
RoHS (RoHS Compliant)
Tin/Lead: .000200 to .000300 per MIL-T-10727, Type 1
RoHS (Non-RoHS Compliant)



PLATING OPTIONS

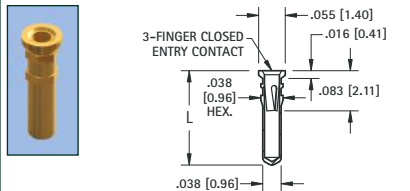
PLATING	BODY	CONTACT SPRING	RoHS
Gold/Gold	Gold	Gold	Compliant
Tin/Tin	Tin/Lead	Tin/Lead	Non-Compliant
Tin/Gold	Tin/Lead	Gold	

.015 (.38) - .021 (.53) PIN - SOLDER MOUNT



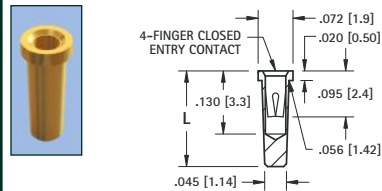
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1411-1	1431-1	1420-1	.140 (3.6)	.042
1411-2	1431-2	1420-2	.170 (4.3)	(1.07)

.015 (.38) - .021 (.53) PIN - PRESS FIT



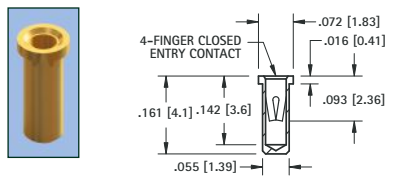
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1412-1	1432-1	1468-1	.140 (3.6)	.040
1412-2	1432-2	1468-2	.170 (4.3)	(1.02)
1412-3	1432-3	1468-3	.282 (7.2)	

.015 (.38) - .025 (.64) PIN - TAPER-FIT



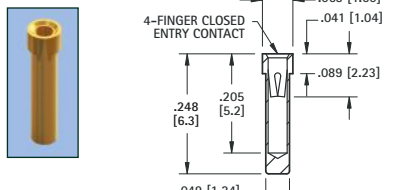
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1415-1	1435-1	1469-1	.160 (4.1)	.055
1415-2	1435-2	1469-2	.190 (4.8)	(1.40)

.015 (.38) - .025 (.64) PIN - SOLDER MOUNT



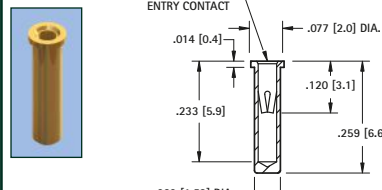
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1413	1433	1470	.059 (1.50)	

.015 (.38) - .025 (.64) PIN - SOLDER MOUNT



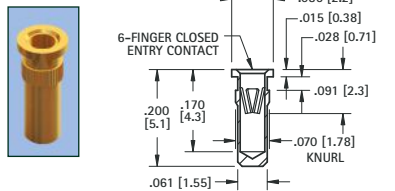
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1603	1606	1607	.052 (1.32)	

.022 (.56) - .032 (.81) PIN - SOLDER MOUNT



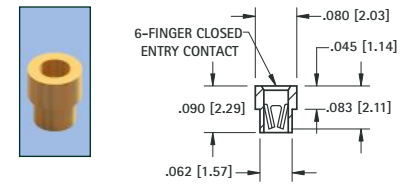
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1693	1694	1695	.063 (1.60)	

.022 (.56) - .034 (.86) PIN - PRESS FIT



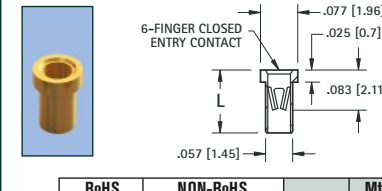
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1416	1436	1471	.067 (1.70)	

.022 (.56) - .034 (.86) PIN - SOLDER MOUNT



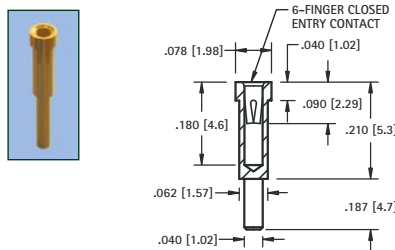
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1658	1659	1673	.065 (1.65)	

.025 (.64) - .037 (.94) PIN - SOLDER MOUNT



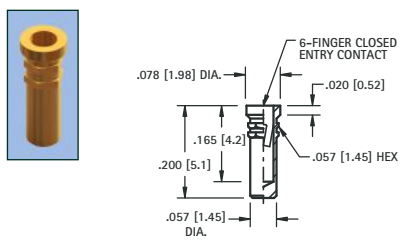
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1626-1	1614-1	1619-1	.095 (2.4)	.062
1626-2	1614-2	1619-2	.105 (2.7)	(1.57)
1626-3	1614-3	1619-3	.155 (3.9)	

.025 (.64) - .037 (.94) PIN - SOLDER MOUNT



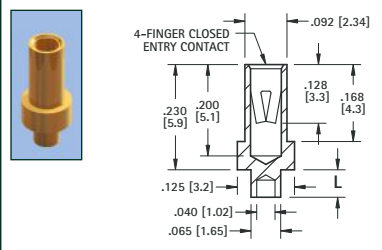
RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
3590	3591	3592	.065 (1.65)	

.025 (.64) - .037 (.94) PIN - PRESS FIT



RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1697	1698	1699	.063 (1.60)	

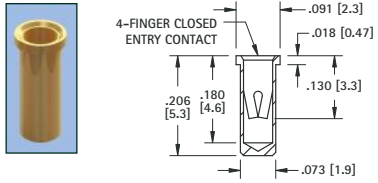
.032 (.81) - .046 (1.17) PIN - SWAGE MOUNT



RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
1419-1	1439-1	1478-1	.062 (1.6)	.069
1419-2	1439-2	1478-2	.094 (2.4)	(1.75)

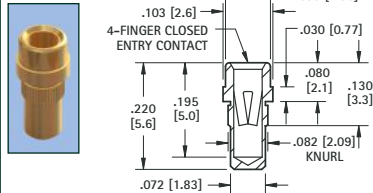
MICRO JACKS

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



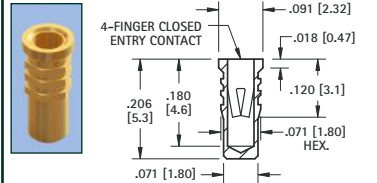
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1417	1437	1479	.076 (1.93)

.032 (.81) - .046 (1.17) PIN - PRESS-FIT



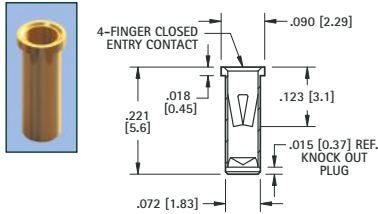
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1443	1446	1473	.078 (1.98)

.032 (.81) - .046 (1.17) PIN - PRESS-FIT



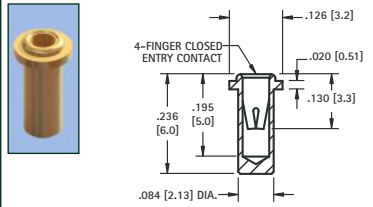
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1442	1445	1486	.079 (2.0)

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



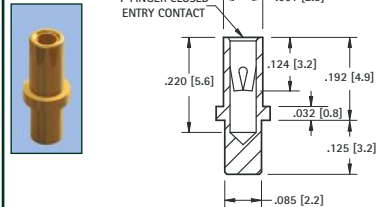
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1441	1444	1488	.076 (1.93)

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



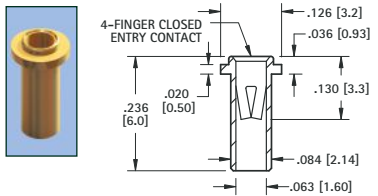
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1674	1675	1676	.087 (2.21)

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



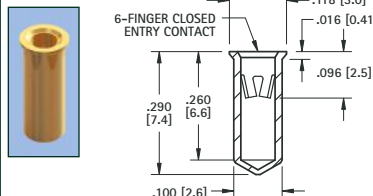
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1677	1678	1679	.089 (2.26)

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



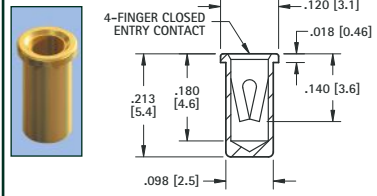
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1414	1434	1496	.089 (2.26)

.040 (1.02) - .050 (1.27) PIN - SOLDER MOUNT



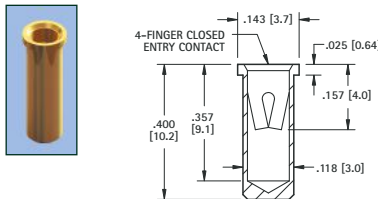
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1418	1438	1497	.104 (2.6)

.048 (1.22) - .064 (1.63) PIN - SOLDER MOUNT



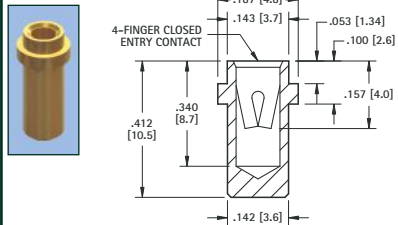
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1682	1683	1684	.102 (2.6)

.065 (1.65) - .082 (2.08) PIN - SOLDER MOUNT



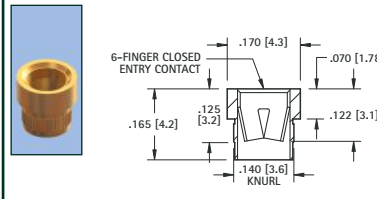
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1641A	1641B	1641C	.122 (3.1)

.065 (1.65) - .082 (2.08) PIN - SOLDER MOUNT



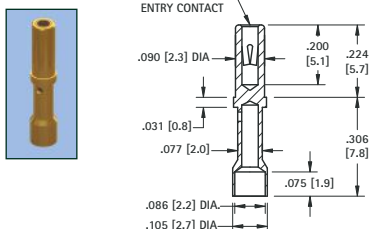
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1687	1688	1689	.146 (3.7)

.084 (2.13) - .102 (2.6) PIN - PRESS-FIT



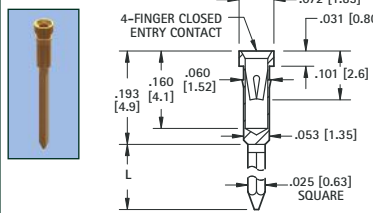
RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
1640A	1640B	1640C	.138 (3.5)

.032 (.81) - .046 (1.17) PIN - CRIMP BARREL JACK

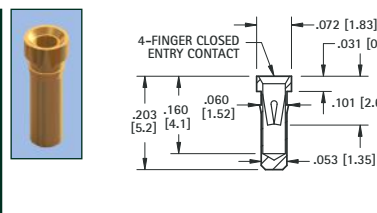


RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
3593	3594	3595	

IC SOCKET CONTACTS FOR .015 (.38) - .025 (.64) LEADS - PRESS-FIT



RoHS	NON-RoHS		L Length	Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD		
CAT. NO.	CAT. NO.	CAT. NO.		
3501	3505	3504	.360 (9.2)	.057
3502	3506	3508	.510 (13.0)	(1.45)



RoHS	NON-RoHS		Mtg. Hole Dia.
GOLD/GOLD	TIN/TIN	TIN/GOLD	
CAT. NO.	CAT. NO.	CAT. NO.	
3503	3507	3509	.057 (1.45)

MICRO PINS



- Precision engineered and manufactured
- Space saving design for high density packaging
- Micro pins are available in .017 (.43) to .080 (2.03) diameters
- Ideal for mating with our standard line of micro jacks
- Available for press-fit, swage or solder mounting
- Custom micro pins manufactured to your specifications
- Other platings available upon request

SPECIFICATIONS

Material: Brass, ASTM-B16

Plating:

Gold: .000005 per MIL-G-45204

Tin: .000200 to .000300 per

MIL-T-10727, Type 1

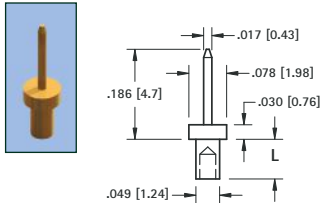
RoHS (RoHS Compliant)

DASH NUMBERS (L Dimension)

- 1 for .032 (.81) thick Board
- 2 for .062 (1.57) thick Board
- 3 for .093 (2.36) thick Board
- 4 for .125 (3.2) thick Board

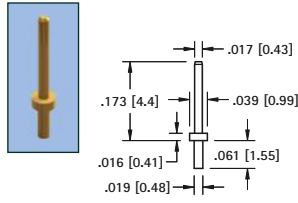
Example: 1967-1 for .032 (.81) thick Board
1967-2 for .062 (1.57) thick Board

.017 (.43) PIN - SWAGE MOUNT



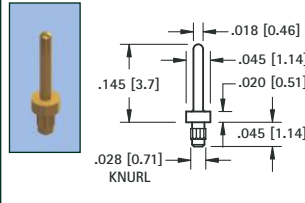
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1967-1	1968-1	.051 (1.3)	.052 (1.32)
1967-2	1968-2	.082 (2.0)	(1.32)

.017 (.43) PIN - SOLDER MOUNT



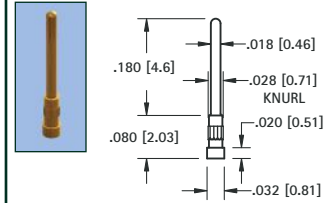
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1378-1	1379-1	.022 (.56)

.018 (.46) PIN - PRESS-FIT



GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1986-1	1987-1	.026 (.66)

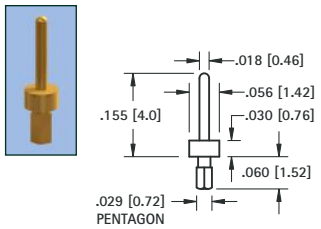
.018 (.46) PIN - PRESS-FIT



MATERIAL: Phosphor Bronze

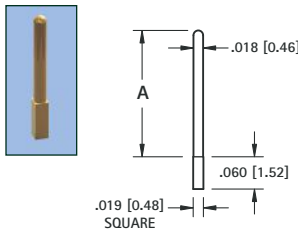
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1990-2	1991-2	.026 (.66)

.018 (.46) PIN - PRESS-FIT



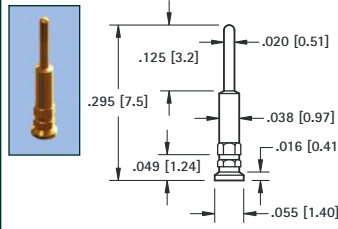
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1988-2	1989-2	.026 (.66)

.018 (.46) PIN - PRESS-FIT



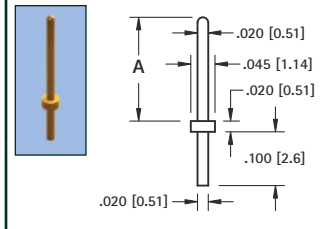
GOLD CAT. NO.	TIN CAT. NO.	A Dim.	Mtg. Hole Dia.
1992-2	1994-2	.243 (6.2)	.022 (.56)
1993-2	1995-2	.140 (3.6)	(.56)

.020 (.51) PIN - PRESS-FIT



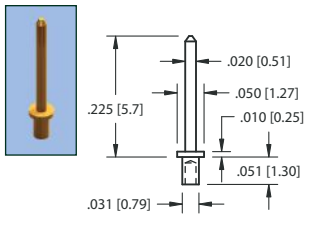
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1996-2	1997-2	.040 (1.01)

.020 (.51) PIN - SOLDER MOUNT



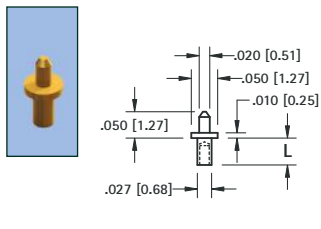
GOLD CAT. NO.	TIN CAT. NO.	A Dim.	Mtg. Hole Dia.
1998-3	2000-3	.250 (6.4)	.024 (.61)
1999-3	2001-3	.425 (10.8)	(.61)

.020 (.51) PIN - SWAGE MOUNT



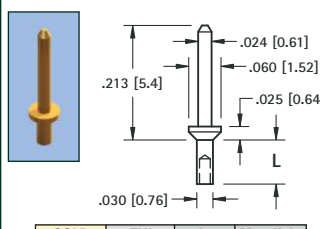
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1366-1	1367-1	.051 (1.3)	.031 (.78)
1372-1	1373-1	.051 (1.3)	.031 (.78)
1372-2	1373-2	.082 (2.1)	(.78)

.020 (.51) PIN - SWAGE MOUNT



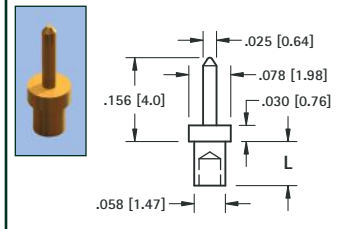
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1372-1	1373-1	.051 (1.3)	.031 (.78)
1372-2	1373-2	.082 (2.1)	(.78)

.024 (.61) PIN - SWAGE MOUNT



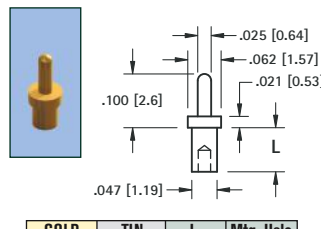
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1406-1	1426-1	.047 (1.2)	.035 (.89)
1406-2	1426-2	.078 (1.9)	(.89)

.025 (.64) PIN - SWAGE MOUNT



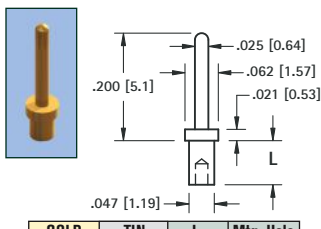
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1408-1	1428-1	.062 (1.6)	.062 (1.57)
1408-2	1428-2	.094 (2.4)	(1.57)

.025 (.64) PIN - SWAGE MOUNT



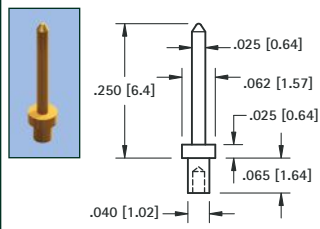
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1404-1	1424-1	.051 (1.3)	.052 (1.32)
1404-2	1424-2	.082 (2.1)	(1.32)

.025 (.64) PIN - SWAGE MOUNT



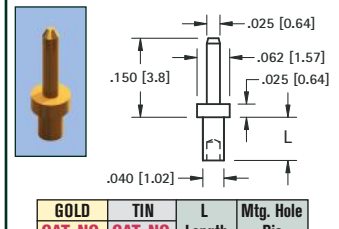
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1407-1	1427-1	.051 (1.3)	.052 (1.32)
1407-2	1427-2	.082 (2.1)	(1.32)

.025 (.64) PIN - SWAGE MOUNT



GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1401-1	1421-1	.043 (1.09)

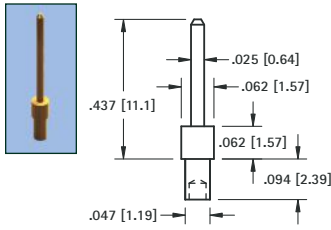
.025 (.64) PIN - SWAGE MOUNT



GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1368-1	1369-1	.051 (1.3)	.043 (1.09)
1368-2	1369-2	.082 (2.1)	(1.09)
1368-3	1369-3	.113 (2.9)	

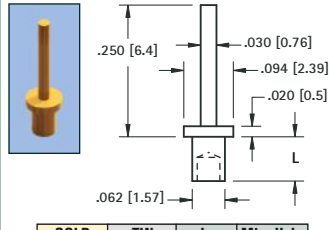
MICRO PINS

.025 (.64) PIN - SWAGE MOUNT



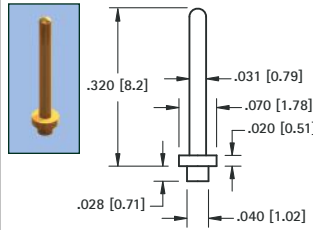
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1370-2	1371-2	.052 (1.32)

.030 (.76) PIN - SWAGE MOUNT



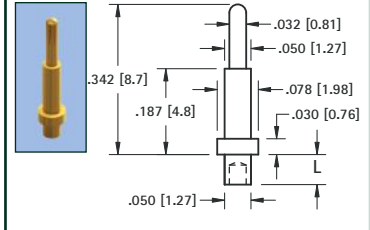
GOLD	TIN	L	Mtg. Hole
CAT. NO.	CAT. NO.	Length	Dia.
1374-1	1375-1	.051 (1.3)	.067 (1.70)
1374-2	1375-2	.082 (2.1)	.067 (1.70)
1374-3	1375-3	.113 (2.9)	.067 (1.70)

.031 (.79) PIN - SOLDER MOUNT



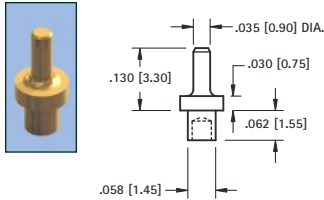
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1352-1	1353-1	.043 (1.09)

.032 (.81) PIN - SWAGE MOUNT



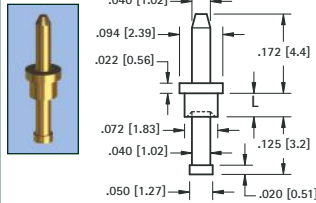
GOLD	TIN	L	Mtg. Hole
CAT. NO.	CAT. NO.	Length	Dia.
1354-1	1355-1	.051 (1.3)	.062 (1.32)
1354-2	1355-2	.082 (2.1)	.062 (1.32)

.035 (.90) PIN - SWAGE MOUNT



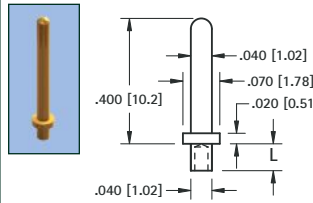
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1380-1	1381-1	.062 (1.57)

.040 (1.0) PIN - SWAGE MOUNT



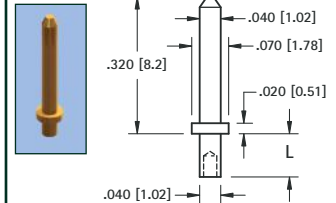
GOLD	TIN	L	Mtg. Hole
CAT. NO.	CAT. NO.	Length	Dia.
1356-1	1357-1	.051 (1.3)	.076 (1.93)
1356-2	1357-2	.082 (2.1)	.076 (1.93)
1356-3	1357-3	.113 (2.9)	.076 (1.93)

.040 (1.0) PIN - SWAGE MOUNT



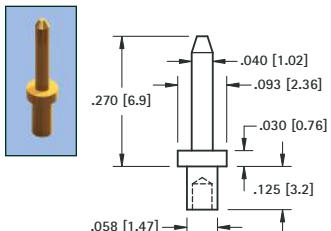
GOLD	TIN	L	Mtg. Hole
CAT. NO.	CAT. NO.	Length	Dia.
1358-1	1359-1	.051 (1.3)	.043 (1.09)
1358-2	1359-2	.082 (2.1)	.043 (1.09)

.040 (1.0) PIN - SWAGE MOUNT



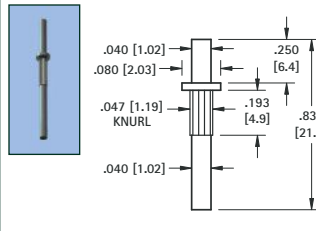
GOLD	TIN	L	Mtg. Hole
CAT. NO.	CAT. NO.	Length	Dia.
1405-1	1425-1	.051 (1.3)	.043 (1.09)
1405-2	1425-2	.082 (2.1)	.043 (1.09)
1405-3	1425-3	.113 (2.9)	.043 (1.09)

.040 (1.0) PIN - SWAGE MOUNT



GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1402-3	1422-3	.062 (1.57)

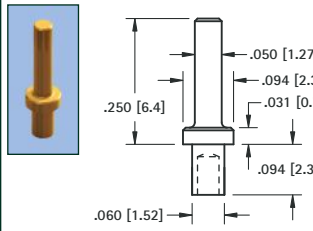
.040 (1.0) KAY PIN - PRESS-FIT



MATERIAL:
Solid Nickel Silver
CAT. NO. 1218

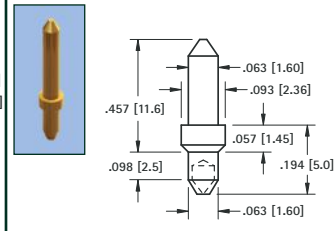
Mtg. Hole
.043 (1.09) Dia.

.050 (1.3) PIN - SWAGE MOUNT



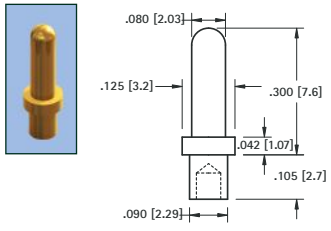
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1360-2	1361-2	.064 (1.63)

.063 (1.6) PIN - SWAGE MOUNT



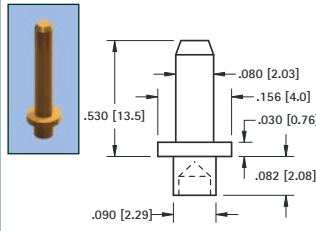
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1362-2	1363-2	.067 (1.70)

.080 (2.0) PIN - SWAGE MOUNT



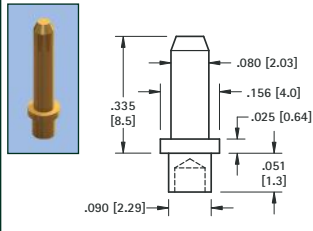
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1376-2	1377-2	.094 (2.38)

.080 (2.0) PIN - SWAGE MOUNT



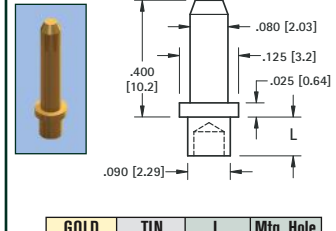
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1364-2	1365-2	.094 (2.38)

.080 (2.0) PIN - SWAGE MOUNT



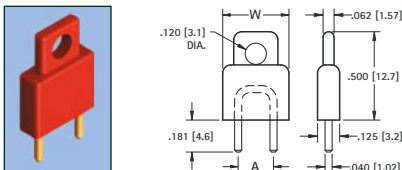
GOLD	TIN	Mtg. Hole
CAT. NO.	CAT. NO.	Dia.
1447-1	1455-1	.094 (2.38)

.080 (2.0) PIN - SWAGE MOUNT



GOLD	TIN	L	Mtg. Hole
CAT. NO.	CAT. NO.	Length	Dia.
1447-2	1455-2	.094 (2.4)	.094 (2.38)
1447-3	1455-3	.125 (3.2)	.094 (2.38)
1447-4	1455-4	.156 (4.0)	.094 (2.38)

INSULATED SHORTING PLUG



BLUE	RED	BLACK	A	W
CAT. NO.	CAT. NO.	CAT. NO.	Dim.	Dim.
1460L	1460R	1460B	.200 (5.1)	.375 (9.5)
1461L	1461R	1461B	.250 (6.4)	.375 (9.5)
1462L	1462R	1462B	.400 (10.2)	.620 (15.7)
1463L	1463R	1463B	.500 (12.7)	.620 (15.7)

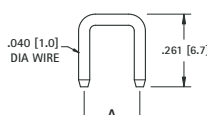
MATERIAL:
Insulator: Polypropylene
Blue, Red or Black
Pin: Brass, Gold Plate

.040 (1.0) PINS



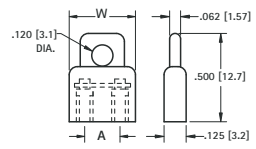
Non-insulated	A
CAT. NO.	Dim.
1430-1	.200 (5.1)
1430-2	.250 (6.4)
1430-4	.400 (10.2)
1430-5	.500 (12.7)

SHORTING PIN



MATERIAL:
Pin: Brass,
Gold Plate

INSULATED SHORTING JACK



• For .040 (1.0) Pins

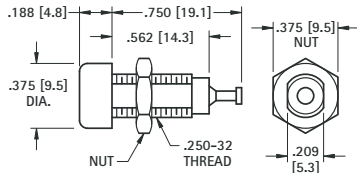
BLUE	RED	BLACK	A	W
CAT. NO.	CAT. NO.	CAT. NO.	Dim.	Dim.
1487L	1487R	1487B	.200 (5.1)	.375 (9.5)
1400L	1400R	1400B	.400 (10.2)	.620 (15.7)

MATERIAL:
Insulator:
Polypropylene
Blue, Red or Black
Spring: Beryllium
Copper, Gold Plate

FULLY INSULATED DELUXE TIP JACK

ACCEPTS .080 (2.0) TIP WITH CLOSED ENTRY CONTACT

Fully molded body with recessed closed entry design. Assures maximum retention with .010Ω maximum contact resistance. Prevents accidental insertion of larger diameter probes. Current rating: 10 Amps. Breakdown voltage 5700V RMS. Capacitance to metal panel 2.0 pF nominal. Supplied with nut.



CAT. NO.	COLOR
6030	WHITE
6031	RED
6032	BLACK
6033	GREEN
6034	YELLOW
6035	BLUE

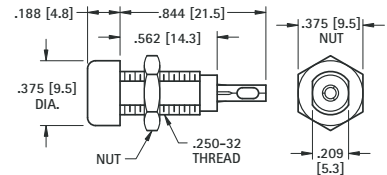
MATERIAL:

Body: Molded Nylon ASTM D4066
Contact: Beryllium Copper, Silver Plate
Terminal: Brass, Tin Plate

FULLY INSULATED STANDARD TIP JACK

ACCEPTS .080 (2.0) TIP

Economical tip jacks with molded Nylon body. Low contact resistance. Formed Phosphor Bronze contact with solder hole for ease in attaching wire. Current rating 10 Amps. Breakdown voltage 5700 VRMS. Capacitance to metal panel 3.8 pF. Supplied with nut.



CAT. NO.	COLOR
6018	WHITE
6019	RED
6020	BLACK
6021	GREEN
6022	YELLOW
6023	BLUE

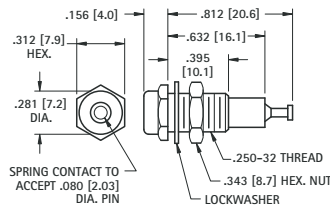
MATERIAL:

Body: Molded Nylon ASTM D4066
Contact: Phosphor Bronze, Tin Plate

METAL-CLAD TIP JACK (MIL)

ACCEPTS .080 (2.0) TIP WITH CLOSED ENTRY CONTACT

High quality tip jack for high reliability industrial applications. Ideal for use where required to withstand severe environmental conditions, temperature, vibration and salt spray. Recessed closed entry contact. Current rating 10 amps. Breakdown voltage: 5700V RMS. Made to MIL-C39024/10. Capacitance to metal panel 2.0 pF. Supplied complete with hardware.



MATERIAL:

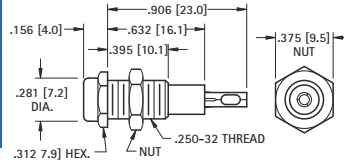
Body: Molded Nylon ASTM D4066
Shell & Nut: Brass QQ-B-626, Nickel Plate QQ-N-290
Contact: Beryllium Copper for QQ-C-533. Gold Plate MIL-G-45204

CAT. NO.	COLOR
6012	WHITE
6013	RED
6014	BLACK
6015	GREEN

METAL-CLAD TIP JACK (STD)

ACCEPTS .080 (2.0) TIP

Molded Nylon body with metal jacket. Contact is formed from phosphor bronze contact with solder hole for ease in attaching wire. Designed for positive contact, easy insertion and withdrawal. Current rating: 10 Amps. Breakdown voltage 5700V RMS. Capacitance to metal panel 3.8 pF. Supplied with nut.



MATERIAL:

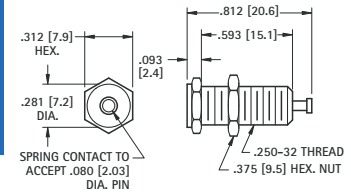
Body: Molded Nylon ASTM D4066
Shell: Brass, Nickel Plate
Contact: Phosphor Bronze, Silver Plate

CAT. NO.	COLOR
6024	WHITE
6025	RED
6026	BLACK
6027	GREEN
6028	YELLOW
6029	BLUE

UNINSULATED TIP JACK

ACCEPTS .080 (2.0) TIP

Quality, precision machined tip jack made of brass. Ideal for use on metal panels where grounding is required. Fits panels up to .375 (9.5) Thick. Supplied with nut.



MATERIAL:

Body: Brass, Nickel Plate
Contact: Beryllium Copper
Current Rating: 15 Amps

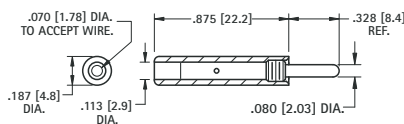
CAT. NO. 6097

SOLDER TIP PLUGS

.080 (2.0) DIAMETER TIP



Designed for miniaturization where space is critical. Solder lead connection. Maximum reliability with minimum contact resistance. Base of tip is recessed to eliminate shock or grounding. Fits all standard jacks.



MATERIAL:

Tip: Brass, Nickel Plate
Handle: Nylon 6/6
Current Rating: 10 Amps

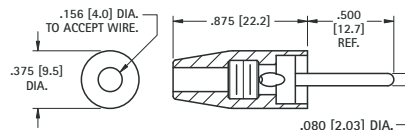
CAT. NO.	COLOR
6006	WHITE
6007	RED
6008	BLACK

SOLDERLESS TIP PLUGS

.080 (2.0) DIAMETER TIP



Fully insulated molded nylon sleeve. Maximum reliability with minimum contact resistance. Recessed metal head eliminates possibility of shock or grounding. Designed for solderless connection of up to 16 gauge stranded wire which fits through handle and tip and is secured by screwing handle tight. Fits all standard tip jacks.



MATERIAL:

Tip: Brass, Nickel Plate
Handle: Nylon 6/6
Current Rating: 10 Amps

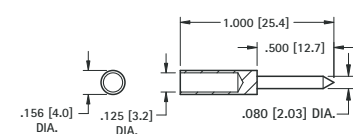
CAT. NO.	COLOR
6000	WHITE
6001	RED
6002	BLACK
6003	GREEN

STANDARD PHONE TIP

.080 (2.0) DIAMETER TIP



Accepts up to 12 gauge wire. Fits all standard tip jacks.



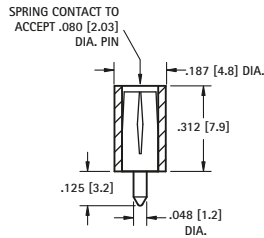
MATERIAL: Brass, Nickel Plate

CAT. NO. 1601

.080 [2.0] PC TEST JACKS



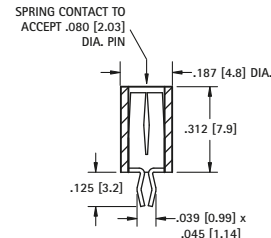
VERTICAL



CAT. NO.	COLOR
6036	WHITE
6037	RED
6038	BLACK
6039	YELLOW
6040	GREEN
6041	BLUE

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Brass, Silver Plate

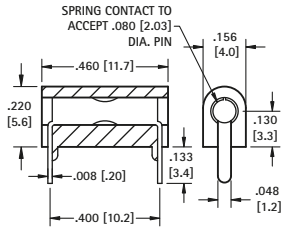
SNAP-FIT VERTICAL



CAT. NO.	COLOR
6042	WHITE
6043	RED
6044	BLACK
6045	YELLOW
6046	GREEN
6047	BLUE

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Silver Plate
Mounting: Snap-fits into .052 (1.32) hole

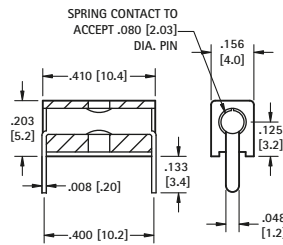
LOW PROFILE HORIZONTAL



GOLD PLATE CAT. NO.	COLOR	SILVER PLATE CAT. NO.
6060	WHITE	6066
6061	RED	6067
6062	BLACK	6068
6063	YELLOW	6069
6064	GREEN	6070
6065	BLUE	6071

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Gold or Silver Plate

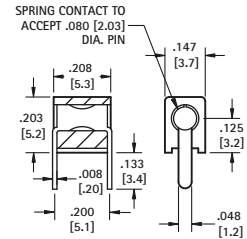
HORIZONTAL/VERTICAL



CAT. NO.	COLOR
6054	WHITE
6055	RED
6056	BLACK
6057	YELLOW
6058	GREEN
6059	BLUE

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Silver Plate

MINIATURE HORIZONTAL



CAT. NO.	COLOR
6048	WHITE
6049	RED
6050	BLACK
6051	YELLOW
6052	GREEN
6053	BLUE

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Silver Plate

HIGH TEMPERATURE PTFE INSULATED TEST POINT JACKS

SPECIFICATIONS

Terminal Jack: Beryllium Copper (QQ-C-533)
 *Brass ASTM B16

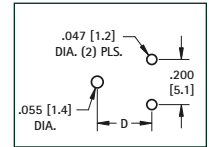
Plating: Gold per MIL-G-45204, Type II

Operating Temperature: -60°F to +500°F (-51°C to 260°C)

Bushing:

White PTFE **RoHS** (RoHS Compliant)

Red or Black PTFE **RoHS** (Non-RoHS Compliant)



Mounting Detail



FIG. 1

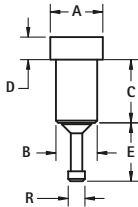


FIG. 2

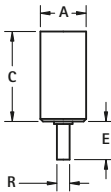
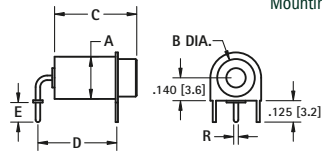


FIG. 3



RoHS		NON-RoHS										Accepts	
White	Red	Black	FIG.	A	B	C	D	E	R	Tip Dia. ± .001 (.03)	Tip Length		
CAT NO.	CAT NO.	CAT NO.											
11001	11001-R	11001-B	1	.142 (3.6)	.120 (3.1)	.244 (6.2)	.046 (1.2)	.120 (3.1)	.060 (1.5)	.040 (1.0)	.205 (5.2)		
11002	11002-R	11002-B	1	.142 (3.6)	.120 (3.1)	.283 (7.2)	.046 (1.2)	.120 (3.1)	.060 (1.5)	.040 (1.0)	.245 (6.2)		
11003	11003-R	11003-B	1	.172 (4.4)	.140 (3.6)	.142 (3.6)	.050 (1.3)	.060 (1.5)	.080 (2.0)	.040 (1.0)	.125 (3.2)		
11004	11004-R	11004-B	1	.172 (4.4)	.148 (3.8)	.179 (4.5)	.046 (1.2)	.120 (3.1)	.060 (1.5)	.040 (1.0)	.140 (3.6)		
11005	11005-R	11005-B	1	.218 (5.5)	.185 (4.7)	.301 (7.6)	.050 (1.3)	.105 (2.7)	.125 (3.2)	.080 (2.0)	.315 (8.0)		
11006	11006-R	11006-B	1	.218 (5.5)	.185 (4.7)	.271 (6.9)	.046 (1.2)	.120 (3.1)	.074 (1.9)	.080 (2.0)	.195 (4.9)		
11007	11007-R	11007-B	1	.218 (5.5)	.185 (4.7)	.271 (6.9)	.046 (1.2)	.120 (3.1)	.074 (1.9)	.090 (2.3)	.195 (4.9)		
11008	11008-R	11008-B	1	.218 (5.5)	.185 (4.7)	.301 (7.6)	.046 (1.2)	.120 (3.1)	.074 (1.9)	.080 (2.0)	.225 (5.7)		
11009	11009-R	11009-B	1	.218 (5.5)	.185 (4.7)	.400 (10.2)	.050 (1.3)	.187 (4.8)	.074 (1.9)	.080 (2.0)	.280 (7.1)		
11010	11010-R	11010-B	1	.218 (5.5)	.185 (4.7)	.271 (6.9)	.046 (1.2)	.136 (3.5)	.074 (1.9)	.080 (2.0)	.268 (6.8)		
11011	11011-R	11011-B	2	.218 (5.5)	-	.430 (10.9)	-	.150 (3.8)	.050 (1.3)	.080 (2.0)	.200 (5.1)		
11012*	11012-R*	11012-B*	2	.218 (5.5)	-	.500 (12.7)	-	.150 (3.8)	.050 (1.3)	.080 (2.0)	.280 (7.1)		
11013	11013-R	11013-B	3	.218 (5.5)	.187 (4.8)	.689 (17.5)	.500 (12.7)	.125 (3.2)	.050 (1.3)	.080 (2.0)	.500 (12.7)		
11014	11014-R	11014-B	3	.218 (5.5)	.187 (4.8)	.378 (9.6)	.400 (10.2)	.125 (3.2)	.050 (1.3)	.080 (2.0)	.250 (6.4)		
11015	11015-R	11015-B	3	.218 (5.5)	.187 (4.8)	.378 (9.6)	.400 (10.2)	.187 (4.7)	.035 (.89)	.080 (2.0)	.250 (6.4)		
11016	11016-R	11016-B	3	.218 (5.5)	.187 (4.8)	.378 (9.6)	.500 (12.7)	.125 (3.2)	.050 (1.3)	.080 (2.0)	.250 (6.4)		

* Terminal Material: Brass ASTM B16

USB 2.0 PLUGS & SOCKETS

SOCKET SPECIFICATIONS:

Shell: Nickel Plate
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Copper Alloy
Contact Area: Gold Flash over Nickel
Solder Trails: Tin over Nickel

PLUG SPECIFICATIONS:

Shell: Steel, Nickel Plate
Insulator: Thermoplastic, Rated UL 94V-0
Contact: Bronze, Gold Flash over Nickel

ELECTRICAL CHARACTERISTICS

Rated Voltage: 30V (RMS)
Contact Current Rating: 1 Amp DC max.
Contact Resistance: 15 mΩ max.
Insulation Resistance: 1000 MΩ min.
Dielectric Withstanding Voltage: 750V AC for 1 minute

MECHANICAL CHARACTERISTICS

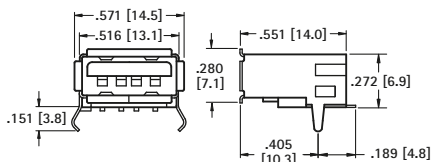
Operating Temperature: -13°F (-25°C) to +176°F (+80°C)
Durability: 1500 Cycles min.

DEVICE APPLICATIONS

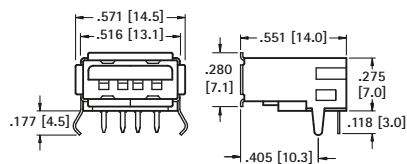
- Ability to daisy chain more than one input device
- Memory Sticks
 - Mouse/Keyboards
 - Printers/Scanners/Docking Stations
 - MP3/Audio Devices
 - Digital Video Cameras & Still Cameras
 - Portable Media Players
 - Gaming Headsets
 - Smart Phones/PDA's

TYPE A SOCKETS

SURFACE MOUNT

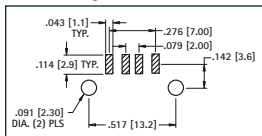


920



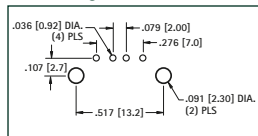
921

Mounting Detail Cat. No. 920



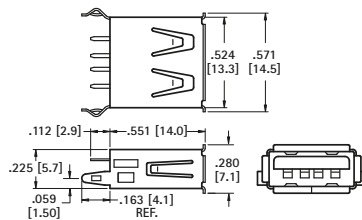
CAT. NO. 920

Mounting Detail Cat. No. 921



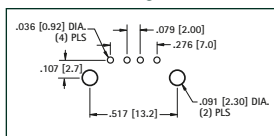
CAT. NO. 921

VERTICAL

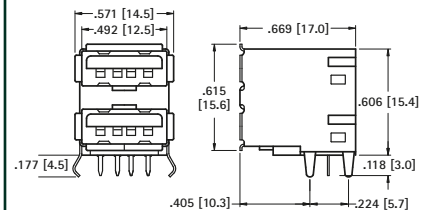
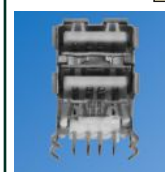


CAT. NO. 923

Mounting Detail

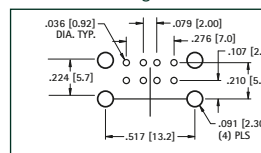


DUAL STACKING



CAT. NO. 922

Mounting Detail

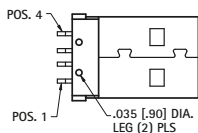
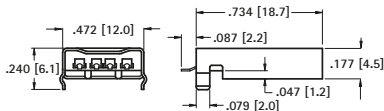


TYPE A PLUGS

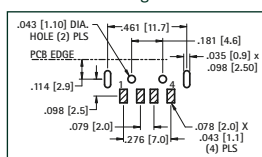
FEATURES

- Available for on-board applications such as memory sticks
- Cable clamp style for creating custom cables
- Gold plated contacts for low contact resistance and excellent reliability

SURFACE MOUNT

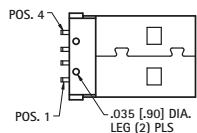
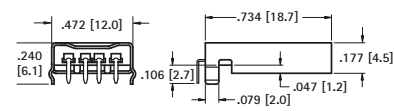


Mounting Detail

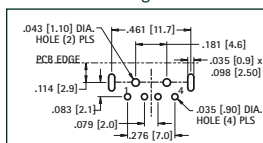


CAT. NO. 931

THRU HOLE MOUNT



Mounting Detail

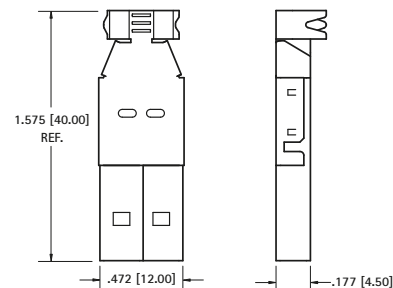


CAT. NO. 932

CABLE PLUG



- Supplied unassembled
- Ideal for custom cable cordsets



CAT. NO. 925

USB 2.0 PLUGS & SOCKETS

SOCKET SPECIFICATIONS:

Shell: Nickel Plate
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Copper Alloy
Contact Area: Gold Flash over Nickel
Solder Trails: Tin over Nickel

PLUG SPECIFICATIONS:

Shell: Steel, Nickel Plate
Insulator: Thermoplastic, Rated UL 94V-0
Contact: Bronze, Gold Flash over Nickel

ELECTRICAL CHARACTERISTICS

Rated Voltage: 30V (RMS)
Contact Current Rating: 1 Amp DC max.
Contact Resistance: 15 mΩ max.
Insulation Resistance: 1000 MΩ min.
Dielectric Withstanding Voltage: 750V AC for 1 minute

MECHANICAL CHARACTERISTICS

Operating Temperature: -13°F (-25°C) to +176°F (+80°C)
Durability: 1500 Cycles min.

DEVICE APPLICATIONS

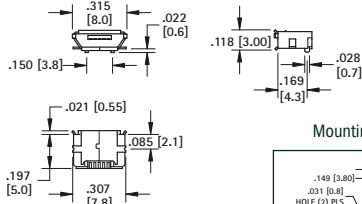
Ability to daisy chain more than one input device

- Memory Sticks
- Mouse/Keyboards
- Printers/Scanners/Docking Stations
- MP3/Audio Devices
- Digital Video Cameras & Still Cameras
- Portable Media Players
- Gaming Headsets
- Smart Phones/PDA's

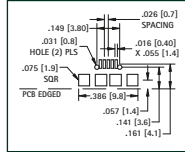
MICRO-USB TYPE B SOCKETS/PLUGS

SURFACE MOUNT SOCKET

AVAILABLE ON TAPE AND REEL



Mounting Detail



CAT. NO. 940 (Bulk)

CAT. NO. 940TR (Tape & Reel)

Tape & Reel Spec's: 24mm wide; 16mm pitch;
 13 inch reel (1000 pieces per reel)

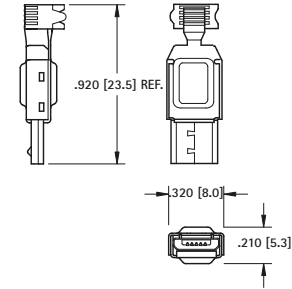
• Ideal for Miniature applications

CABLE PLUG



• Supplied unassembled
 • Ideal for custom cable cordsets

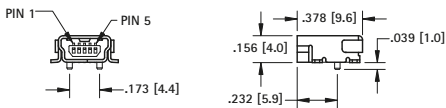
CAT. NO. 941



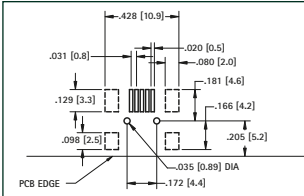
MINI-USB TYPE B SOCKETS/PLUGS

SURFACE MOUNT SOCKET

AVAILABLE ON TAPE AND REEL



Mounting Detail



CAT. NO. 934 (Bulk)

CAT. NO. 934TR (Tape & Reel)

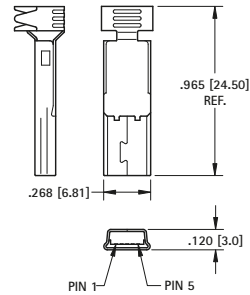
Tape & Reel Spec's: 24mm wide; 16mm pitch;
 13 inch reel (1000 pieces per reel)



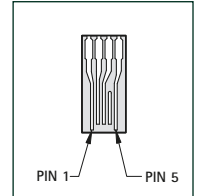
• Supplied unassembled
 • Ideal for custom cable cordsets

CAT. NO. 935

CABLE PLUG

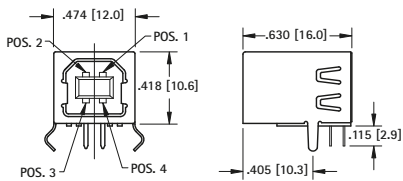


Wiring Detail

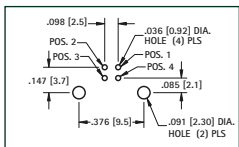


USB TYPE B SOCKETS/PLUGS

THRU HOLE SOCKET

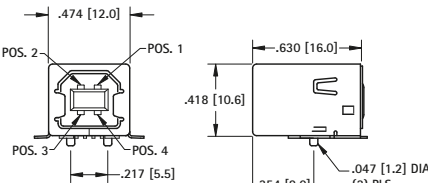


Mounting Detail

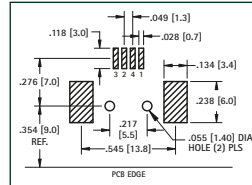


CAT. NO. 924

SURFACE MOUNT SOCKET



Mounting Detail

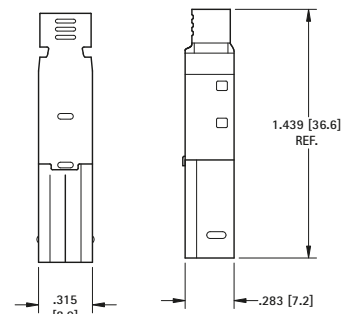


CAT. NO. 933

CABLE PLUG



• Supplied unassembled
 • Ideal for custom cable cordsets



CAT. NO. 926

USB 3.0 & 3.1 SOCKETS & PLUGS

ELECTRICAL CHARACTERISTICS:

Rated Voltage: 30V (RMS)
Contact Current Rating: 1 Amp DC max.
Contact Resistance: 15 mΩ max.
Insulation Resistance: 1000 MΩ min.
Dielectric Withstanding Voltage: 750V AC for 1 minute

MECHANICAL CHARACTERISTICS:

Operating Temperature: -13°F (-25°C) to +176°F(+80°C)
Durability: 1500 Cycles min.

USB 3.0 DESIGN ADVANTAGES:

Port Expansion: Alleviates restriction of limited COM Ports and available IRQ's
Compatibility: Backward compatible with USB 2.0 devices
Fast Data Transfer: Up to 4.8 Gbps; 10 times faster than USB 2.0 devices and 200 times faster than serial ports.

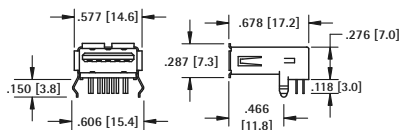
USB 3.1 DESIGN ADVANTAGES:

Compatibility: Backwards compatible with 2.0 & 3.0 (adaptor required)
Data Rates: Up to 10 Gbps; twice as fast as 3.0. Same connector on both sides of cable. No A & B style.

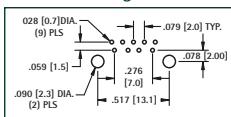
USB 3.0 TYPE A SOCKET & PLUG



THRU-HOLE MOUNT SOCKET



Mounting Detail



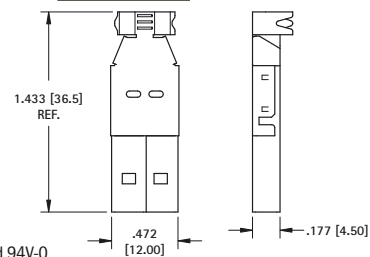
SOCKET SPECIFICATIONS:

Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 945



CABLE PLUG



- Supplied unassembled
- Ideal for custom cable cordsets

PLUG SPECIFICATIONS:

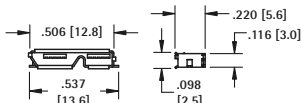
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 947

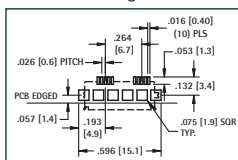
MICRO-USB 3.0 TYPE B SOCKET & PLUG



SURFACE MOUNT SOCKET



Mounting Detail



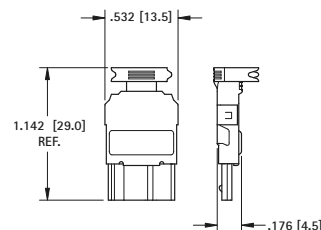
SOCKET SPECIFICATIONS:

Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 955



CABLE PLUG



- Supplied unassembled
- Ideal for custom cable cordsets

PLUG SPECIFICATIONS:

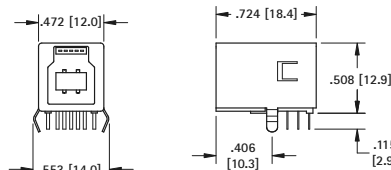
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 957

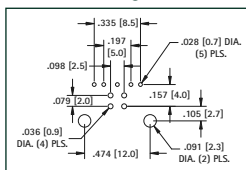
USB 3.0 TYPE B SOCKET & PLUG



THRU-HOLE MOUNT SOCKET



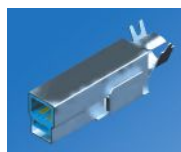
Mounting Detail



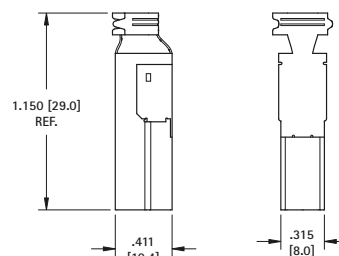
SOCKET SPECIFICATIONS:

Shell: Phosphor Bronze, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel
Contact Area: Gold Flash over Nickel
Solder Tails: Tin over Nickel

CAT. NO. 950



CABLE PLUG



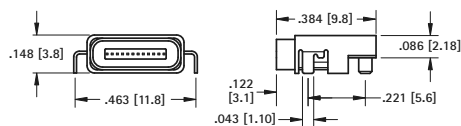
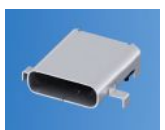
- Supplied unassembled
- Ideal for custom cable cordsets

PLUG SPECIFICATIONS:

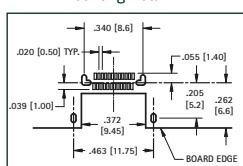
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 952

USB 3.1 TYPE C SOCKET & PLUG



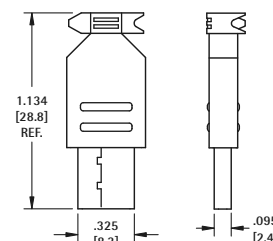
Mounting Detail



SOCKET SPECIFICATIONS:

Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Copper, Gold Plate (Flash)
Solder Tails: Copper Alloy, Tin Plate

CAT. NO. 953



- Supplied unassembled
- Ideal for custom cable cordsets

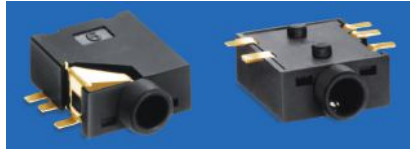
PLUG SPECIFICATIONS:

Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Plate (Flash)

CAT. NO. 954

SURFACE MOUNT AUDIO JACKS

- Mates with 2.5mm and 3.5mm plugs
- Designed for reliable interface with audio equipment including computer speakers, headphones, sound cards, cell phones, etc.
- Models available for mono and stereo applications
- Low profile, surface mount design



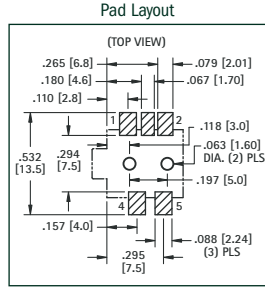
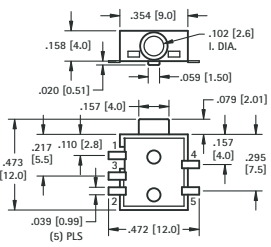
SPECIFICATIONS

Housing: LCP, UL Rated 94V-0
Ground Terminal: .012 (.30) Brass, Gold Flash
Spring Contacts: .008 (.20) Phosphor Bronze, Gold Flash
Shunt Terminals: .012 (.30) Brass, Gold Flash

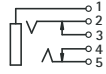
FOR 2.5 mm PLUGS

SUPPLIED ON TAPE AND REEL

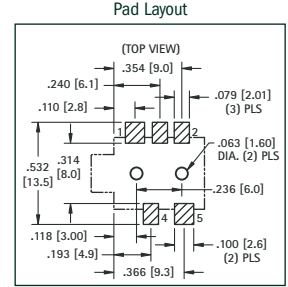
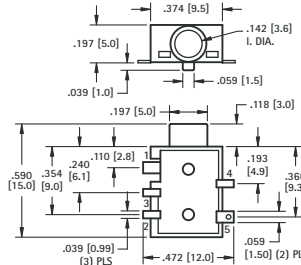
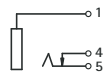
FOR 3.5 mm PLUGS



STEREO SCHEMATIC



MONO SCHEMATIC



CAT. NO. 980TR (Stereo)

CAT. NO. 982TR (Mono)

Tape Spec's: 24mm wide; 16mm pitch
Reel Spec's: 15 inch reel (1,000 pieces per reel)

CAT. NO. 981TR (Stereo)

CAT. NO. 983TR (Mono)

Tape Spec's: 24mm wide; 16mm pitch
Reel Spec's: 15 inch reel (800 pieces per reel)

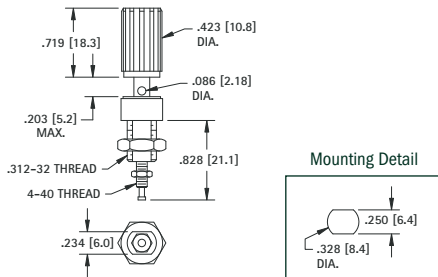
BINDING POSTS

All Keystone binding posts are designed to prevent accidental contact with current carrying parts. They feature a "limited opening" captivated head to insure safety. Ideal for audio circuitry, R.F. circuitry, oscilloscopes, power supplies and various other applications.

These multi-purpose binding posts feature high current rating, captivated heads and anti-rotation stud mounting.

Note: Binding Posts accept .175" (4.5) Banana Plugs, .080" (2.08) Tip Plugs, Spade Lugs, Alligator Clips, Wires and EZ hooks.

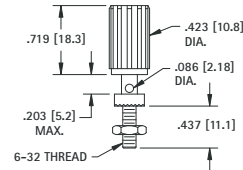
STANDARD BINDING POST



For panels up to .281 (7.1) thick

CAT. NO.	COLOR
7004	RED
7005	BLACK

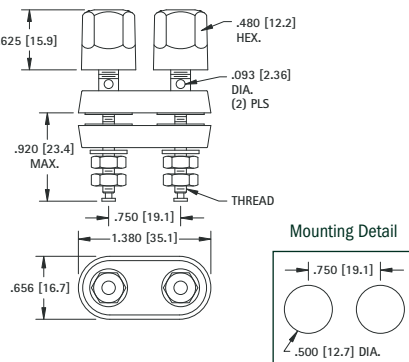
UNINSULATED BINDING POST



For panels up to .313 (8.0) thick

CAT. NO.	COLOR
7006	RED
7007	BLACK

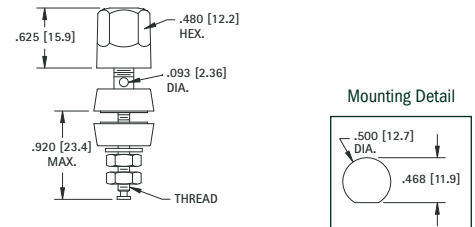
STANDARD DUAL HEX HEAD



GOLD PLATE		NICKEL PLATE	
CAT. NO.	THREAD	CAT. NO.	THREAD
4108	8-32	7018	8-32
4109	10-32	7019	10-32

MATERIAL:
Stud: Brass per ASTM B-16.
Insulation: Nylon
Current Rating: 30 Amps, 1000V AC Working

STANDARD HEX HEAD

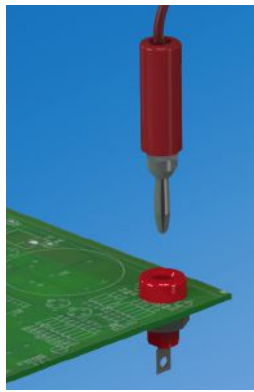


GOLD PLATE			NICKEL PLATE		
CAT. NO.	THREAD	COLOR	CAT. NO.	THREAD	COLOR
4096	8-32	RED	4091	8-32	RED
4097	8-32	BLACK	4092	8-32	BLACK
7016	10-32	RED	4093	10-32	RED
7017	10-32	BLACK	4094	10-32	BLACK
7023	10-32	WHITE	4198	10-32	WHITE
7024	10-32	YELLOW	4199	10-32	YELLOW

MATERIAL:
Stud: Brass per ASTM B-16.
Insulation: Nylon
Current Rating: 30 Amps, 1000V AC Working

LARGE BANANA PLUGS - .300 (7.6)

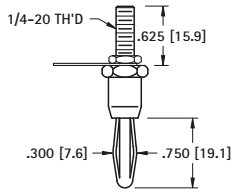
Current Ratings: Large: (.300) 40 Amps



Supplied Unassembled

CAT. NO. 6073

INTERNAL THREAD



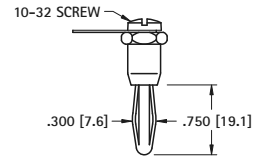
MATERIAL:
Spring: Phosphor Bronze,
Body: Brass, Nickel Plate



Supplied Unassembled

CAT. NO. 6075

EXTERNAL THREAD

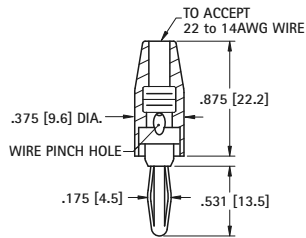


MATERIAL:
Spring: Phosphor Bronze
Body: Brass, Nickel Plate

STANDARD BANANA PLUGS - .175 (4.5)

Current Ratings: Standard: (.175) 15 Amps

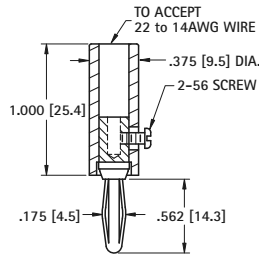
SOLDERLESS CONNECTION



MATERIAL:
Spring: Nickel Silver
Body: Brass, Nickel Plate
Handle: Nylon

CAT. NO.	COLOR
6078	RED
6079	BLACK

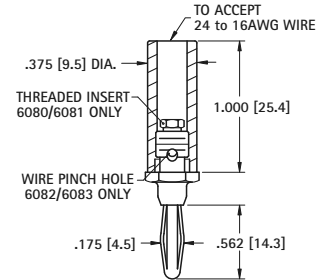
SOLDERLESS WITH SET SCREW



MATERIAL:
Spring: Nickel Silver
Body: Brass, Nickel Plate
Handle: Nylon

CAT. NO.	COLOR
6084	RED
6085	BLACK

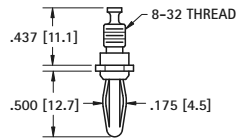
INSULATED



RED CAT. NO.	BLACK CAT. NO.	WIRE CONNECTION
6080	6081	SOLDER
6082	6083	SOLDERLESS

MATERIAL:
Spring: Phosphor Bronze
Body: Brass, Nickel Plate
Handle: Nylon

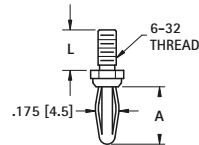
SOLDER LUG



MATERIAL:
Spring: Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO. 652

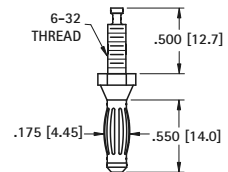
FOUR LEAF SPRING



MATERIAL:
Spring: Beryllium Copper (Cat. No. 653)
Spring: Phosphor Bronze (Cat. No. 654, 655)
Body: Brass, Nickel Plate

CAT. NO.	L	A
653	.500 (12.7)	.437 (11.1)
654	.188 (4.8)	.550 (14.0)
655	.500 (12.7)	.550 (14.0)

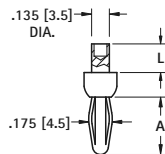
BARREL SPRING



MATERIAL:
Spring: Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO. 657

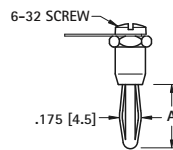
STANDARD RIVET



MATERIAL:
Four Leaf Spring: Phosphor Bronze
Barrel Spring: Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO.	L	A	SPRING
552-3	.187 (4.7)	.437 (11.1)	4 leaf
658	.187 (4.7)	.550 (14.0)	barrel
552-4	.218 (5.5)	.437 (11.1)	4 leaf

INTERNAL THREAD

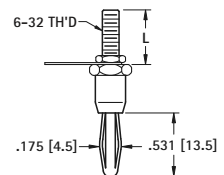


Supplied Unassembled

MATERIAL:
Four Leaf Spring: Phosphor Bronze
Barrel Spring: Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO.	A	SPRING
6072	.531 (13.5)	4 leaf
659	.550 (14.0)	barrel

EXTERNAL THREAD



Supplied Unassembled

CAT. NO.	L
6074-1	.375 (9.5)
6074-2	.750 (19.1)

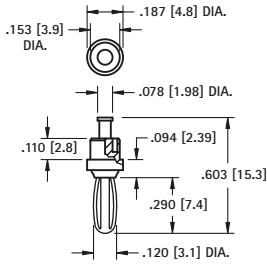
MATERIAL:
Spring: Phosphor Bronze
Body: Brass, Nickel Plate

BANANA PLUGS

MINI BANANA PLUGS - .120 (3.0)

Current Ratings: Miniature: (.120) 10 Amps

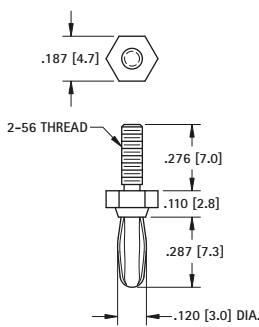
SWAGE MOUNT



MATERIAL:
Spring: Beryllium Copper
Body: Brass, Silver Plate

CAT. NO. 452

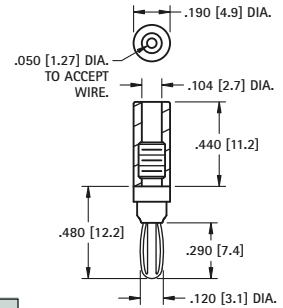
THREADED



MATERIAL:
Spring: Beryllium Copper, Nickel Plate
Body: Brass, Silver Plate

CAT. NO. 450

SOLDER CONNECTION

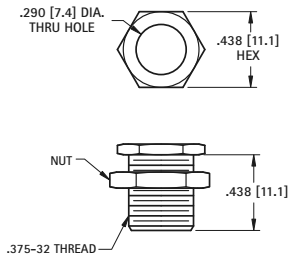


CAT. NO.	COLOR
6076	RED
6077	BLACK
451	NONE

MATERIAL:
Spring: Beryllium Copper, Nickel Plate
Body: Brass, Nickel Plate
Handle: Nylon

BANANA JACKS

LARGE BANANA JACK



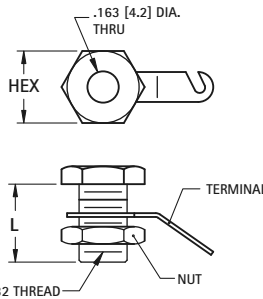
Accepts
 .300 (7.6)
 Plug

Supplied Unassembled

CAT. NO. 6098

MATERIAL:
Body: Brass, Nickel Plate
Terminal: Brass, Tin Plate

NON-INSULATED STANDARD JACKS

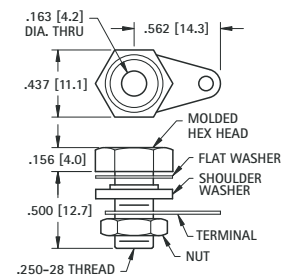


Accepts
 .175 (4.5)
 Plug

MATERIAL:
Body: Brass, Nickel Plate
Terminal: Brass, Tin Plate
 Supplied with nut and lug. Unassembled

CAT. NO.	HEX	L	DESCRIPTION
6095	.375 (9.5)	.406 (10.3)	Resessed head
6096	.312 (7.9)	.500 (12.7)	Narrow Head

INSULATED STANDARD JACKS



Accepts
 .175 (4.5)
 Plug

Supplied with hardware
 Unassembled

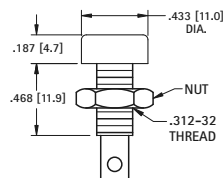
CAT. NO.	HEAD COLOR
6093	RED
6094	BLACK

MATERIAL:
Body: Brass, Nickel Plate
Terminal: Copper, Tinned
Hex Head: Phenolic

FULLY INSULATED STANDARD JACKS



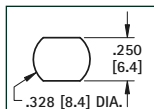
Accepts
 .175 (4.5)
 Plug



MATERIAL:
Body: Nylon
Contact: Brass, Tin Plate

CAT. NO.	COLOR
6091	RED
6092	BLACK

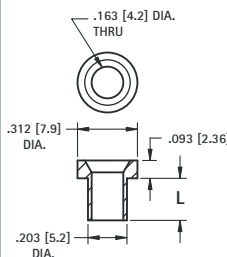
Mounting Detail



SWAGE MOUNT

STANDARD

Accepts
 .175 (4.5)
 Plug

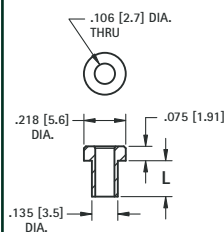


MATERIAL:
 Brass, Nickel Plate

CAT. NO.	L
575-4	.218 (5.5)
575-6	.265 (6.7)
575-8	.350 (8.9)

MINIATURE

Accepts
 .120 (3.0)
 Plug



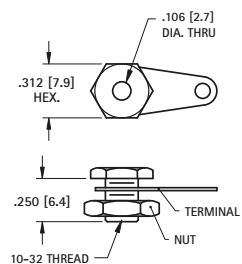
MATERIAL:
 Brass, Tin Plate

CAT. NO.	L
476-2	.125 (3.2)
476-3	.165 (4.2)
476-4	.187 (4.7)

MINIATURE BANANA JACK



Accepts
 .120 (3.0)
 Plug



Supplied with lug and nut.
 Unassembled

CAT. NO. 6090

MATERIAL:
Body: Brass, Nickel Plate
Terminal: Copper, Tinned

IP68 DUST & WATER RESISTANT 8P8C NETWORK CONNECTORS

These RJ45 plugs and sockets are IP68 rated for underwater, dust and other harsh environments once assembled. Sockets available as direct PC mount, Panel mount or with IDC connection for CAT 5e cables. When not in use covers available to keep socket clean and dry.

ENVIRONMENTAL/ELECTRICAL PROPERTIES:

Ingress Protection: IP68 rated
Voltage Rating: 125 VAC RMS
Compliance: IEE and IEC Compliant
Voltage Rating: 125 VAC RMS
Data Rate: 100Base-T (Fast Ethernet)

MECHANICAL PROPERTIES:

Operating Temp: -15°F to 175°F (-26°C to 79°C)
Durability: 500 cycles min.
Body: High Temperature Thermoplastic, UL 94V-0
Gasket: Silicon
Contacts: Phosphor Bronze, Gold plated
Solder Tails: Phosphor Bronze, Tin Plate

APPLICATIONS:

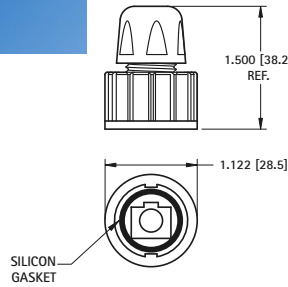
- Utility Grid
- Outdoor POS (point of Sale)
- Factory Wash down PLCs
- Marine Network connections



PLUG



Plug to be installed over standard 8P8C network cable.

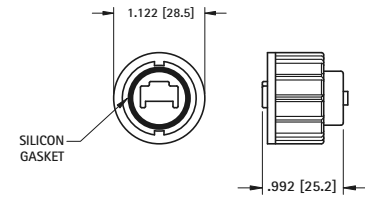


CAT. NO. 988P

SOCKET COVER



Cover to be used when socket is not in use to maintain IP68 rating.

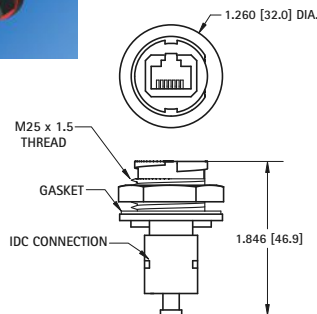


CAT. NO. 989C

IDC PANEL MOUNT SOCKET



Insulation Displacement Connector - Quick punch down wire connection. No need to strip wires before making connection.

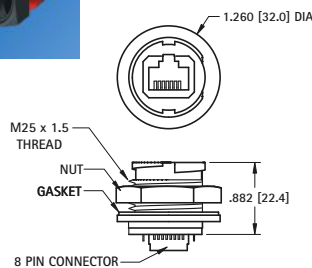


CAT. NO. 987

PANEL MOUNT SOCKET



Supplied with 8 pin connector on back side. Patch cable available: **Cat. No. 961H**



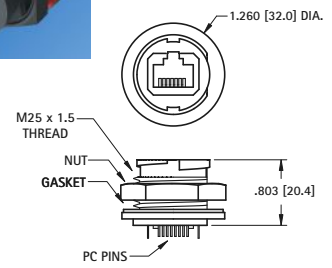
CAT. NO. 986 - Socket

CAT. NO. 961-H - Patch Cable

THM SOCKET



Tin Plated PC pins allow for direct connection of socket to PCB.



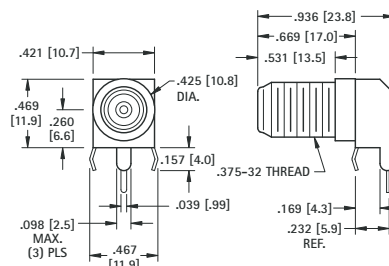
CAT. NO. 985

"F" FEMALE COAXIAL CONNECTOR

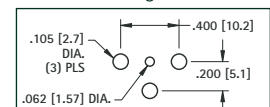


- Low profile
- Snap-fit mounting for positive retention during wave soldering
- Rugged, stable construction facilitates reliable mating
- High reliability, manufactured using Nickel Plated Brass bodies and Tin Plated Brass contacts

SNAP-FIT PC MOUNT



Mounting Detail



MATERIAL:

Shell: Steel, Tin Plate
Body: Brass, Nickel Plate
Contacts: Brass, Tin Plate

CAT. NO. 911

PC ETHERNET/NETWORK JACKS (RJ45 8P8C)

ELECTRICAL CHARACTERISTICS:

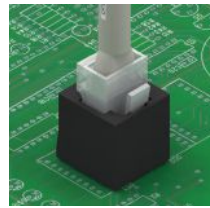
- Operating Voltage:** 125 VAC max.
- Current Rating:** 1.5 Amp max.
- Contact Resistance:** 35mΩ max.
- Insulation Resistance:** 1,000 MΩ min
- Dielectric Withstanding Voltage:** 1,000 VAC for 1 minute

MECHANICAL CHARACTERISTICS:

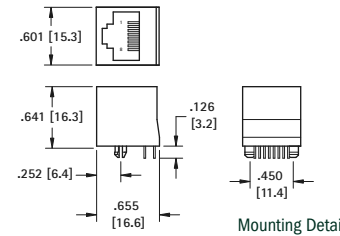
- Durability:** 500 Cycles
- Operating Temperature:** -40°F to 185°F (-40°C to 85°C)
- Packaging:** Anti-ESD plastic trays

APPLICATIONS:

- Network Equipment
- Modem
- Hub
- Switch
- Router
- Gateway
- Repeater
- Bridge
- PC motherboard
- Laptops & Notebooks



VERTICAL ENTRY

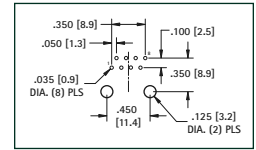


- Allows connector to board perpendicular to PC board

SOCKET SPECIFICATIONS:

- Body:** PBT UL 94V-0- Black
- Contacts:** Phosphor Bronze, Gold Plate (Flash)
- Solder Tails:** Phosphor Bronze, Tin Plate

CAT. NO. 949

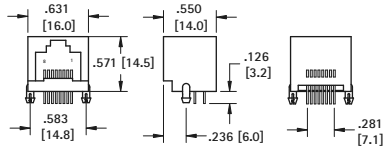


HORIZONTAL ENTRY

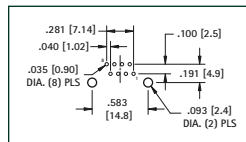
THM-COMPACT



- Small PC footprint ideal for high density applications



Mounting Detail



SOCKET SPECIFICATIONS

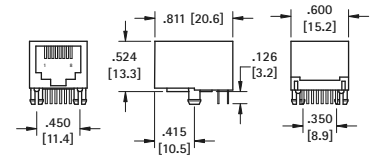
- Body:** PBT UL 94V-0- Black
- Contacts:** Phosphor Bronze, Gold Plate (Flash)
- Solder Tails:** Phosphor Bronze, Tin Plate

CAT. NO. 942

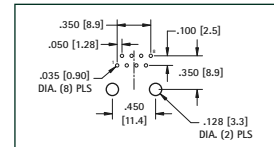
THM-EXTENDED



- Extra long connector extends past PC board for access to port thru case



Mounting Detail



SOCKET SPECIFICATIONS

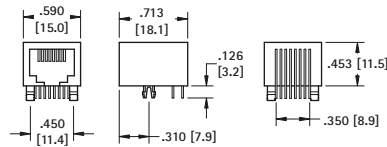
- Body:** PBT UL 94V-0- Black
- Contacts:** Phosphor Bronze, Gold Plate (Flash)
- Solder Tails:** Phosphor Bronze, Tin Plate

CAT. NO. 948

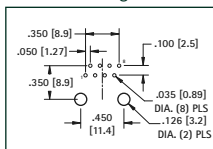
THM-LOW PROFILE



- Low Height ideal for compact designs



Mounting Detail



SOCKET SPECIFICATIONS:

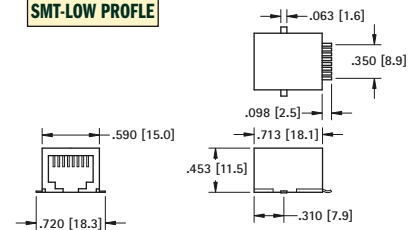
- Body:** PBT UL 94V-0- Black
- Contacts:** Phosphor Bronze, Gold Plate (Flash)
- Solder Tails:** Phosphor Bronze, Tin Plate

CAT. NO. 943

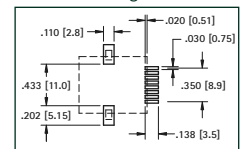
SMT-LOW PROFILE



- Low Height ideal for compact designs



Mounting Detail



SOCKET SPECIFICATIONS:

- Body:** PBT UL 94V-0- Black
- Contacts:** Phosphor Bronze, Gold Plate (Flash)
- Solder Tails:** Phosphor Bronze, Nickel Plate

CAT. NO. 944

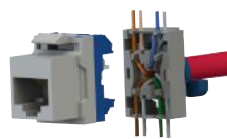
KEYSTONE JACKS (RJ45 8P8C)



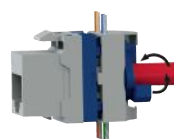
Front

Back

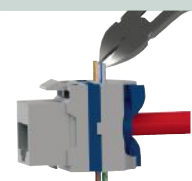
- Color Coded for easy assembly
- Toolless punch down design



- Strip approximately 1.5" of the cable jacket. Fold back shield/ground.
- Attach wires to cover following the color coding markings.*



- Align cover to module. Be sure to align polarity tab.

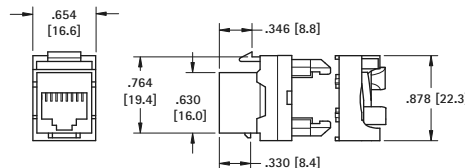


- Twist locking mechanism to punch down the wires and lock the cover onto the module.
- Trim extra wire from housing. Ready to be installed into panel

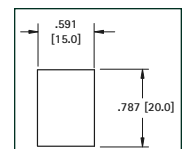
SOCKET SPECIFICATIONS:

- Body:** PC UL 94V-0
- Contacts:** Phosphor Bronze, Gold Plate (Flash)
- IDC Contacts:** Phosphor Bronze, Nickel Plate
- Accepts #24-26 AWG wire

CAT. NO. 946



Panel Cutout



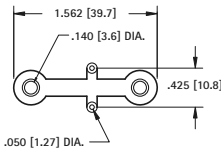
*Color coding for both T568A/T568B wiring schemes. Both ends of cable should match unless creating a crossover cable.

TRANSISTOR MOUNTS

Molded Transistor Mounts provide all of the necessary bushings and insulators to quickly mount power transistors.

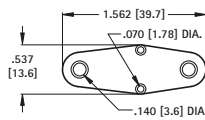


For TO-3 CASES



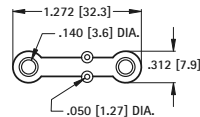
MATERIAL:
Nylon 6/6 - 94V-2
CAT. NO. 4616

HEAVY DUTY TO-3



MATERIAL:
Glass filled Polyester, UL Rated 94-V0
CAT. NO. 4626

For TO-66 CASES



MATERIAL:
Nylon 6/6 - 94V-2
CAT. NO. 4617

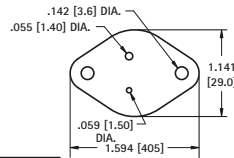
TRANSISTOR INSULATORS

Mica Insulators provide good thermal conductivity and superior electrical insulation.

SPECIFICATIONS:

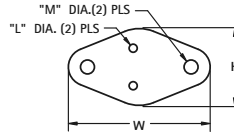
Material: .003 (.08) Natural Mica
Thermal Conductivity: .71 W/(m K)
Dielectric Constant: 7 @ 1000 Khz

FOR TO-3 CASES



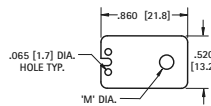
CAT. NO. 4662

FOR TO-3 CASES



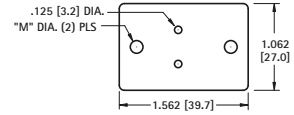
CAT. NO.	H	W	M Dia.	D Dia.
4651	1.093 (27.8)	1.625 (41.3)	.166 (4.2)	.093 (2.4)
4653	1.063 (27.0)	1.655 (42.1)	.166 (4.2)	.166 (4.2)
4636	1.063 (27.0)	1.655 (42.1)	.166 (4.2)	.052 (1.3)

FOR TO-220 CASE (3-PIN)



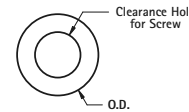
CAT. NO.	M	LEADS
4671	.141 (3.6)	2
4672	.141 (3.6)	3
4673	.115 (2.9)	3

FOR TO-3 CASES



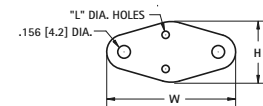
CAT. NO. 4661

FOR THREADED STUD TRANSISTORS



CAT. NO.	OD	Screw
4678	.375 (9.5)	4
4679	.375 (9.5)	6
4680	.500 (12.7)	8
4681	.625 (15.9)	10
4682	.750 (19.0)	1/4

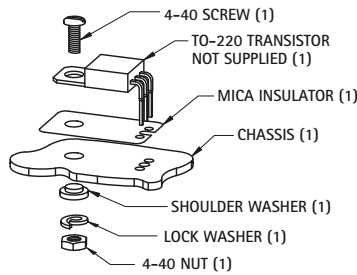
FOR TO-66 CASES



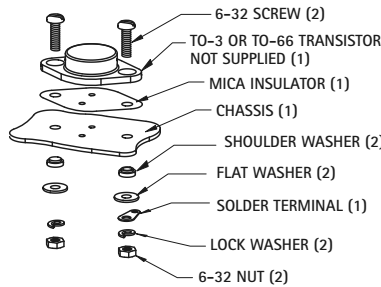
CAT. NO.	M	LEADS
4664	.750 (19.1)	1.500 (38.1)
4666	.780 (19.9)	1.375 (34.9)

TRANSISTOR MOUNTING KITS

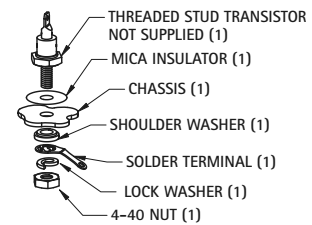
• Each kit provides everything needed to mount, isolate and connect to power transistors • Transistor not included • See diagrams below for complete list of items included



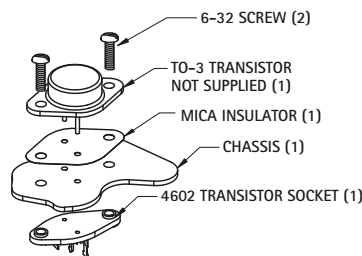
CAT. NO. 4724 - TO-220 Complete Mtg Kit



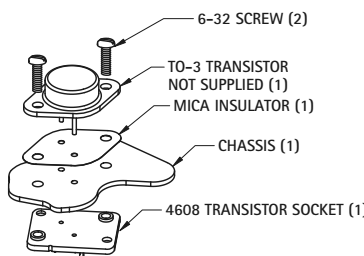
CAT. NO. 4725 - TO-3 Complete Mtg Kit
CAT. NO. 4726 - TO-66 Complete Mtg Kit



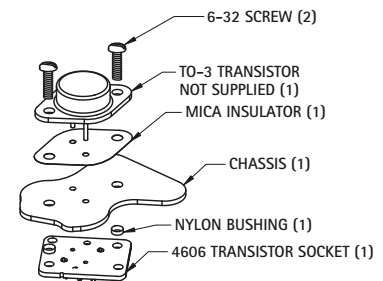
CAT. NO. 4729 - DO-4, TO-60, TO-62 Complete Mtg Kit
CAT. NO. 4730 - DO-5, TO-48, TO-61 Complete Mtg Kit



CAT. NO. 4732 - TO-3 Complete Mtg Kit



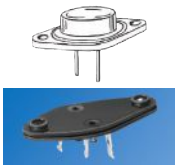
CAT. NO. 4733 - TO-3 Complete Mtg Kit



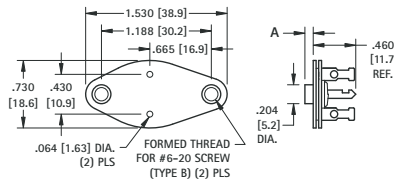
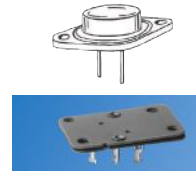
CAT. NO. 4734 - TO-3 Complete Mtg Kit

SOCKETS FOR TO-3 CASE

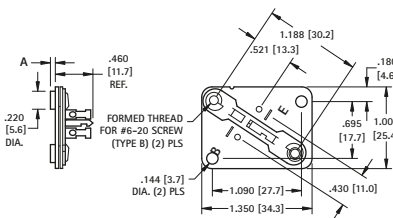
PANEL MOUNT



MATERIAL:
Base: Phenolic, Grade PBE, Type XP
Contacts: Brass, Tin Plate
Top Plate: Nylon, ASTM-D4066
 Phenolic, Grade PBE, Type XP
 (Cat. No. 4606 only)
Collector Plate: Steel, Tin Plate



CAT. NO.	A DIM.
4603	.030 (.76)
4602	.045 (1.14)
4601	.090 (2.29)

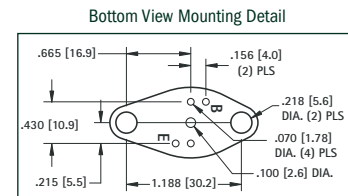
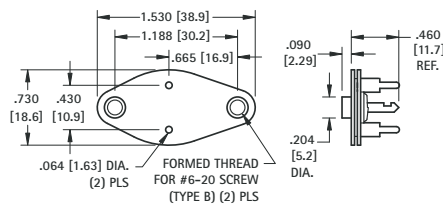


CAT. NO.	A DIM.
4606	NONE
4608	.045 (1.14)

PC MOUNT



MATERIAL:
Top Plate: Molded Nylon
Base: Phenolic
Contacts: Brass, Tin Plate
Collector Plate: Steel, Tin Plate

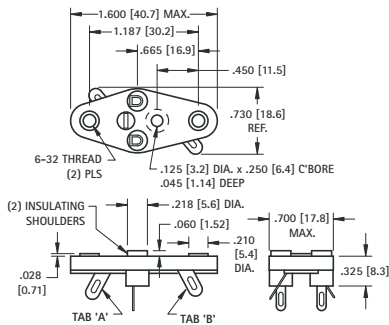


CAT. NO. 4600

HEAVY DUTY SOCKET FOR TO-3 CASE

CHOICE OF SINGLE OR DUAL COLLECTOR SOLDER TABS

Features an all-in-one mounting plate and solder tabs, providing complete electrical isolation of the solder tab connections.
 Rated 5 Amps DC continuous and 15 Amps DC Intermittent



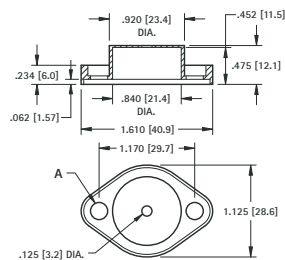
MATERIAL:
Base: PBT, UL Rated 94V-0
Contacts: Brass, Tin Plate
Collector Plate: Brass, Tin Plate

With transistor lead-in insulating shoulders	
CAT. NO.	WITH TAB
4513	"A" ONLY
4514	"A" & "B"

Less transistor lead-in insulating shoulders	
CAT. NO.	WITH TAB
4515	"A" ONLY
4516	"A" & "B"

NYLON TO-3 CASE COVERS

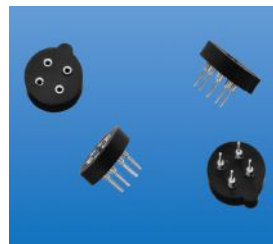
Molded nylon covers easily mount over and insulate the power transistor. Will withstand temperatures to approximately 250°F (121°C).



MATERIAL: Nylon 6/6, UL Rated 94V-2

CAT. NO.	FOR	EYELETS INSTALLED	A
4632	TO-3	NONE	.210 (5.3)
4634	TO-3	TWO	.140 (3.6)

SOCKETS FOR TO-5 & TO-100



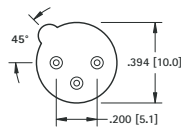
Fully molded compact construction. Speeds transistor assembly. Incorporates ultra high quality, closed entry, sleeve type contacts. Accepts .016 (.41) to .020 (.51) diameter leads or .010 (.25) x .018 (.46) rectangular transistor leads.

MATERIAL:
Insulator: Glass Filled Polyester, UL Rated 94V-0
Contact Pin: Brass, Tin-Lead Plate

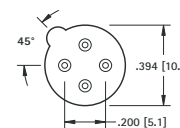
RoHS (Non-RoHS Compliant)

Contact Spring: Beryllium Copper, .000030 min. Gold Plate

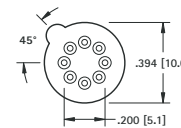
CAT. NO.	FOR	PINS
4590	TO-5	3
4591	TO-5	4
4592	TO-5	8
4593	TO-100	8
4594	TO-100	10



Cat. No. 4590



Cat. No. 4591



Cat. No. 4592

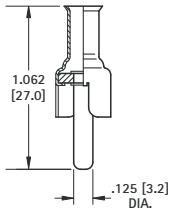
PHONO PLUGS

- Mates with .125 (3.2) diameter jacks

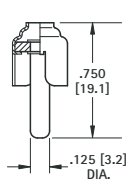
CONVENTIONAL TYPE

MATERIAL:

Shell: Brass, Nickel Plate
Pin: Brass, Nickel Plate



CAT. NO. 561 - Crimp Type



CAT. NO. 567 - Conventional Type

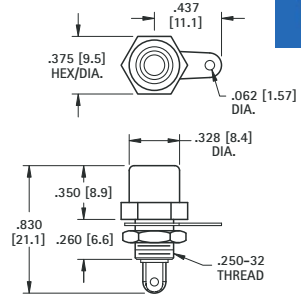
PANEL MOUNT PHONO JACKS

- Mates with .125 (3.2) dia. pin
- Mounts to panel in .296 (7.6) dia. hole
- Color coded for ease of identification
- Complete with nut and solder lug



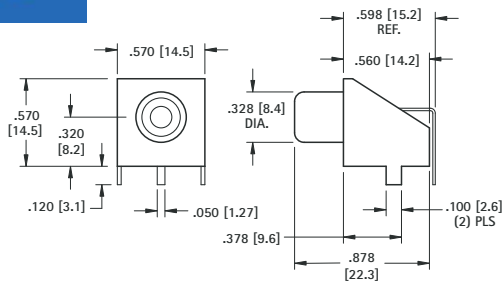
MATERIAL: Brass, Nickel Plate

HEX BASE CAT. NO.	INSULATOR COLOR	ROUND BASE CAT. NO.
581	WHITE	598
582	RED	580
576	BLACK	574
583	YELLOW	599



90° PC PHONO JACK

- Complete one piece jack for insertion into PC board
- Time Saving
- No Wiring Required
- Black insulator ring

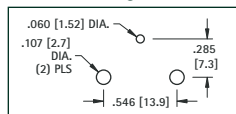


MATERIAL:

Base: Steel, Tin Plate
Shell: Steel, Nickel Plate
Contact: Brass, Tin Plate

CAT. NO. 902

Mounting Detail



SNAP-FIT 90° PC PHONO JACKS

CHOICE OF TIN OR GOLD PLATE

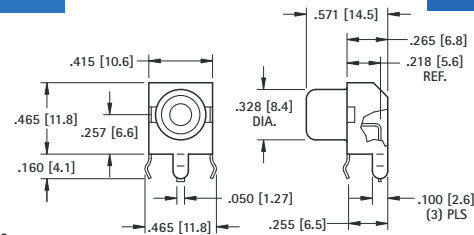
- Complete one piece jack for insertion into PC board
- Time Saving
- No Wiring Required
- Snap-fits into PC board



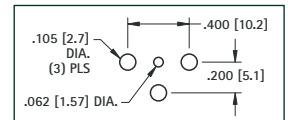
MATERIAL:

Shell: Steel
Contact: Brass
Plating: Tin or Gold Plate

TIN PLATE CAT. NO.	INSULATOR COLOR	GOLD PLATE CAT. NO.
587	WHITE	936
588	RED	937
901	BLACK	900
589	YELLOW	938



Mounting Detail



SNAP-FIT VERTICAL PC PHONO JACKS

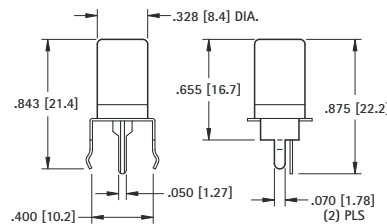
- Extra long, one piece shell to accept plugs with longer pins for greater contact
- Snaps into holes on PC board and firmly held for soldering
- No staking required



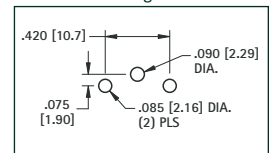
MATERIAL:

Shell: Steel, Nickel Plate
Contact: Brass, Tin Plate

CAT. NO.	INSULATOR COLOR
584	WHITE
577	RED
585	BLACK
586	YELLOW



Mounting Detail

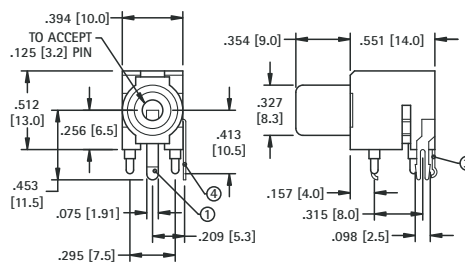


COLOR KEYED PC PHONO JACKS

- Mates with .125 (3.2) diameter pins
- Features a normally closed circuit
- Snap-fit mounting for positive retention during wave soldering
- Various colors for circuit identification



CAT. NO.	INSULATOR COLOR
970	WHITE
971	RED
972	BLACK
973	YELLOW



SCHEMATIC



SPECIFICATIONS

Housing: PBT
Ground Terminal: .020 (.51) Brass, Nickel Plate
Spring Contact: .012 (.30) Phosphor Bronze, Silver Plate
Shunt Terminal: .016 (.41) Brass, Silver Plate

DESIGNERS AND MANUFACTURERS
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- Assembly • Injection Molding

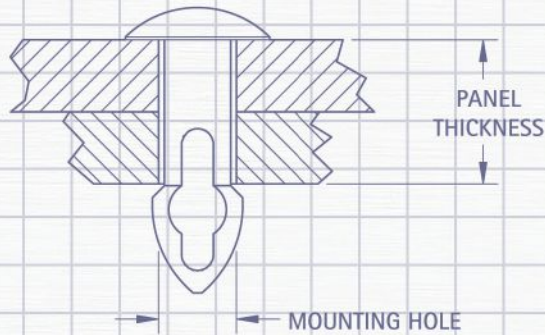
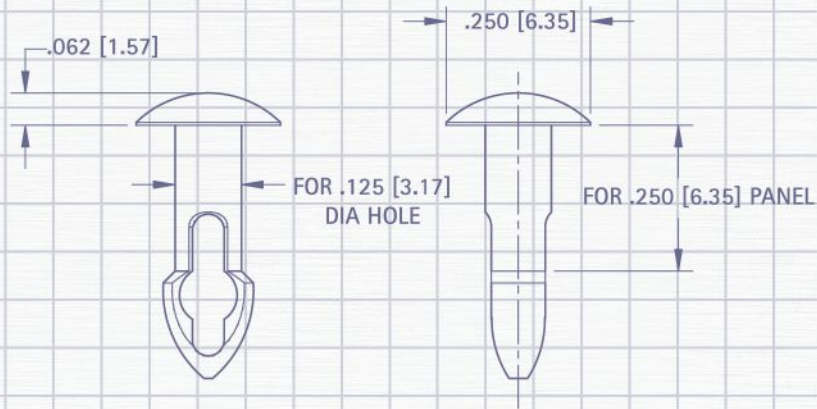
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- To dress up chassis access panels, mounts and holes
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DATE	DESCRIPTION	REV.



SECTION 7 CONTENTS

CABLE MANAGEMENT

Bushings 140
 Cable Clamps 138-139
 Cable Ties 139
 Grommets 141
 Routing Clip 139

CASE HARDWARE

Anti-Vibration Grommets 141
 Bumpers 142
 Hole Plugs 140

COMPUTER BRACKETS 136-137

MOUNTING BRACKETS 132-133

PC BOARD GUIDES 134-135

PC CARD EJECTORS 134

TERMINALS

Turret, Uninsulated 148
 Insulated 148

TERMINAL BOARDS/STRIPS

Turret 148
 Quick-Fit 148
 Solder Tab 148

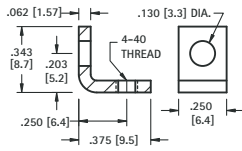
UNIVERSAL HARDWARE

Eyelets/Rivets 146
 Key Hole Clips 145
 Machine Nuts 143
 Screws 143
 Staking Tools 147
 Washers 144-145

THREADED MOUNTING BRACKETS

THREADED MOUNTING BRACKETS

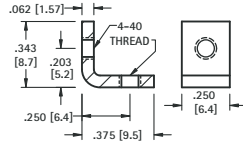
4-40 THREAD



CAT. NO. 612

MATERIAL:
.062 (1.57) Steel, Zinc Plate

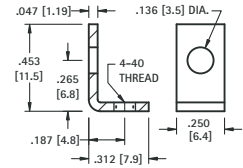
4-40 THREAD



CAT. NO. 621

MATERIAL:
.062 (1.57) Steel, Zinc Plate

4-40 THREAD

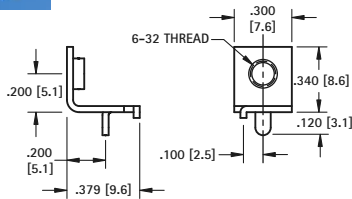


CAT. NO. 616

MATERIAL:
.047 (1.19) Brass, Tin Plate

6-32 THREAD

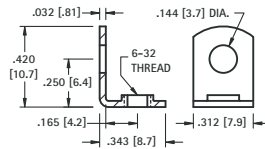
THRU-HOLE MOUNT



CAT. NO. 632

MATERIAL:
.032 (.81) Brass, Tin Plate

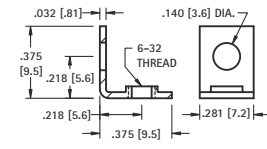
6-32 THREAD



CAT. NO. 614

MATERIAL:
.032 (.81) Brass, Tin Plate

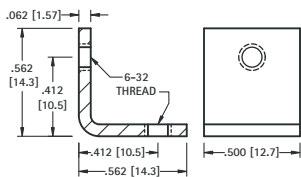
6-32 THREAD



CAT. NO. 634

MATERIAL:
.032 (.81) Brass, Nickel Plate

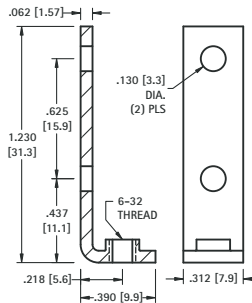
6-32 THREAD



CAT. NO. 4334

MATERIAL:
.062 (1.57) Steel, Nickel Plate

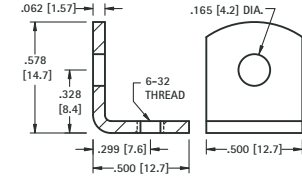
6-32 THREAD



CAT. NO. 708

MATERIAL:
.062 (1.57) Steel, Nickel Plate

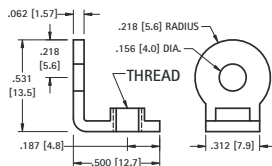
6-32 THREAD



CAT. NO. 617

MATERIAL:
.062 (1.57) Steel, Tin Plate

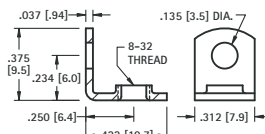
6-32 OR 8-32 THREAD



CAT. NO.	THREAD
4332	6-32
4333	8-32

MATERIAL:
.062 (1.57) Brass, Nickel Plate

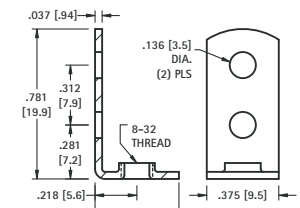
8-32 THREAD



CAT. NO. 611

MATERIAL:
.037 (.94) Brass, Tin Plate

8-32 THREAD

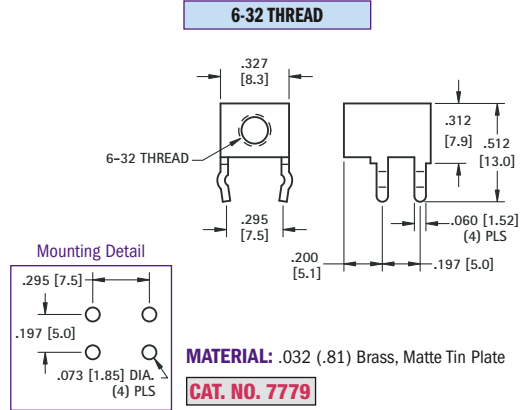
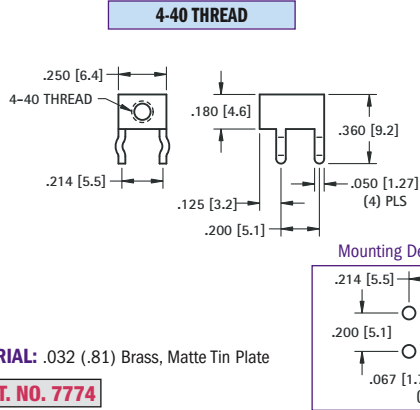
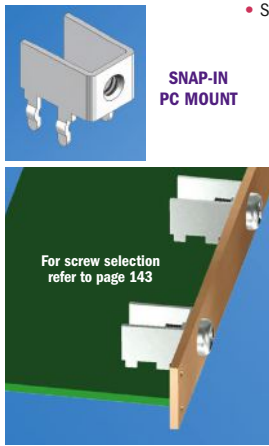


CAT. NO. 631

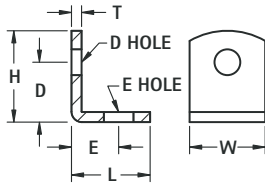
MATERIAL:
.037 (.94) Steel, Tin Plate

SNAP-IN THREADED PC MOUNT BRACKETS

- Snaps in for wave soldering • Reduces assembly time • Easily mount into predrilled or punched holes • Stable no rock design



UNIVERSAL CLEAR HOLE BRACKETS



CAT. NO.	H	L	W	D	D HOLE DIAMETER	E	E HOLE DIAMETER	T	MATERIAL	FINISH
633	.375 (9.5)	.375 (9.5)	.281 (7.1)	.218 (5.5)	.144 (3.7)	.218 (5.5)	.144 (3.7)	.032 (.81)	Brass	Nickel
613	.390 (9.9)	.453 (11.5)	.375 (9.5)	.234 (5.9)	.147 (3.7)	.299 (7.6)	.128 (3.3)	.032 (.81)	Brass	Nickel
615	.420 (10.7)	.343 (8.7)	.281 (7.1)	.281 (7.1)	.144 (3.7)	.203 (5.2)	.128 (3.3)	.032 (.81)	Brass	Tin
4335	.562 (14.3)	.562 (14.3)	.500 (12.7)	.412 (10.5)	.120 (3.0)	.411 (10.4)	.120 (3.0)	.062 (1.57)	Steel	Nickel
4336	.562 (14.3)	.562 (14.3)	.500 (12.7)	.412 (10.5)	.144 (3.7)	.412 (10.5)	.144 (3.7)	.062 (1.57)	Steel	Nickel
618	.628 (16.0)	.628 (16.0)	.375 (9.5)	.378 (9.6)	.169 (4.3)	.378 (9.6)	.169 (4.3)	.050 (1.27)	Brass	Tin
619	.687 (17.4)	.687 (17.4)	.375 (9.5)	.500 (12.7)	.144 (3.7)	.500 (12.7)	.144 (3.7)	.032 (.81)	Steel	Tin
4326	1.013 (25.7)	.487 (12.4)	.312 (7.9)	.816 (20.7)	.140 (3.6)	.332 (8.4)	.140 (3.6)	.050 (1.27)	Steel	Nickel
620	1.156 (29.4)	.656 (16.7)	.375 (9.5)	.906 (23.0)	.169 (4.3)	.420 (10.7)	.169 (4.3)	.032 (.81)	Steel	Tin

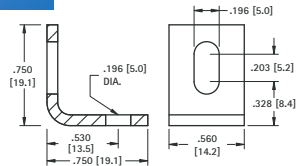
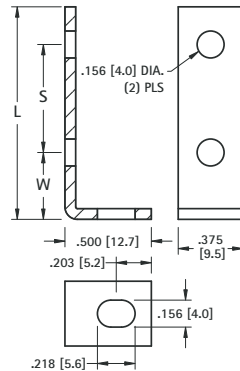
BOARD BRACKETS



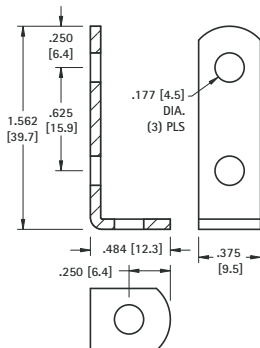
Originally designed for our line of standardized terminal boards; these brackets can also be used in other applications.

MATERIALS: .062 (1.57) Steel, Nickel Plate

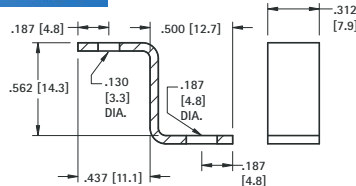
CAT. NO.	W	L	S
1570	.281 (7.1)	1.187 (30.1)	.750 (19.1)
1556	.375 (9.5)	1.625 (41.3)	1.000 (25.4)
1571	.281 (7.1)	1.625 (41.3)	1.187 (30.1)
1567	.375 (9.5)	2.125 (54.0)	1.500 (38.1)
1568	.375 (9.5)	2.625 (66.7)	2.000 (50.8)
1569	.375 (9.5)	3.125 (79.4)	2.500 (63.5)



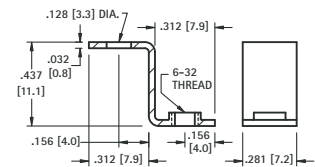
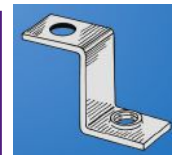
CAT. NO. 4337 **MATERIAL:** .080 (2.03) Aluminum



CAT. NO. 1564 **MATERIAL:** .062 (1.57) Steel, Nickel Plate

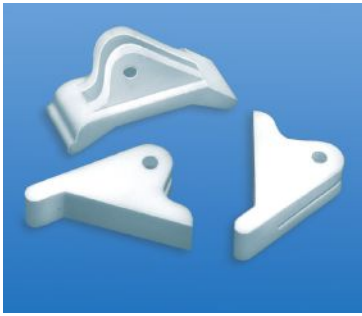


CAT. NO. 4325 **MATERIAL:** .050 (1.27) Steel, Nickel Plate



CAT. NO. 630 **MATERIAL:** .032 (.81) Brass, Tin Plate

LEVER ACTION PC CARD EJECTORS



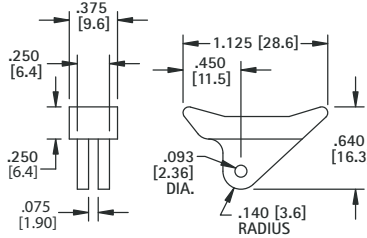
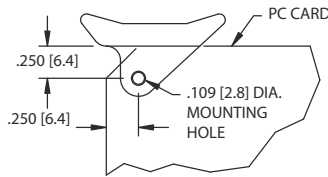
Card ejectors offer a simple and reliable way of installing and ejecting circuit boards. Card ejectors reduce the stress on board connectors by improper removal of board. Ejectors also protect components

on board from damage during removal or installation. Ejectors supplied with stainless steel pin to assure quick assembly of ejector to card.

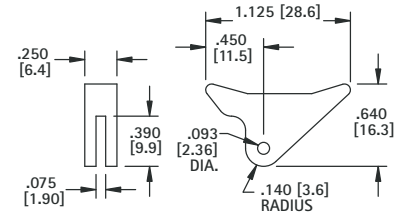
- Designed for .062 (1.57) PC cards
- Level action ejectors aids card insertion and extraction
- Supplied complete with stainless steel spring pin

MATERIAL:
White Nylon 6/6, UL Rated 94V-2

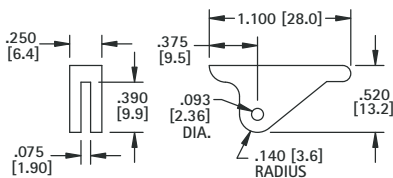
CARD MOUNTING DIMENSIONS



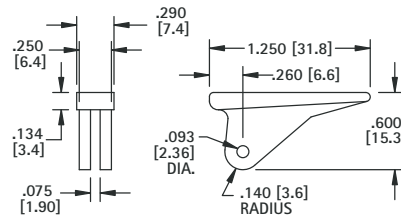
CAT. NO. 8640



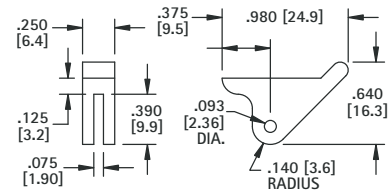
CAT. NO. 8641



CAT. NO. 8642



CAT. NO. 8643



CAT. NO. 8644

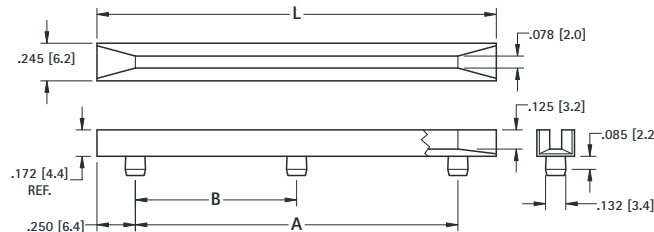
HORIZONTAL TYPE PC BOARD GUIDES



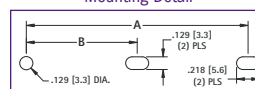
MATERIAL:
Natural Nylon 6/6, UL Rated 94V-2

Guides may be used horizontally or vertically and snap into .125 (3.2) diameter holes. Narrow width allows maximum density and optimum airflow. Simple press-fit, secure installation. No special tools required to install.

- Sturdy Nylon construction
- Mounts into chassis with out tools
- Assures proper alignment of board
- Quick and easy installation of board



Mounting Detail

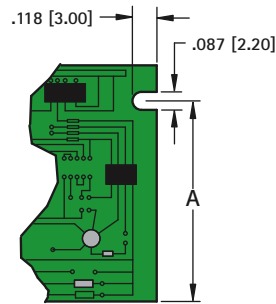


CAT. NO.	L	A	B
8620	2.5 (63.5)	2.0 (50.8)	-
8621	3.0 (76.2)	2.5 (63.5)	-
8622	3.5 (88.9)	3.0 (76.2)	-
8623	4.0 (101.6)	3.5 (88.9)	-
8624	4.5 (114.3)	4.0 (101.6)	-
8625	5.0 (127.0)	4.5 (114.3)	-
8626	5.5 (139.7)	5.0 (127.0)	-
8627	6.0 (152.4)	5.5 (139.7)	-
8628	6.5 (165.1)	6.0 (152.4)	-
8629	7.0 (177.8)	6.5 (165.1)	-
8630	7.0 (177.8)	6.5 (165.1)	3.25 (82.6)
8631	7.5 (190.5)	7.0 (177.8)	-
8632	7.5 (190.5)	7.0 (177.8)	3.50 (88.9)
8633	8.0 (203.2)	7.5 (190.5)	-
8634	8.0 (203.2)	7.5 (190.5)	3.75 (95.3)
8635	8.5 (215.9)	8.0 (203.2)	-
8636	8.5 (215.9)	8.0 (203.2)	4.00 (101.6)

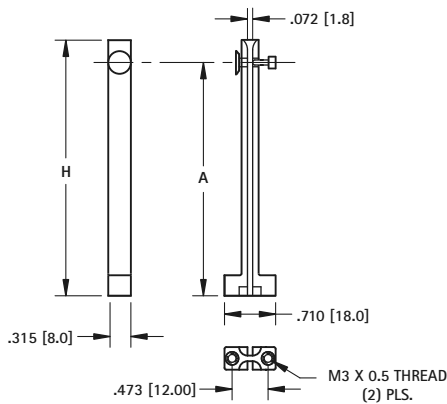
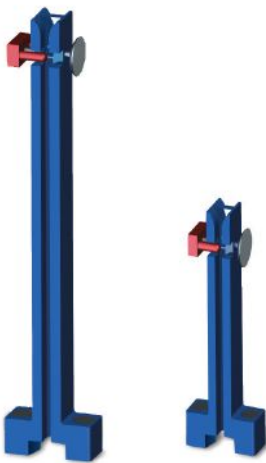
VERTICAL PC BOARD GUIDES

Vertical board guides provide for a quick and easy assembly of circuit boards. Sturdy design assures boards stay square. These guards can be mounted to chassis or directly to a mother board. Mounting holes have brass threaded inserts to assure secure mounting of guide. After bracket is installed, boards are quickly locked into place or released for repair or upgrades. Locking pins at the top of the bracket can be set/released using finger pressure, no tools are required.

- Brass threaded inserts assure sturdy connection to chassis or mother board
- Available for circuit boards 1.970" to 6.300" tall
- Locking pin keeps circuit board locked into place
- M3 mounting screws available
- Supplied with hardware: 2 screws, 2 washers and 2 lock washers
- All brackets use same footprint, no redesign of mounting holes required if changing bracket height



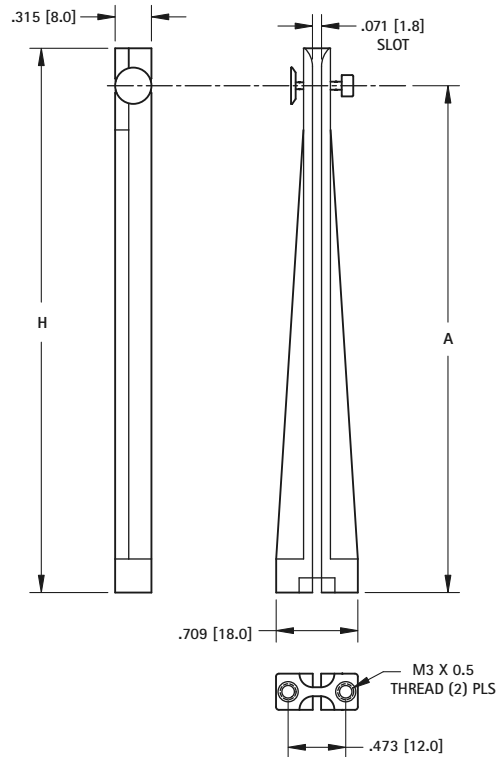
STANDARD



CAT. NO.	H HEIGHT	A LOCK PIN HEIGHT
8645	1.970 (50.0)	1.650 (42.0)
8646	2.560 (65.0)	2.250 (56.5)
8647	3.540 (90.0)	3.200 (81.5)
8648	4.725 (120.0)	4.430 (112.5)

MATERIAL:
Guide: Nylon
Threaded Insert: Brass, Nickel Plate

REINFORCED



CAT. NO.	H HEIGHT	A LOCK PIN HEIGHT
8654	4.724 (120.0)	4.410 (112.0)

MATERIAL:
Guide: Nylon, Glass Filled
Threaded Insert: Brass, Nickel Plate

STANDARD BLANK BRACKETS

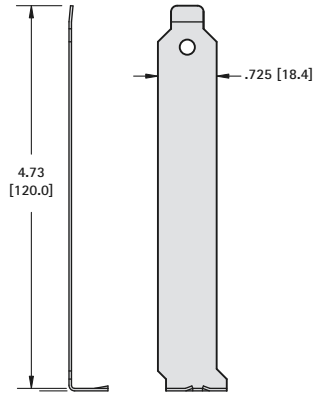


- Brackets supplied as flat blanks or with mounting tabs
- Premium quality
- Designed to fit standard PC Board configurations
- Custom designs can be fabricated to your exact configuration

MATERIAL: Steel, Nickel Plate

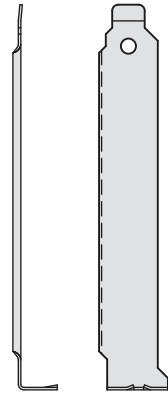
EISA/ISA or PCI

BLANK - FLAT



CAT. NO. 9200

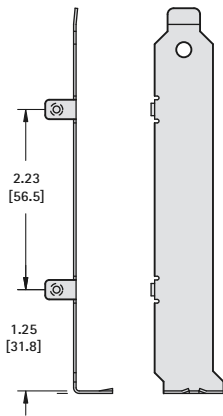
BLANK - REINFORCED



CAT. NO. 9201

EISA/ISA

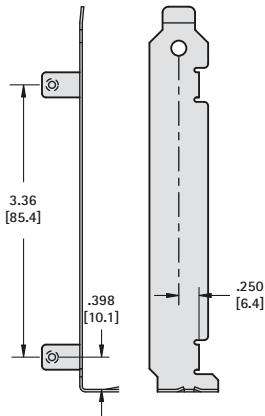
BLANK - WITH MOUNTING TABS



CAT. NO. 9202

PCI

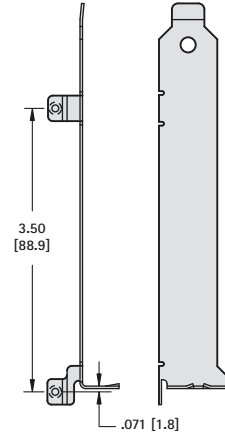
BLANK - WITH MOUNTING TABS



CAT. NO. 9203

EISA/ISA

BLANK - WITH MOUNTING TABS



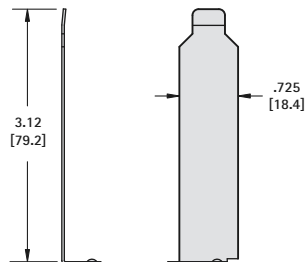
CAT. NO. 9205

LOW PROFILE BLANK BRACKETS



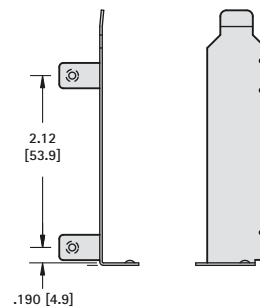
EISA/ISA or PCI

BLANK - FLAT

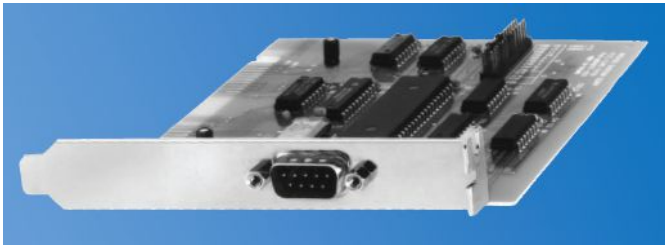


CAT. NO. 9230

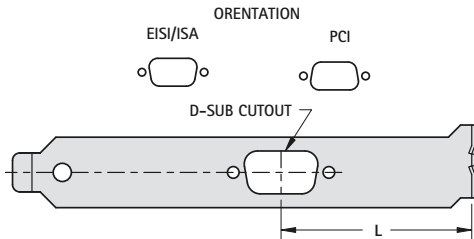
BLANK - WITH MOUNTING TABS



CAT. NO. 9231

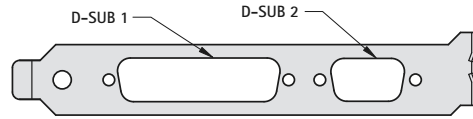


D-SUB



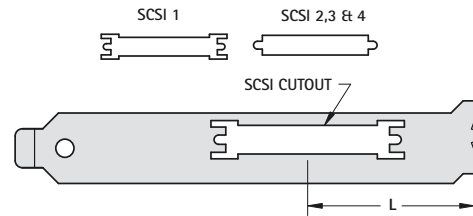
CAT. NO.	Orientation	Length	# Pins
9200-1	EISA/ISA	1.96 (49.9)	9 Pin
9200-2	PCI	2.20 (55.9)	9 Pin
9200-16	EISA/ISA	1.07 (27.2)	9 Pin
9200-3	EISA/ISA	2.95 (75.0)	15 Pin
9200-11	EISA/ISA	2.85 (72.4)	15 Pin
9200-4	EISA/ISA	2.81 (71.3)	25 Pin
9200-5	EISA/ISA	2.25 (57.2)	37 Pin
9207-14	EISA/ISA	1.90 (48.4)	50 Pin

MULTIPLE D-SUB - EISA/ISA



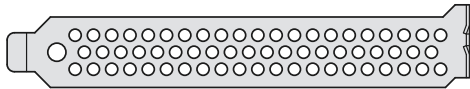
CAT. NO.	D SUB 1	D SUB 2
9200-12	15 Pin	15 Pin
9200-13	25 Pin	15 Pin
9200-15	9 Pin	9 Pin
9200-17	25 Pin	9 Pin

SCSI



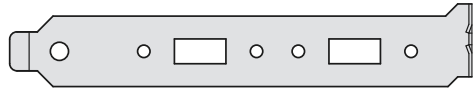
CAT. NO.	Shape	No. Pins
9200-6	SCSI 1	50 Pin
9200-7	SCSI 1	68 Pin
9200-8	SCSI 2,3 & 4	50 Pin
9200-9	SCSI 2,3 & 4	68 Pin

VENT



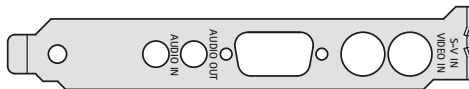
CAT. NO. 9200-19

USB I/O CARD - EISA/ISA or PCI



CAT. NO. 9200-10

VIDEO CARD - EISA/ISA



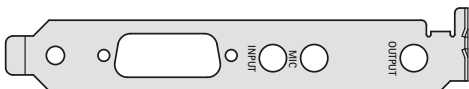
CAT. NO. 9201-1

NETWORK CARD - PCI



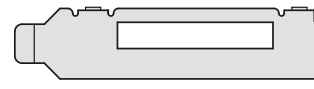
CAT. NO. 9203-2

SOUND CARD - EISA/ISA



CAT. NO. 9204-1

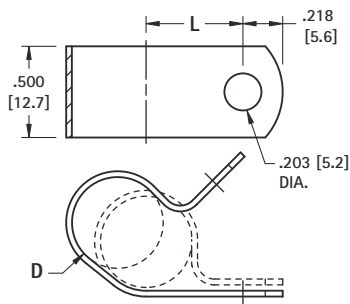
USB I/O CARD - LOW PROFILE



CAT. NO. 9231-1

STEEL CABLE CLAMPS

Ideal for securing, grounding and routing cable, wiring, piping, tubing, components and fibre optics.

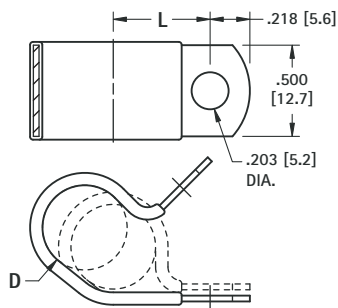


MATERIAL: .032 (.81) Steel, Zinc Plate

CAT. NO.	D FOR DIA.	L CTR TO CTR
8100	.187 (4.7)	.375 (9.5)
8101	.250 (6.4)	.406 (10.3)
8102	.312 (7.9)	.437 (11.1)
8103	.375 (9.5)	.468 (11.9)
8104	.437 (11.1)	.500 (12.7)
8105	.500 (12.7)	.531 (13.5)
8106	.562 (14.4)	.562 (14.3)
8107	.625 (15.9)	.594 (15.1)
8108	.687 (17.4)	.625 (15.9)
8109	.750 (19.0)	.656 (16.7)
8110	.812 (20.6)	.687 (17.4)
8111	.875 (22.2)	.718 (18.2)
8112	.937 (23.8)	.750 (19.1)
8113	1.00 (25.4)	.781 (19.8)

INSULATED STEEL CABLE CLAMPS

Ideal for securing, insulating and routing cable, wiring, piping, tubing, components and fibre optics.

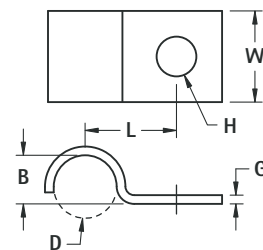
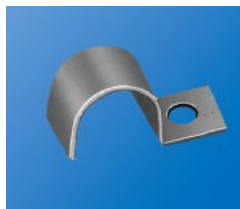


MATERIAL: .032 (.81) Steel, Zinc Plate
Cushion: Black Vinyl

CAT. NO.	D FOR DIA.	L CTR TO CTR
8121	.187 (4.7)	.406 (10.3)
8122	.250 (6.4)	.437 (11.1)
8123	.312 (7.9)	.468 (11.9)
8124	.375 (9.5)	.500 (12.7)
8125	.437 (11.1)	.531 (13.5)
8126	.500 (12.7)	.562 (14.3)
8127	.562 (14.3)	.594 (15.1)
8128	.625 (15.9)	.625 (15.9)
8129	.687 (17.4)	.656 (16.7)
8130	.750 (19.1)	.687 (17.4)
8131	.812 (20.6)	.718 (18.2)
8132	.875 (22.2)	.750 (19.1)
8133	.937 (23.8)	.781 (19.8)
8134	1.000 (25.4)	.812 (20.6)

STEEL HALF CLAMPS

Ideal for securing, grounding and routing cable, wiring, piping, tubing, components and fibre optics.

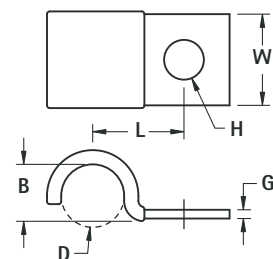


MATERIAL: Steel, Zinc Plate

CAT. NO.	D FOR DIA.	H HOLE DIA.	L CTR TO CTR	B THICK	G THICK	W WIDTH
8140	.125 (3.2)	.218 (5.5)	.437 (11.1)	.125 (3.2)	.032 (.81)	.500 (12.7)
8141	.187 (4.7)	.218 (5.5)	.437 (11.1)	.156 (4.0)		
8142	.250 (6.4)	.218 (5.5)	.437 (11.1)	.187 (4.7)		
8143	.312 (7.9)	.218 (5.5)	.500 (12.7)	.250 (6.4)	.048 (1.22)	.500 (12.7)
8144	.375 (9.5)	.218 (5.5)	.531 (13.5)	.312 (7.9)		
8145	.437 (11.1)	.218 (5.5)	.562 (14.3)	.375 (9.5)	.060 (1.52)	.625 (15.9)
8146	.500 (12.7)	.218 (5.5)	.625 (15.9)	.437 (11.1)		
8147	.562 (14.3)	.218 (5.5)	.687 (17.4)	.500 (12.7)		
8148	.625 (15.9)	.218 (5.5)	.750 (19.1)	.562 (14.3)	.060 (1.52)	.625 (15.9)
8149	.687 (17.4)	.218 (5.5)	.812 (20.6)	.625 (15.9)		
8150	.750 (19.1)	.218 (5.5)	.812 (20.6)	.687 (17.4)	.060 (1.52)	.625 (15.9)
8151	.812 (20.6)	.218 (5.5)	.875 (22.2)	.750 (19.1)		
8152	.875 (22.2)	.281 (7.1)	.937 (23.8)	.812 (20.6)		
8153	.937 (23.8)	.281 (7.1)	.968 (24.6)	.812 (20.6)	.060 (1.52)	.750 (19.1)
8154	1.000 (25.4)	.281 (7.1)	1.000 (25.4)	.937 (23.8)		

INSULATED STEEL HALF CLAMPS

Ideal for securing, insulating and routing cable, wiring, piping, tubing, components and fibre optics.



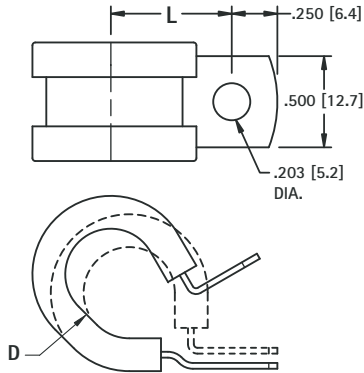
MATERIAL: Steel, Zinc Plate
Cushion: Black Vinyl

CAT. NO.	D FOR DIA.	H HOLE DIA.	L CTR TO CTR	B THICK	G THICK	W WIDTH
8160	.187 (4.7)	.218 (5.5)	.437 (11.1)	.187 (4.7)	.032 (.81)	.500 (12.7)
8161	.250 (6.4)	.218 (5.5)	.500 (12.7)	.250 (6.4)		
8162	.312 (7.9)	.218 (5.5)	.531 (13.5)	.312 (7.9)		
8163	.375 (9.5)	.218 (5.5)	.562 (14.3)	.375 (9.5)	.048 (1.22)	.625 (15.9)
8164	.437 (11.1)	.218 (5.5)	.625 (15.9)	.437 (11.1)		
8165	.500 (12.7)	.218 (5.5)	.687 (17.4)	.500 (12.7)	.060 (1.52)	.625 (15.9)
8166	.562 (14.3)	.218 (5.5)	.750 (19.1)	.562 (14.3)		
8167	.625 (15.9)	.218 (5.5)	.812 (20.6)	.625 (15.9)		
8168	.687 (17.4)	.218 (5.5)	.812 (20.6)	.687 (17.4)	.060 (1.52)	.625 (15.9)
8169	.750 (19.1)	.218 (5.5)	.875 (22.2)	.750 (19.1)		
8170	.812 (20.6)	.281 (7.1)	.937 (23.8)	.812 (20.6)		
8171	.875 (22.2)	.281 (7.1)	.968 (24.6)	.812 (20.6)	.060 (1.52)	.750 (19.1)
8172	.937 (23.8)	.281 (7.1)	1.000 (25.4)	.937 (23.8)		
8173	1.000 (25.4)	.281 (7.1)	1.062 (27.0)	1.000 (25.4)		

CUSHIONED CABLE CLAMPS



Ideal for securing in rugged applications. These cushioned cable clamps secure tightly and protect against shock and vibration.

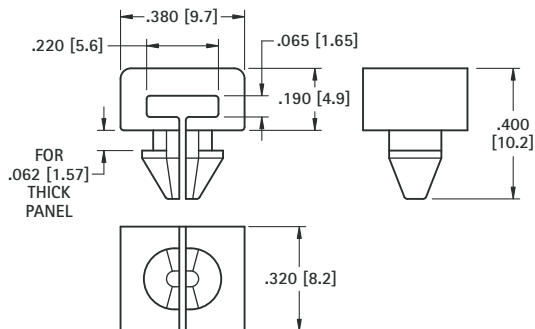


MATERIAL: .032 (0.81) Stainless Steel
Cushion: EPDM Rubber

CAT. NO.	D FOR DIA.	L CTR TO CTR
8090	.250 (6.4)	.711 (18.1)
8091	.375 (9.5)	.500 (12.7)
8092	.500 (12.7)	.562 (14.3)
8093	.625 (15.9)	.718 (18.2)
8094	.750 (19.1)	.781 (19.8)
8095	.875 (22.2)	.843 (21.4)
8096	1.000 (25.4)	.906 (23.0)

CABLE TIE ROUTING CLIP

These clips snap into PC Boards or Panel chassis and are ideal for securing cable wiring, piping, tubing, components and fibre optics when used with cable ties.



Recommended Mtg. Hole .187 (4.8) diameter.

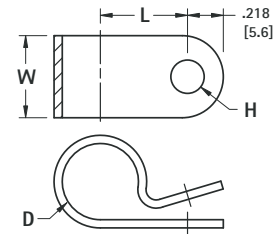
MATERIAL: Nylon 6/6, UL Rated 94V-2

CAT. NO. 8860

NYLON CABLE CLAMPS

Ideal for securing, insulating and routing cable wiring, piping, tubing, components and fibre optics.

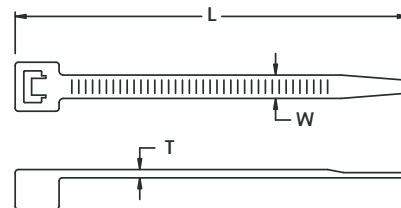
MATERIAL: .050 (1.27) Nylon 6/6, White



CAT. NO.	D FOR DIA.	L CTR TO CTR	W WIDTH	H HOLE
7620	.125 (3.2)	.325 (8.3)	.375 (9.5)	.140 (3.6)
7621	.125 (3.2)	.325 (8.3)	.375 (9.5)	.203 (5.2)
7622	.187 (4.7)	.380 (9.7)	.375 (9.5)	.140 (3.6)
7623	.187 (4.7)	.380 (9.7)	.375 (9.5)	.203 (5.2)
7624	.250 (6.4)	.410 (10.4)	.375 (9.5)	.140 (3.6)
7625	.250 (6.4)	.410 (10.4)	.375 (9.5)	.203 (5.2)
7626	.312 (7.9)	.445 (11.3)	.375 (9.5)	.140 (3.6)
7627	.312 (7.9)	.445 (11.3)	.375 (9.5)	.203 (5.2)
7628	.375 (9.5)	.475 (12.1)	.375 (9.5)	.140 (3.6)
7629	.375 (9.5)	.475 (12.1)	.375 (9.5)	.203 (5.2)
7630	.437 (11.1)	.525 (13.3)	.375 (9.5)	.140 (3.6)
7631	.437 (11.1)	.525 (13.3)	.375 (9.5)	.203 (5.2)
7632	.500 (12.7)	.550 (14.0)	.375 (9.5)	.140 (3.6)
7633	.500 (12.7)	.550 (14.0)	.375 (9.5)	.203 (5.2)
7634	.562 (14.3)	.625 (15.9)	.500 (12.7)	.203 (5.2)
7635	.625 (15.9)	.660 (16.8)	.500 (12.7)	.203 (5.2)
7636	.750 (19.1)	.785 (19.9)	.500 (12.7)	.203 (5.2)
7637	.875 (22.2)	.845 (21.5)	.500 (12.7)	.203 (5.2)
7638	1.000 (25.4)	.910 (23.1)	.500 (12.7)	.203 (5.2)
7639	1.125 (28.6)	.970 (24.6)	.500 (12.7)	.203 (5.2)
7640	1.250 (31.8)	1.060 (26.9)	.500 (12.7)	.203 (5.2)

NYLON CABLE TIES

Popular sizes and strengths to meet common cable tie requirements. Injection molded with one piece construction for strength and reliability. Easily installed by hand. Optional installation tool available, tightens and flush cuts cable tie.

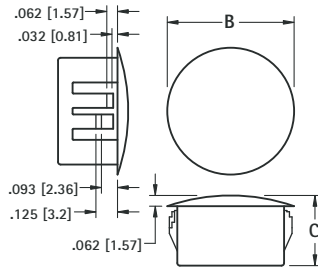
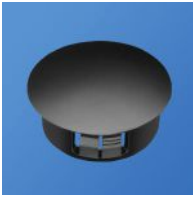


MATERIAL: Natural Nylon 6/6, UL Rated 94V-2

CAT. NO.	TENSILE STRENGTH (Min. Bundle)	FOR BUNDLE DIA. (Max.)	L LENGTH (Approx.)	W WIDTH (Approx.)	T THICKNESS (Approx.)
8865	18 lbs	1.000 (25.4)	4.250 (108.0)	.100 (2.54)	.045 (1.14)
8866	18 lbs	2.000 (50.8)	8.000 (203.2)	.100 (2.54)	.045 (1.14)
8867	40 lbs	1.250 (31.8)	6.000 (152.4)	.140 (3.56)	.050 (1.27)
8868	50 lbs	1.750 (44.5)	7.500 (190.5)	.190 (4.83)	.055 (1.40)
8869	120 lbs	4.000 (101.6)	14.500 (368.3)	.190 (4.83)	.055 (1.40)
8870	Hand Operated Cable Tie Installation Tool for 18lb to 50lb Ties				

NYLON HOLE PLUGS

Closes unused chassis holes quickly and economically. Plugs are abrasion and vibration resistant.

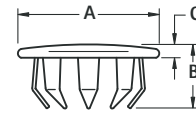


MATERIAL: Nylon 6/6, Matte Finish, Black

CAT. NO.	HOLE DIAMETER	PANEL THICK MAX	B	C
8600	.250 (6.4)	.062 (1.57)	.312 (7.9)	.312 (7.9)
8601	.312 (7.9)	.062 (1.57)	.375 (9.5)	.312 (7.9)
8602	.375 (9.5)	.125 (3.2)	.468 (11.9)	.406 (10.3)
8603	.500 (12.7)	.125 (3.2)	.578 (14.7)	.406 (10.3)
8604	.625 (15.9)	.125 (3.2)	.734 (18.6)	.406 (10.3)
8605	.750 (19.1)	.125 (3.2)	.921 (23.4)	.406 (10.3)
8606	.875 (22.2)	.125 (3.2)	1.015 (25.8)	.453 (11.5)
8607	1.000 (25.4)	.125 (3.2)	1.203 (30.6)	.453 (11.5)
8608	1.125 (28.6)	.125 (3.2)	1.218 (30.9)	.453 (11.5)
8609	1.250 (31.8)	.125 (3.2)	1.375 (34.9)	.453 (11.5)
8610	1.375 (34.9)	.125 (3.2)	1.500 (38.1)	.453 (11.5)
8611	1.500 (38.1)	.125 (3.2)	1.671 (42.4)	.453 (11.5)

STEEL HOLE PLUGS

Excellent spring retention. Plugs will cover chassis holes, wiring outlets, access holes or unused openings.

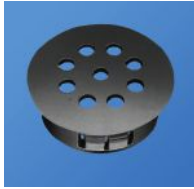


MATERIAL: Steel, Nickel Plate

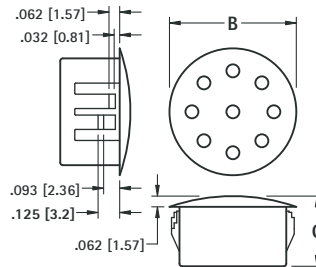
CAT. NO.	HOLE DIAMETER	PANEL THICKNESS	A	B	C	PRONGS
7600	.250 (6.4)	.031-.062 (.81-1.57)	.406 (10.3)	.234 (5.9)	.062 (1.57)	6
7601	.312 (7.9)	.047-.078 (1.19-1.98)	.437 (11.1)	.250 (6.4)	.062 (1.57)	6
7602	.375 (9.5)	.047-.062 (1.19-1.57)	.500 (12.7)	.234 (5.9)	.062 (1.57)	6
7603	.500 (12.7)	.031-.062 (.81-1.57)	.656 (16.7)	.281 (7.1)	.078 (1.98)	8
7604	.625 (15.9)	.062-.093 (1.57-2.36)	.812 (20.6)	.296 (7.5)	.078 (1.98)	8
7605	.750 (19.1)	.062-.093 (1.5-2.36)	.921 (23.4)	.296 (7.5)	.078 (1.98)	12
7606	.875 (22.2)	.062-.093 (1.57-2.36)	1.062 (27.0)	.296 (7.5)	.062 (1.57)	12
7607	1.000 (25.4)	.062-.156 (1.57-3.9)	1.140 (29.0)	.328 (8.3)	.093 (2.36)	12
7608	1.125 (28.6)	.031-.125 (.79-3.2)	1.312 (33.3)	.343 (8.7)	.093 (2.36)	12
7609	1.250 (31.8)	.062-.093 (1.57-2.36)	1.437 (36.5)	.343 (8.7)	.093 (2.36)	12
7610	1.375 (34.9)	.031-.125 (.79-3.2)	1.562 (39.7)	.406 (10.3)	.078 (1.98)	12
7611	1.500 (38.1)	.031-.062 (.79-1.57)	1.640 (41.7)	.406 (10.3)	.093 (2.36)	12

NYLON VENT PLUGS

Used to cover chassis holes while allowing air flow for ventilation. Snaps into .032 (.81) to .125 (3.2) thick panels.



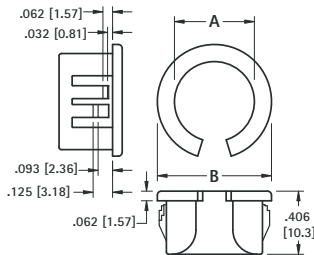
MATERIAL: Nylon 6/6, Matte Finish, Black



CAT. NO.	HOLE DIAMETER	B	C
8612	.875 (22.2)	1.015 (25.8)	.453 (11.5)
8613	1.000 (25.4)	1.218 (30.9)	.453 (11.5)

NYLON SPLIT BUSHINGS

Designed to be assembled into holes that already contain wire or cable. Versatile bushing can be used on all chassis from .032 (.81) to .125 (3.2).

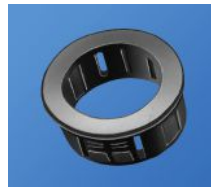


MATERIAL: Nylon 6/6, Black

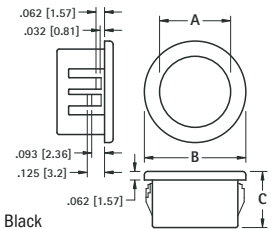
CAT. NO.	HOLE SIZE REQUIRED	A INSIDE DIAMETER	B HEAD DIAMETER
8490	.375 (9.5)	.265 (6.7)	.421 (10.7)
8491	.500 (12.7)	.312 (7.9)	.562 (14.3)
8492	.562 (14.3)	.390 (9.9)	.640 (16.3)
8493	.625 (15.9)	.453 (11.5)	.687 (17.4)
8494	.750 (19.1)	.546 (13.9)	.796 (20.2)
8495	.875 (22.2)	.671 (17.0)	.921 (23.4)
8496	1.000 (25.4)	.796 (20.2)	1.062 (27.0)

NYLON INSULATING BUSHINGS

Snaps into panel hole to provide protection for wire, cable and tubing from sharp uneven edges.



MATERIAL: Nylon 6/6, Black



CAT. NO.	HOLE SIZE REQUIRED	MAXIMUM CHASSIS THICKNESS	A INSIDE DIAMETER	B HEAD DIAMETER	C OVERALL HEIGHT
8470	.250 (6.4)	.062 (1.57)	.125 (3.2)	.312 (7.9)	.312 (7.9)
8471	.312 (7.9)	.062 (1.57)	.187 (4.7)	.375 (9.5)	.312 (7.9)
8472	.375 (9.5)	.125 (3.2)	.250 (6.4)	.468 (11.9)	.406 (10.3)
8473	.437 (11.1)	.125 (3.2)	.312 (7.9)	.531 (13.5)	.406 (10.3)
8474	.500 (12.7)	.125 (3.2)	.375 (9.5)	.578 (14.7)	.406 (10.3)
8475	.562 (14.3)	.125 (3.2)	.437 (11.1)	.656 (16.7)	.406 (10.3)
8476	.625 (15.9)	.125 (3.2)	.500 (12.7)	.718 (18.2)	.406 (10.3)
8477	.750 (19.1)	.125 (3.2)	.562 (14.3)	.843 (21.4)	.406 (10.3)
8478	.875 (22.2)	.125 (3.2)	.625 (15.9)	.953 (24.2)	.453 (11.5)
8479	1.000 (25.4)	.125 (3.2)	.750 (19.1)	1.125 (28.6)	.453 (11.5)
8480	1.187 (30.1)	.125 (3.2)	.937 (23.8)	1.312 (33.3)	.453 (11.5)
8481	1.250 (31.8)	.125 (3.2)	.937 (23.8)	1.359 (34.5)	.453 (11.5)
8482	1.375 (34.9)	.125 (3.2)	1.000 (25.4)	1.468 (37.3)	.453 (11.5)
8483	1.500 (38.1)	.125 (3.2)	1.062 (27.0)	1.609 (40.9)	.453 (11.5)
8484	1.750 (44.5)	.125 (3.2)	1.375 (34.9)	1.875 (47.6)	.453 (11.5)
8485	2.000 (50.8)	.125 (3.2)	1.625 (41.3)	2.125 (54.0)	.453 (11.5)
8486	2.500 (63.5)	.250 (6.4)	1.968 (50.0)	2.656 (67.5)	.718 (18.2)

ANTI-VIBRATION GROMMETS

Anti-Vibration grommets are designed for noise suppression in office or lab equipment. Additionally, they isolate sensitive instrumentation from unpredictable vibration and shock. The

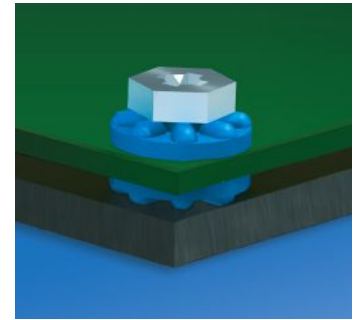
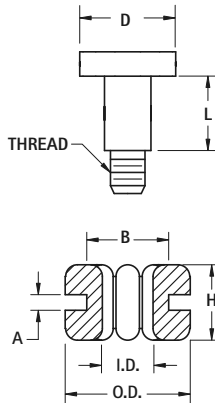
fingers of the grommets provide the flex needed to dampen unwanted noise and vibration. Specially designed shoulder screws are designed to provide the correct spacing.



ROUND HEAD

HEX HEAD

Screw supplied unassembled



MATERIAL:
Isolator: EPDM Rubber
Shoulder Screw: Steel, Nickel Plate

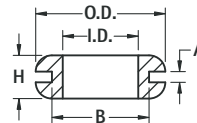
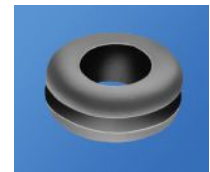
BLACK CAT. NO.	BLUE CAT. NO.	O.D. OUTSIDE DIAMETER	I.D. INSIDE DIAMETER	H HEIGHT	A PANEL THICK	B MTG. HOLE	SHOULDER SCREW			
							LENGTH (L)	THREAD	D	HEAD
765	766	.379 (9.6)	.154 (3.9)	.228 (5.8)	.063 (1.6)	.250 (6.4)	.189 (4.8)	6-32	.250 (6.4)	Hex
769	770	.377 (9.6)	.161 (4.1)	.298 (7.6)	.125 (3.2)	.250 (6.4)	.252 (6.4)	6-32	.300 (7.6)	
775	776	.551 (14.0)	.191 (4.9)	.319 (8.1)	.063 (1.6)	.375 (9.5)	.318 (8.0)	6-32	.394 (10.0)	Round
767	768	.379 (9.6)	.154 (3.9)	.228 (5.8)	.047 (1.2)	.250 (6.4)	.197 (5.0)	M3	.394 (10.0)	
771	772	.411 (11.2)	.181 (4.6)	.209 (5.3)	.031 (0.8)	.315 (8.0)	.197 (5.0)	M3	.394 (10.0)	
773	774	.551 (14.0)	.191 (4.9)	.291 (7.4)	.047 (1.2)	.375 (9.5)	.252 (6.4)	M3	.394 (10.0)	

RUBBER GROMMETS

CAT. NO.	I.D. INSIDE DIAMETER	B MTG. HOLE	A PANEL THICKNESS	O.D. OUTSIDE DIAMETER	H HEIGHT
730	.125 (3.2)	.187 (4.7)	.062 (1.57)	.312 (7.9)	.187 (4.7)
733	.125 (3.2)	.250 (6.4)	.062 (1.57)	.343 (8.7)	.187 (4.7)
734	.125 (3.2)	.437 (11.1)	.062 (1.57)	.625 (15.9)	.187 (4.7)
735	.125 (3.2)	.375 (9.5)	.093 (2.36)	.500 (12.7)	.312 (7.9)
736	.187 (4.7)	.312 (7.9)	.062 (1.57)	.437 (11.1)	.218 (5.5)
737	.187 (4.7)	.281 (7.2)	.093 (2.36)	.437 (11.1)	.218 (5.5)
738	.250 (6.4)	.437 (11.1)	.062 (1.57)	.625 (15.9)	.187 (4.7)
739	.250 (6.4)	.375 (9.5)	.062 (1.57)	.562 (14.3)	.250 (6.4)
740	.250 (6.4)	.375 (9.5)	.093 (2.36)	.500 (12.7)	.250 (6.4)
741	.312 (7.9)	.562 (14.3)	.062 (1.57)	.812 (20.6)	.312 (7.9)
742	.312 (7.9)	.437 (11.1)	.062 (1.57)	.625 (15.9)	.281 (7.1)
743	.312 (7.9)	.437 (11.1)	.093 (2.36)	.625 (15.9)	.312 (7.9)
744	.375 (9.5)	.625 (15.9)	.062 (1.57)	.875 (22.2)	.312 (7.9)
745	.375 (9.5)	.500 (12.7)	.062 (1.57)	.625 (15.9)	.250 (6.4)
732	.437 (11.1)	.562 (14.3)	.062 (1.57)	.750 (19.1)	.250 (6.4)
746	.437 (11.1)	.687 (17.4)	.062 (1.57)	.937 (23.8)	.312 (7.9)
747	.500 (12.7)	.812 (20.6)	.062 (1.57)	1.062 (27.0)	.312 (7.9)
748	.500 (12.7)	1.250 (31.8)	.062 (1.57)	1.500 (38.1)	.250 (6.4)
749	.500 (12.7)	.750 (19.1)	.093 (2.36)	.968 (24.6)	.281 (7.1)
750	.562 (14.3)	.812 (20.6)	.062 (1.57)	1.062 (27.0)	.312 (7.9)
752	.625 (15.9)	.875 (22.2)	.062 (1.57)	1.125 (28.6)	.312 (7.9)
753	.625 (15.9)	1.250 (31.8)	.062 (1.57)	1.500 (38.1)	.250 (6.4)
755	.750 (19.1)	1.062 (27.0)	.062 (1.57)	1.375 (34.9)	.375 (9.5)
756	.750 (19.1)	1.437 (36.5)	.062 (1.57)	1.812 (46.0)	.375 (9.5)
757	.875 (22.2)	1.250 (31.8)	.062 (1.57)	1.625 (41.3)	.437 (11.1)

Ideal for electrical insulation and mechanical damping.

MATERIAL: Rubber, BUNA N

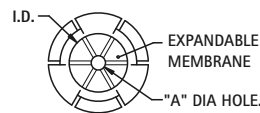
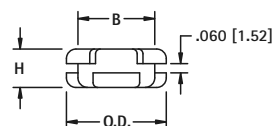


"UNIVERSAL" RUBBER GROMMET

- Designed to adjust to different cable diameters from .125 (3.2) to .312 (7.9)
- Self-adjusting membrane forms a dust resistant seal

MATERIAL: Thermoplastic Rubber, Black

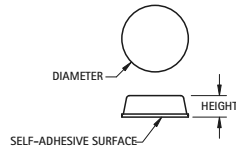
CAT. NO.	O.D. OUTSIDE	I.D. INSIDE DIA.	A DIA. HOLE	B MTG HOLE	H HEIGHT
777	.650 (16.32)	.380 (9.7)	.090 (2.3)	.500 (12.7)	.250 (6.4)
778	1.25 (31.8)	.810 (20.6)	.160 (4.0)	1.000 (25.4)	.370 (9.4)



ADHESIVE BUMPERS

Applies quickly and easily. Prevents nicks, scratches, scuffs, vibration, slippage and noise. Easy peel and stick mounting. Crack resistant. High coefficient of friction. Sold in sheets.

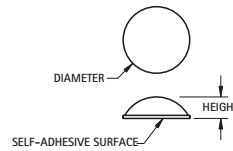
FLAT



MATERIAL: Molded Polyurethane

BLACK CAT. NO.	CLEAR CAT. NO.	DIAMETER	HEIGHT	PARTS/SHEET
780-B	780-C	.375 (9.5)	.125 (3.2)	300
781-B	781-C	.500 (12.7)	.060 (1.5)	200
782-B	782-C	.500 (12.7)	.140 (3.6)	200

DOMED



MATERIAL: Molded Polyurethane

BLACK CAT. NO.	CLEAR CAT. NO.	DIAMETER	HEIGHT	PARTS/SHEET
783-B	783-C	.250 (6.4)	.062 (1.6)	578
784-B	784-C	.335 (8.5)	.085 (2.2)	450
785-B	785-C	.440 (11.2)	.200 (5.1)	242

RECESSED BUMPERS

Provides excellent traction and shock absorbing qualities. available with or without Mold-in Washers.

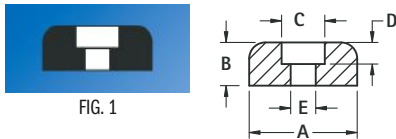
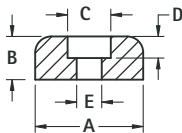


FIG. 1



MATERIAL: Rubber, BUNA S (Figs. 1 & 2), EPDN

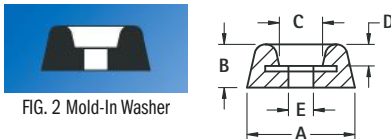
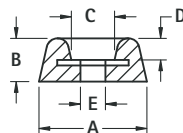


FIG. 2 Mold-In Washer



MATERIAL: Rubber, BUNA S (Figs. 1 & 2), EPDN

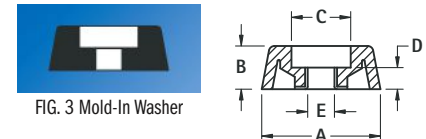
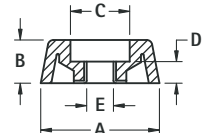


FIG. 3 Mold-In Washer



MATERIAL: EPDN Rubber

CAT. NO.	FIG.	A	B	C	D	E	SCREW SIZE
720	1	.500 (12.7)	.250 (6.4)	.250 (6.4)	.187 (4.7)	.125 (3.2)	# 4
721	1	.625 (15.9)	.312 (7.9)	.250 (6.4)	.187 (4.7)	.125 (3.2)	# 4
722	1	.718 (18.2)	.437 (11.1)	.250 (6.4)	.218 (5.5)	.125 (3.2)	# 4
723	2	.937 (23.8)	.375 (9.5)	.375 (9.5)	.218 (5.5)	.187 (4.7)	# 8
724*	3	.687 (17.4)	.250 (6.4)	.343 (8.7)	.125 (3.2)	.155 (3.9)	# 6
725*	3	.875 (22.2)	.312 (7.9)	.406 (10.3)	.187 (4.7)	.187 (4.7)	# 8
726*	3	1.062 (27.0)	.437 (11.1)	.468 (11.9)	.234 (5.9)	.200 (5.1)	# 10
727	3	.562 (14.3)	.375 (9.5)	.218 (5.5)	.187 (4.7)	.115 (2.9)	# 4
728	3	.750 (19.1)	.437 (11.1)	.265 (6.7)	.250 (6.4)	.148 (3.8)	# 6
729	3	.937 (23.8)	.625 (15.9)	.359 (9.1)	.328 (8.3)	.174 (4.4)	# 8

*Grey - all others Black

SELF-LOCKING BUMPER FOOT



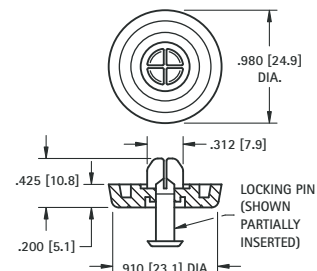
MATERIAL:

Foot: Santoprene, Black **Pin:** Polypropylene, Black

Mounting Hole: .305 (7.8) diameter

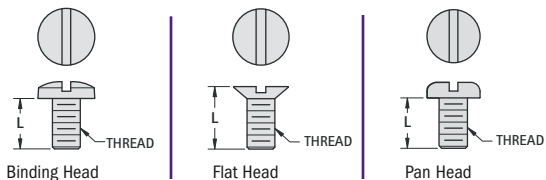
CAT. NO. 717

- A unique easy-to-install self-locking bumper foot
- Two piece assembly, furnished pre-assembled
- Vibration absorbing and skid resistant
- Mounts without screws or tools



MACHINE SCREWS

Choice of: Steel, Zinc Plate • Nylon: 6/6, UL Rated 94V-2



PAN HEAD METRIC		
STEEL CAT. NO.	L	NYLON 6/6 CAT. NO.
M2.5 THREAD		
29300	4.00	29330
29301	6.00	29331
29304	12.00	29334
29306	16.00	29336
M3 THREAD		
29311	6.00	29341
29314	12.00	29344
29316	16.00	29346
29318	25.00	29348
M4 THREAD		
29321	6.00	29351
29324	12.00	29354
29326	16.00	29356
29328	25.00	29358

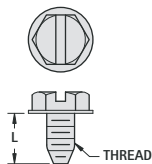
THREAD	LENGTH	BINDING HEAD		FLAT HEAD		PAN HEAD		
		STEEL CAT. NO.	NYLON CAT. NO.	STEEL CAT. NO.	NYLON CAT. NO.	STEEL CAT. NO.	NYLON CAT. NO.	
2-56	.250 (6.4)	9455	—	9555	—	9355	—	
	.500 (12.7)	9456	—	9556	—	9356	—	
	.750 (19.1)	9457	—	9557	—	9357	—	
4-40	.250 (6.4)	9400	9427	9500	9527	9300	9327	
	.375 (9.5)	9401	9428	9501	9528	9301	9328	
	.500 (12.7)	9402	9429	9502	9529	9302	9329	
	.625 (15.9)	9403	9430	9503	9530	9303	9330	
	.750 (19.1)	9404	9431	9504	9531	9304	9331	
	1.000 (25.4)	9405	9432	9505	9532	9305	9332	
	2.000 (50.8)	9406	9433	9506	9533	9306	9333	
6-32	.250 (6.4)	9407	9434	9507	9534	9307	9334	
	.375 (9.5)	9408	9435	9508	9535	9308	9335	
	.500 (12.7)	9409	9436	9509	9536	9309	9336	
	.625 (15.9)	9410	9437	9510	9537	9310	9337	
	.750 (19.1)	9411	9438	9511	9538	9311	9338	
	1.000 (25.4)	9412	9439	9512	9539	9312	9339	
	1.250 (31.8)	9413	9440	9513	9540	9313	9340	
	2.000 (50.8)	9414	9441	9514	9541	9314	9341	
	8-32	.250 (6.4)	9416	9443	9516	9543	9316	9343
		.375 (9.5)	9417	9444	9517	9544	9317	9344
.500 (12.7)		9418	9445	9518	9545	9318	9345	
.625 (15.9)		9419	9446	9519	9546	9319	9346	
.750 (19.1)		9420	9447	9520	9547	9320	9347	
1.000 (25.4)		9421	9448	9521	9548	9321	9348	
1.250 (31.8)		9422	9449	9522	9549	9322	9349	
10-32	.500 (12.7)	9423	9450	9523	9550	9323	9350	
	.750 (19.1)	9424	9451	9524	9551	9324	9351	
	1.000 (25.4)	9425	9452	9525	9552	9325	9352	
	1.500 (38.1)	9426	9453	9526	9553	9326	9353	
	2.000 (50.8)	9427	9454	9527	9554	9327	9354	

SELF TAPPING SCREWS



• Slotted drive, hex head

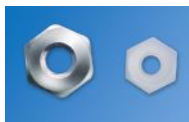
Highly versatile screw, used in wood, fiberglass and metal where machine thread inserts are not furnished.



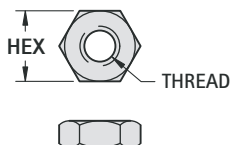
THREAD	LENGTH	CAT. NO.
No. 4	.375 (9.5)	9575
	.500 (12.7)	9576
	.750 (19.1)	9577
No. 6	.375 (9.5)	9578
	.500 (12.7)	9579
No. 8	.375 (9.5)	9580
	.500 (12.7)	9581

MATERIAL: Steel, Zinc Plate (Non-RoHS Compliant)
Note: RoHS Compliant finishes available on special order

HEX MACHINE NUTS



MATERIAL: Nylon 6/6 UL Rated 94V-2
Steel, Zinc Plate



IMPERIAL			
STEEL CAT. NO.	NYLON CAT. NO.	HEX	THREAD
4694	—	.187 (4.7)	4-40
9600	9605	.250 (6.4)	6-32
4701	—	.250 (6.4)	8-32
9602	9606	.312 (7.9)	10-32
9603	—	.250 (6.4)	10-32
9604	9607	.312 (7.9)	10-32
4705	9608	.375 (9.5)	.250-28
4713	—	.430 (10.9)	.250-28
4716	—	.500 (12.7)	.312-24

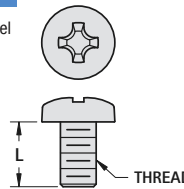
METRIC			
STEEL CAT. NO.	NYLON CAT. NO.	HEX	THREAD
4707	4687	5.00 mm	M2.5
4708	4688	5.50 mm	M3
4709	4689	7.00 mm	M4

STAINLESS STEEL PAN HEAD SCREWS

Phillips drive pan head machine screws.



MATERIAL: Stainless Steel

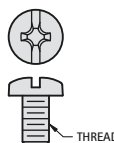


CAT. NO.	L LENGTH	THREAD
9900	.250 (6.4)	4-40
9901	.375 (9.5)	
9902	.500 (12.7)	
9903	.250 (6.4)	6-32
9904	.375 (9.5)	
9905	.500 (12.7)	8-32
9906	.375 (9.5)	
9907	.500 (12.7)	
9908	.750 (19.1)	
9909	.375 (9.5)	10-32
9910	.500 (12.7)	
9911	.750 (19.1)	

BINDING HEAD SCREWS – COLORED HEAD



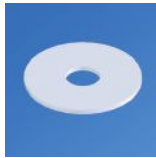
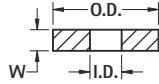
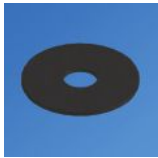
Ideal for quick identification of screw terminal. Reduces errors in wiring of cables. See pages 73-77 for screw terminals with colored screws installed. Only head is painted, provides reliable electrical contact to terminal.



MATERIAL: Brass, Nickel Plate with Painted Color Head

M4 x 6.3mm L	M3 x 6mm L	HEAD COLOR	6-32 x .250 (6.3) L
CAT. NO.	CAT. NO.		CAT. NO.
7799-1	7689-1	NICKEL	8190-1
9192-2	9191-2	RED	9190-2
9192-3	9191-3	BLACK	9190-3
9192-4	9191-4	WHITE	9190-4
9192-5	9191-5	BLUE	9190-5
9192-6	9191-6	GREEN	9190-6
9192-7	9191-7	YELLOW	9190-7

FLAT WASHERS – NYLON & FIBRE



MATERIAL:

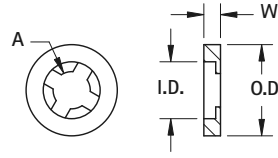
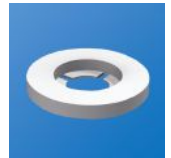
Fibre: Commercial Grade per ASTM D710 **Nylon:** Grade 6/6 per ASTM D4066

MATERIAL	I.D.	O.D.	W THICKNESS		
			.032 (.81)	.047 (1.19)	.062 (1.57)
			CAT. NO.	CAT. NO.	CAT. NO.
FIBRE	.098 (2.49) #2	.187 (4.8)	3111	3148	3366
		.250 (6.4)	3112	3149	3367
		.312 (7.9)	3113	3150	3194
NYLON	.098 (2.49) #2	.187 (4.8)	3114	3151	3356
		.250 (6.4)	3347*	3152	3357*
		.312 (7.9)	3115	3153	3195
FIBRE	.120 (3.05) #4	.250 (6.4)	3116	3154	3368
		.312 (7.9)	348	3155	3196
		.375 (9.5)	3117	3156	3197
NYLON	.120 (3.05) #4	.250 (6.4)	3348	345	3358
		.312 (7.9)	3359	3157	3198
		.375 (9.5)	3118	3158	3200
FIBRE	.140 (3.56) #6	.250 (6.4)	3119	3159	3369
		.312 (7.9)	3120	3160	3370
		.375 (9.5)	3121	3161	3201
NYLON	.140 (3.56) #6	.250 (6.4)	3122	3162	3360
		.312 (7.9)	3349	346	3361
		.375 (9.5)	3123	3163	3202
FIBRE	.171 (4.34) #8	.312 (7.9)	3124	3164	3203
		.375 (9.5)	3125	3165	3372
		.437 (11.1)	3126	3166	3204
NYLON	.171 (4.34) #8	.312 (7.9)	3127	3167	3205
		.375 (9.5)	3350	3168	3363
		.437 (11.1)	3128	3169	3206
FIBRE	.196 (4.98) #10	.312 (7.9)	349	3170	3207
		.375 (9.5)	3129	3171	3208
		.437 (11.1)	3130	3172	3209
NYLON	.196 (4.98) #10	.500 (12.7)	3131	3173	3210
		.312 (7.9)	3364	3174	3211
		.375 (9.5)	3352	3175	3212
FIBRE	.260 (6.60) 1/4"	.437 (11.1)	3132	3176	3213
		.500 (12.7)	3133	3177	3214
		.437 (11.1)	3134	3178	3215
NYLON	.260 (6.60) 1/4"	.500 (12.7)	3135	3179	3373
		.625 (15.9)	3136	3180	3216
		.750 (19.1)	3137	3181	3217
FIBRE	.385 (9.65) 3/8"	.437 (11.1)	3138	3182	3218
		.500 (12.7)	3353	3183	3365
		.625 (15.9)	3139	3184	3219
NYLON	.385 (9.65) 3/8"	.750 (19.1)	3140	3185	3220
		1.000 (25.4)	3141	3186	3221
		.500 (12.7)	3142	3187	3222
FIBRE	.750 (19.1) 3/8"	.625 (15.9)	3143	3188	3223
		1.000 (25.4)	3144	3189	3224
		.500 (12.7)	3145	3190	3225
NYLON	.750 (19.1) 3/8"	.625 (15.9)	3354	3191	3226
		1.000 (25.4)	3146	3192	3227
		1.000 (25.4)	3147	3193	3228

* .090 (2.3) I.D.

NYLON RETAINING WASHERS

Retaining Washers are similar to our standard washers, but with a specially configured ID designed to grip the screw shank. The washer remains attached to the screw, for quick, easy assembly.

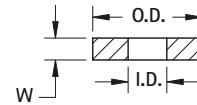
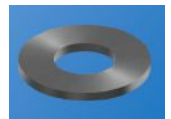


MATERIAL:

Nylon, 6/6 UL Rated 94V-0

W THICKNESS		A	I.D.	O.D.	SCREW SIZE
.032 (0.81)	.062 (1.57)				
CAT. NO.	CAT. NO.				
2244	2284	.115 (2.9)	.078 (1.9)	.203 (5.2)	#2 (M2)
2245	2285	.156 (3.9)	.102 (2.6)	.256 (6.7)	#4
2246	2286	.198 (5.0)	.128 (3.3)	.328 (8.3)	#6 (M3.5)
2247	2287	.235 (5.9)	.152 (3.8)	.390 (9.9)	#8 (M4)
2248	—	.235 (5.9)	.135 (3.4)	.390 (9.9)	#8 (M4)
2249	—	.227 (7.0)	.177 (4.5)	.453 (11.5)	#10
—	2290	.227 (7.0)	.177 (4.5)	.500 (12.7)	#10
—	2291	.227 (7.0)	.177 (4.5)	.630 (16.0)	#10
2252	2292	.375 (9.5)	.234 (5.9)	.593 (15.1)	1/4" (M6)
2253	2293	.564 (14.3)	.350 (8.9)	.890 (22.6)	3/8"

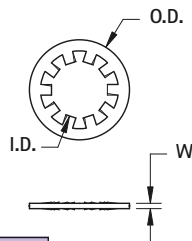
STEEL FLAT WASHERS



MATERIAL: Steel, Zinc Plate

CAT. NO.	I.D.	O.D.	W	SCREW SIZE
4692	.128 (3.3)	.281 (7.1)	.025 (.63)	#4 (M3)
7235-1	.120 (3.1)	.220 (5.6)	.032 (.81)	#4 (M3)
4699	.147 (3.7)	.373 (9.5)	.031 (.80)	#6 (M3.5)
4703	.200 (5.1)	.436 (11.1)	.033 (.84)	#10 (M4)
1719-1	.391 (9.9)	1.500 (38.1)	.094 (2.4)	3/8"

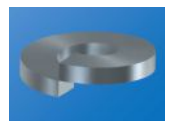
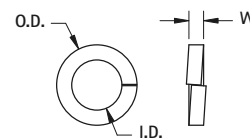
INTERNAL TOOTH WASHERS



MATERIAL: Phosphor Bronze - Nickel Plate

CAT. NO.	I.D.	O.D.	W	SCREW SIZE
11360-4	.120 (3.1)	.265 (6.7)	.017 (.43)	#4 (M3)
11362-5	.226 (5.7)	.402 (10.2)	.020 (.51)	#12 (M5)
4691	.261 (6.6)	.469 (11.9)	.025 (.63)	1/4" (M6)

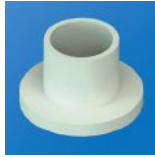
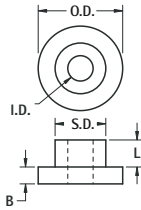
STEEL LOCK WASHERS



MATERIAL: Steel, Zinc Plate

CAT. NO.	I.D.	O.D.	W	SCREW SIZE
4693	.117 (3.0)	.205 (5.2)	.031 (.78)	#4 (M3)
7235-2	.117 (3.0)	.197 (5.0)	.025 (.63)	#4 (M3)
4700	.144 (3.7)	.250 (6.4)	.033 (.84)	#6 (M3.5)
1477	.195 (5.0)	.320 (8.1)	.047 (1.2)	#10 (M4)
1476	.256 (6.5)	.479 (12.2)	.074 (1.9)	1/4" (M6)
1485	.321 (8.2)	.586 (14.8)	.078 (2.0)	5/16" (M8)

NYLON SHOULDER WASHER/BUSHINGS

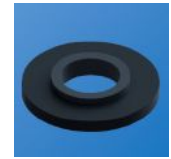
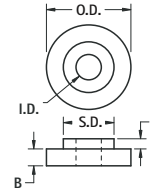


MATERIAL: Nylon 6/6 per ASTM D4066

CAT. NO.	L	O.D.	B	I.D.	S.D.	SCREW SIZE
7680	.025 (.64)	.260 (6.6)	.030 (.76)	.095 (2.4)	.154 (3.9)	#2
3051	.125 (3.2)	.181 (4.6)	.047 (1.2)	.090 (2.3)	.120 (3.1)	
3101	.187 (4.8)	.181 (4.6)	.047 (1.2)	.090 (2.3)	.120 (3.1)	
3052	.250 (6.4)	.181 (4.6)	.047 (1.2)	.090 (2.3)	.120 (3.1)	
3049*	.031 (.79)	.218 (5.5)	.040 (1.0)	.115 (2.9)	.135 (3.4)	#4
7681	.047 (1.2)	.250 (6.4)	.032 (.81)	.115 (2.9)	.185 (4.7)	
3053	.093 (2.4)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
3102	.125 (3.2)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
3103	.187 (4.7)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
340	.250 (6.4)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
7682	.032 (.81)	.385 (9.8)	.062 (1.6)	.145 (3.7)	.240 (6.1)	#6
7683	.032 (.81)	.250 (6.4)	.062 (1.6)	.140 (3.6)	.187 (4.7)	
7684	.032 (.81)	.312 (7.9)	.062 (1.6)	.140 (3.6)	.187 (4.7)	
3054	.125 (3.2)	.290 (7.4)	.047 (1.2)	.140 (3.6)	.170 (4.3)	
3104	.187 (4.7)	.290 (7.4)	.047 (1.2)	.140 (3.6)	.170 (4.3)	
341	.250 (6.4)	.290 (7.4)	.047 (1.2)	.140 (3.6)	.170 (4.3)	
3055	.500 (12.7)	.290 (7.4)	.047 (1.2)	.140 (3.6)	.170 (4.3)	
7685	.032 (.81)	.375 (9.5)	.032 (.81)	.171 (4.3)	.250 (6.4)		#8
3056	.140 (3.6)	.344 (8.7)	.062 (1.6)	.171 (4.3)	.205 (5.2)	
3105	.250 (6.4)	.344 (8.7)	.062 (1.6)	.171 (4.3)	.205 (5.2)	
342	.375 (9.5)	.344 (8.7)	.062 (1.6)	.171 (4.3)	.205 (5.2)	
3106	.500 (12.7)	.344 (8.7)	.062 (1.6)	.171 (4.3)	.205 (5.2)	#10
7686	.032 (.81)	.375 (9.5)	.062 (1.6)	.196 (5.0)	.308 (7.8)	
3107	.093 (2.4)	.438 (11.1)	.062 (1.6)	.200 (5.1)	.260 (6.6)	
3108	.250 (6.4)	.399 (10.1)	.062 (1.6)	.200 (5.1)	.260 (6.6)	
3057	.500 (12.7)	.399 (10.1)	.062 (1.6)	.200 (5.1)	.260 (6.6)	
3058	.750 (19.1)	.399 (10.1)	.062 (1.6)	.200 (5.1)	.260 (6.6)	
7687	.032 (.81)	.437 (11.1)	.032 (.81)	.253 (6.4)	.310 (7.9)	.250-20
7688	.078 (2.0)	.492 (12.7)	.032 (.81)	.260 (6.7)	.312 (7.9)	
3059	.187 (4.7)	.513 (13.0)	.062 (1.6)	.260 (6.7)	.312 (7.9)	
3109	.250 (6.4)	.513 (13.0)	.062 (1.6)	.260 (6.7)	.312 (7.9)	
3110	.375 (9.5)	.513 (13.0)	.062 (1.6)	.260 (6.7)	.312 (7.9)	
3060	.500 (12.7)	.513 (13.0)	.062 (1.6)	.260 (6.7)	.312 (7.9)	

* Black

FIBRE SHOULDER WASHERS



MATERIAL: Fibre, Commercial Grade per ASTM D710

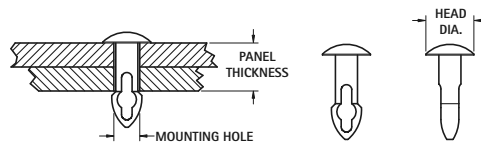
CAT. NO.	L	O.D.	B	I.D.	S.D.	SCREW SIZE
3229	.025 (.64)	.250 (6.4)	.047 (1.2)	.093 (2.4)	.123 (3.1)	#2
3061	.025 (.64)	.250 (6.4)	.047 (1.2)	.093 (2.4)	.156 (4.0)	
344	.015 (.38)	.312 (7.9)	.062 (1.6)	.125 (3.2)	.203 (5.2)	#4
343	.025 (.64)	.312 (7.9)	.062 (1.6)	.125 (3.2)	.203 (5.2)	
3062	.031 (.79)	.250 (6.4)	.031 (.79)	.115 (2.9)	.187 (4.7)	
3230	.031 (.79)	.281 (7.1)	.062 (1.6)	.115 (2.9)	.175 (4.4)	
3231	.031 (.79)	.312 (7.9)	.062 (1.6)	.120 (3.1)	.180 (4.6)	#6
4698	.031 (.79)	.250 (6.4)	.062 (1.6)	.140 (3.6)	.187 (4.7)	
3064	.031 (.79)	.312 (7.9)	.062 (1.6)	.140 (3.6)	.187 (4.7)	
3232	.031 (.79)	.375 (9.5)	.062 (1.6)	.140 (3.6)	.210 (5.3)	
3233	.031 (.79)	.375 (9.5)	.062 (1.6)	.140 (3.6)	.240 (6.1)	
3234	.031 (.79)	.500 (12.7)	.062 (1.6)	.140 (3.6)	.240 (6.1)	
3065	.031 (.79)	.375 (9.5)	.062 (1.6)	.170 (4.3)	.246 (6.2)	#8
3066	.031 (.79)	.417 (10.6)	.062 (1.6)	.170 (4.3)	.210 (5.3)	
3235	.031 (.79)	.312 (7.9)	.062 (1.6)	.170 (4.3)	.218 (5.5)	
3236	.031 (.79)	.375 (9.5)	.062 (1.6)	.170 (4.3)	.215 (5.5)	
3237	.031 (.79)	.500 (12.7)	.062 (1.6)	.170 (4.3)	.240 (6.1)	
4702	.031 (.79)	.375 (9.5)	.062 (1.6)	.194 (4.9)	.308 (7.8)	
3238	.031 (.79)	.375 (9.5)	.062 (1.6)	.194 (4.9)	.240 (6.1)	#10
3239	.031 (.79)	.500 (12.7)	.062 (1.6)	.196 (5.0)	.240 (6.1)	
4711	.031 (.79)	.500 (12.7)	.062 (1.6)	.253 (6.4)	.308 (7.8)	
3240	.031 (.79)	.625 (15.9)	.062 (1.6)	.265 (6.7)	.359 (9.1)	.250-20
3069	.031 (.79)	.625 (15.9)	.062 (1.6)	.385 (9.8)	.498 (12.6)	.375-24
3241	.031 (.79)	.750 (19.1)	.062 (1.6)	.385 (9.8)	.498 (12.6)	

WASHERS & CLIPS

KEY HOLE CLIPS



- Key hole design allows for easy installation of the fastener
- Can be hand installed, no tooling required
- One piece design, can be removed and reused with no missing parts
- Bullet tip helps to align panels during the assembly process
- Tapered locking shank provide a tight fit between the two panels
- Domed head provides a clean appearance to top panel



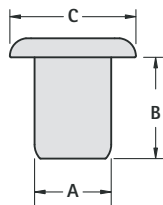
MATERIAL: Nylon 6/6 UL Rated 94V-2, Black

CAT. NO.	PANEL THICKNESS	HOLE SIZE	HEAD DIA.
3300	.093 (2.4)	.125 (3.2)	.250 (6.4)
3301	.125 (3.2)		
3302	.156 (4.0)		
3303	.187 (4.8)		
3305	.250 (6.4)		
3310	.093 (2.4)	.158 (4.0)	.312 (7.9)
3311	.125 (3.2)		
3312	.156 (4.0)		
3313	.187 (4.8)		
3315	.250 (6.4)		
3320	.125 (3.2)		
3321	.156 (4.0)	.187 (4.8)	.312 (7.9)
3322	.187 (4.8)		
3324	.250 (6.4)		
3330	.156 (4.0)		
3331	.187 (4.8)		
3333	.250 (6.4)	.219 (5.6)	.344 (8.7)
3335	.312 (7.9)		

WIDE ROLL EYELETS



A choice of the most popular sizes in use for PC board and electronic assembly applications.

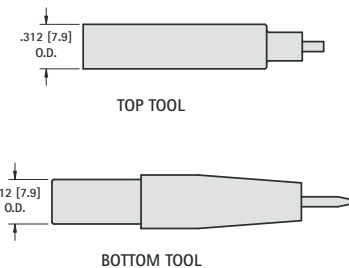


MATERIAL: Brass, Bright Electro Tin, MIL-T-10727. Other platings can be furnished.

CAT. NO.	A OUTSIDE DIAMETER BARREL	B LENGTH UNDER FLANGE	C FLANGE DIAMETER	MTG. HOLE SIZE	STAKING TOOL CAT. NO.
22		.062 (1.57)			
23		.093 (2.36)			
24	.059 (1.49) O.D.	.125 (3.18)	.105 (2.7)	.062 (1.57) USE DRILL #51	3075
25	.045 (1.14) I.D.	.156 (3.96)			
26		.187 (4.75)			
27		.219 (5.56)			
33		.093 (2.36)			
34	.089 (2.26) O.D.	.125 (3.18)	.150 (3.8)	.093 (2.36) USE DRILL #42	3076
35	.070 (1.78) I.D.	.156 (3.96)			
36		.187 (4.75)			
37		.219 (5.56)			
43		.093 (2.36)			
44		.125 (3.18)			
45	.121 (3.07) O.D.	.156 (3.96)	.200 (5.1)	.125 (3.18) USE DRILL #30	3077
46	.102 (2.59) I.D.	.187 (4.75)			
47		.219 (5.56)			
48		.250 (6.35)			
14		.125 (3.18)			
15	.152 (3.86) O.D.	.156 (3.96)	.245 (6.2)	.156 (3.96) USE DRILL 5/32"	3079
16	.132 (3.35) I.D.	.187 (4.75)			
17		.219 (5.56)			

STAKING TOOLS

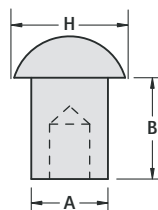
Set consisting of top and bottom tool. Made from Tool Steel and highly polished.



SEMI-TUBULAR RIVETS



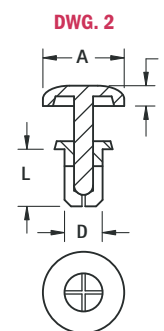
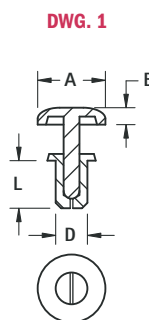
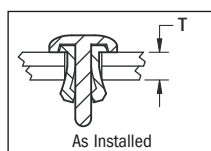
These standardized brass rivets typify the scope and variety of popular rivets that will provide faster and stronger assemblies at lower cost. We suggest you rivet and test a sample before purchasing large quantities for your application.



MATERIAL: Brass, Nickel Plate

CAT. NO.	B LENGTH UNDER HEAD	A SHANK DIAMETER	H HEAD DIAMETER	MTG. HOLE SIZE
3381	.125 (3.2)	.060 (1.55)	.109 (2.8)	.067 (1.70) Dia. USE DRILL #51
3382	.156 (3.9)			
3383	.187 (4.8)			
3384	.156 (3.9)	.087 (2.21)	.147 (3.7)	.093 (2.36) Dia. USE DRILL #42
3385	.187 (4.8)			
3386	.218 (5.5)			
3387	.250 (6.4)			
3388	.156 (3.9)			
3389	.187 (4.8)	.120 (3.06)	.218 (5.5)	.128 (3.25) Dia. USE DRILL #30
3390	.218 (5.5)			
3391	.250 (6.4)			

SNAP RIVETS



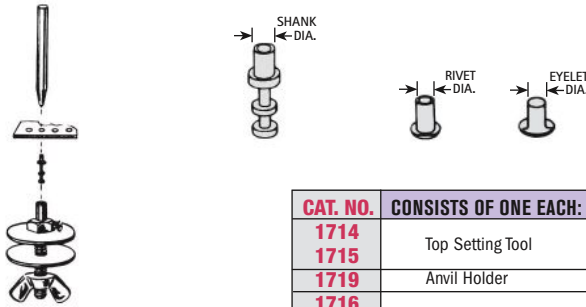
Attach panels and mounting hardware without any tooling. Leaves a clean cosmetic look once installed. Can be installed without access to underside. Removable so assembly can be easily repaired or upgraded.

MATERIAL: Nylon 6/6, UL Rated 94V-2, Black

CAT. NO.	DWG.	T PANEL THICKNESS	L RIVET LENGTH	D RIVET DIAMETER	A HEAD DIAMETER	B HEAD HEIGHT	MTG. HOLE SIZE
3440	1	.051/.079 (1.3/2.0)	.130 (3.3)	.076 (1.9)	.165 (4.2)	.047 (1.2)	.083/.087 (2.1/2.2)
3441	1	.083/.110 (2.1/2.8)	.160 (4.0)				
3442	1	.114/.142 (2.9/3.6)	.190 (4.8)				
3443	2	.118/.157 (3.0/4.0)	.220 (5.6)	.138 (3.5)	.252 (6.4)	.063 (1.6)	.142/.146 (3.6/3.7)
3444	2	.146/.181 (3.7/4.6)	.240 (6.1)				
3445	2	.177/.217 (4.5/5.5)	.280 (7.1)				
3446	2	.217/.256 (5.5/6.5)	.310 (7.9)				
3447	2	.177/.217 (4.5/5.5)	.280 (7.1)				
3448	2	.217/.256 (5.5/6.5)	.310 (7.9)	.158 (4.0)	.315 (8.0)	.071 (1.8)	.161/.165 (4.1/4.2)
3449	2	.256/.295 (6.5/7.5)	.350 (9.0)				
3450	2	.295/.335 (7.5/8.5)	.390 (10.0)				

"BASIC" STAKING KIT

This kit provides the basic components needed to stake a majority of our most popular sizes of eyelets, rivets and terminals. The unskilled operator can produce professional looking assemblies quickly and with minimal training.

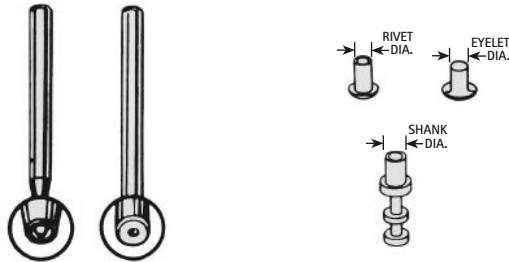


CAT. NO. 1721 COMPLETE KIT

CAT. NO.	CONSISTS OF ONE EACH:
1714	Top Setting Tool
1715	Anvil Holder
1719	Bottom Anvil

"MASTER" STAKING KIT

This kit provides all of the components needed to stake most terminals, standoffs, eyelets or rivets. This kit also includes sprung receding pins so that eyelets can be prealigned for easy assembly of components. Kit supplied in convenient plastic case for ease of use.



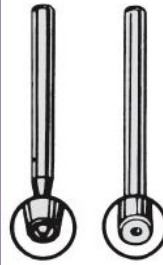
CAT. NO.	CONSISTS OF ONE EACH:
1714	Top Swaging Tool
1715	
1304	
1305	
1306	
1307	
1324	
1719	Anvil Holder
1325	Anvil for 6-32 Standoffs
1326	Anvil for Turret Terminals
1716	
1717	
1722	
1726	Anvil for Fork Turret Terminals
1315	Receding Pin - .045 (1.15) Dia.
1316	Receding Pin - .069 (1.75) Dia.
1321	Return Spring for Receding Pins

CAT. NO. 1713 COMPLETE KIT

INDIVIDUAL TOOLS

TOP SETTING TOOLS (Swager)

1/4" Diameter Tools



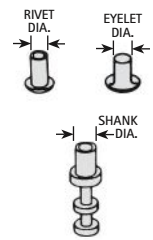
For Single End Terminals, Eyelets or Rivets

CAT. NO.	FOR SHANK DIA.
1714	.062 (1.57) to .098 (2.49)
1715	.110 (2.8) to .125 (3.2)
1328	.130 (3.3) to .140 (3.6)
1324	.180 (4.5) to .190 (4.8)

For Double End (Feed-Thru)

Hole in tool fits over Pin head and securely stakes the rivet part of terminal.

CAT. NO.	FOR PIN ON RIVET END
1304	.051 (1.30) Hole Dia.
1305	.063 (1.60) Hole Dia.
1306	.073 (1.85) Hole Dia.
1307	.086 (1.49) Hole Dia.
1324	.098 (2.49) Hole Dia.

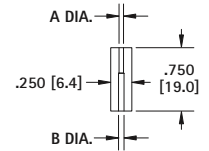


BOTTOM ANVILS

For Single End Terminals or Double End Terminals

Anvils have different size holes in each end therefore will accept 2 sizes of Pins of either Single or Double end Turret type Terminals.

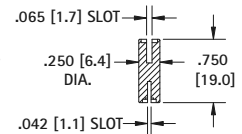
CAT. NO.	A DIA.	B DIA.
1722	.053 (1.35)	.065 (1.65)
1716	.070 (1.78)	.100 (2.54)
1717	.128 (3.25)	.152 (3.86)



ANVILS FOR FORK TERMINALS

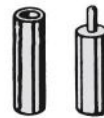


Accepts Diameter of 3/32 to 5/32 at one end and diameter of 3/16 other end .040 (1.0) slot one end and .060 (1.52) slot at other end.



CAT. NO. 1726

ANVILS FOR SWAGE SPACERS



CAT. NO.	BUSHING SIZE
1326	Holds Bushing with 5/32" O.D.
1325	For Bushing with 6-32" Thread
1309	For Bushing with 4-40 Thread

TOOL HOLDERS



CAT. NO. 1719

Tool holders will hold all .250 (6.4) diameter anvils. May be used with receding pin and return spring to hold eyelets in place during the staking process.

"IMPACT" STAKING KIT

All that is required to stake almost all swage components. Just press down and it stakes. Tools provided allow bench top staking with out setting up arbor or drill press. Staking tool can be adjusted

to provide heavy to light blows. Receding sprung pins can be assembled into anvil to locate eyelets for easy assembly of components. Kit supplied in convenient plastic case for ease of use.



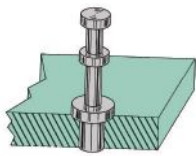
CAT. NO. 1707 COMPLETE KIT

CAT. NO.	CONSISTS OF ONE EACH:
TOOLS	
1302	Impact Handle
1300	Anvil Tool Holder Base
SWAGING TOOLS	
1312	.040 (1.02) to .072 (1.83)
1313	.078 (1.98) to .093 (2.36)
SWAGING TOOLS FOR DOUBLE ENDED TURRET	
1310	.053 (1.35) Diameter Hole
1311	.062 (1.57) Diameter Hole
ANVIL COMPONENTS	
1716	Anvil for Turret Terminals
1717	
1722	
1726	Anvil for Fork Turret Terminals
1315	Receding Pin - .045 (1.15) Dia.
1316	Receding Pin - .069 (1.75) Dia.
1321	Return Spring for Receding Pins

NON-INSULATED TURRET TERMINALS

Most terminals are available with proper swage length for .032 (0.8), .062 (1.6), .093 (2.4) or .125 (3.2) boards Turret terminals are available in a range of sizes from .093 (2.4) to .484 (12.3) height. Tooling available to properly swage turrets into board. Custom turret terminals can be

machined to your exact specifications. Please email your design to our engineering department. Please visit our website for detailed drawings and specifications of turret terminals.



SINGLE TURRET



DOUBLE TURRET



TRIPLE TURRET



MATERIAL: Brass, Tin Plate

FORK TURRETS



THREADED TURRETS



TUBULAR TURRETS



DOUBLE-ENDED TURRETS



[keyelco.com/
turret-terminals.cfm](http://keyelco.com/turret-terminals.cfm)

INSULATED TURRET TERMINALS

- Insulated turret terminals are electrically isolated from panel or board
- PTFE insulator will easily install into mount hole
- Once installed, the PTFE will creep into surface imperfections of the hole and keep the terminal in place

Threaded Terminals: Ideal for more robust applications.

Feedthru Terminals: Allow a signal or power to pass through a conductive case or panel.

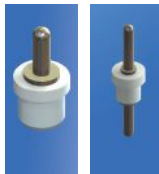
Custom Terminals: Machined to your exact specifications. Please email your design to our engineering department.

MATERIAL:

Pins: Brass, Tin Plate

Insulator: PTFE or Diallyl Phthalate

PINS



THREADED TURRETS



TURRETS



DOUBLE-ENDED TURRETS



[keyelco.com/
insulated-terminals.cfm](http://keyelco.com/insulated-terminals.cfm)

TERMINAL BOARDS

- Ready made terminal boards
- Save on tooling
- Economical
- Diverse range of sizes and terminal configurations
- Commercial and military specifications
- Custom terminal boards machined to your requirements

MATERIAL:

Terminals: Brass, Tin Plate

Available Board materials:

GEE (G10, Glass Epoxy)

PBE (XP Phenolic)

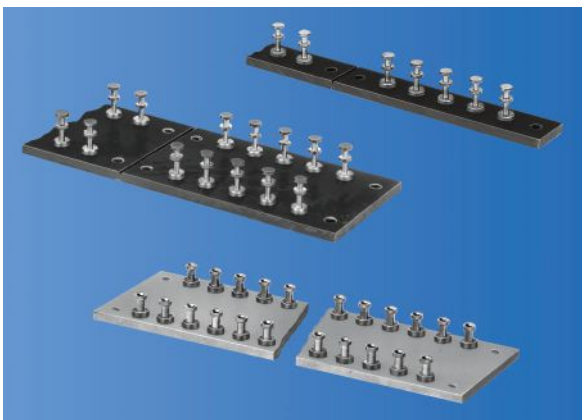
GPO-3 (Fiberglass)



[keyelco.com/
terminal-boards.cfm](http://keyelco.com/terminal-boards.cfm)

TURRET TERMINAL BOARDS

We offer a wide range of Turret Terminal Boards including: Scored, Miniature Turret, Thru Hole Turret, Military style, Single and Double Row Boards.



QUICK-FIT TERMINAL STRIPS



Quick fit terminal Strips provide a convenient access point allowing wires with standard crimp terminals to be installed without any soldering. Ideal for maintenance items.

BINDING POST (SCREW) TERMINAL STRIPS



Screw terminal Boards can be used to connect to a stripped wire or wire with spade terminal. Ideal for configurable applications.

SOLDER TAB STRIPS



Solder Tab terminal strips provide a convenient solder point for wiring. Ideal for permanent applications.

CAT. NO.	14 – 552	PAGE NO.	CAT. NO.	553 – 1024	PAGE NO.	CAT. NO.	1025 – 1282	PAGE NO.
14 thru 48		146	553 thru 557		13	1025		7
50 thru 57		13	561 thru 574		128	1026		5
58 thru 63		38	575		123	1027		6
66		22	576 thru 589		128	1028 thru 1029		24
68		35	590 thru 591		14	1030 thru 1041		63
69 thru 80		22	593 thru 594		34	1042 thru 1044		29
81		36	595 thru 597		14	1045 thru 1046		63
82		13	598 thru 599		128	1047 thru 1049		29
84		36	611 thru 612		132	1050 thru 1051		27
86 thru 91		22	613		133	1052 thru 1053		7
92		13	614		132	1055		26
93 thru 100		22	615		133	1056		2
101 thru 103		5	616 thru 617		132	1057 thru 1060		4
104		6	618 thru 620		133	1061 thru 1064		5
105		7	621		132	1065		3
106		5	628 thru 629		14	1066		6
107		6	630		133	1067		3
108		24	631 thru 632		132	1068		7
108-2 thru 109-3		15	633		133	1069		3
110		12	634		132	1070 thru 1071		6
111		38	635 thru 636		34	1072		2
112		12	637		14	1073		6
117 thru 119		38	652 thru 659		122	1074		3
120		12	680		80	1075 thru 1078		26
121		38	700 thru 716		108	1075-1 thru 1076-2		15
122		12	717 thru 729		142	1079		27
131 thru 176		23	730 thru 778		141	1080		27
179 thru 181		16	779		88	1081		5
182 thru 201		23	780 thru 785		142	1082		5
202		20	789 thru 898		88	1083		6
203-P		37	900 thru 902		128	1087 thru 1090		26
204		20	903 thru 910		80	1087-1 thru 1088-2		15
206 thru 208		22	911		124	1091		6
209 thru 210		20	913 thru 918		80	1093		5
211		16	920 thru 923		118	1094		5
217 thru 222		22	924		119	1095 thru 1098		28
224		23	925		118	1099		24
227		35	926		119	1100		25
228		20	931 thru 932		118	1101 thru 1102		28
230-1		15	933 thru 935		119	1103		23
232 thru 237		36	936 thru 938		128	1106 thru 1109		30
238		20	940 thru 941		119	1107-1		15
239		35	942 thru 944		125	1114 thru 1120		27
240 thru 244		16	945		120	1121 thru 1124		30
245		35	946		125	1126 thru 1129		26
246 thru 247		13	947		120	1139 thru 1199		23
251		22	948 thru 949		125	1201 thru 1202		78
254		13	950 thru 957		120	1203		65
261 thru 264		34	967 thru 968		35	1205 thru 1209		78
267		21	970 thru 973		128	1211 thru 1213		64
269 thru 272		34	974 thru 977		33	1215		79
287		21	985 thru 989		124	1216		64
288		20	1005 thru 1008		67	1217		79
289		21	1010 thru 1011		27	1218		115
290 thru 292		20	1012		25	1220 thru 1222		67
293		21	1013		24	1225		65
294 thru 296		20	1014		26	1227 thru 1229		67
297 thru 299		21	1015		24	1232		79
301		7	1016		25	1233 thru 1242		67
303-P		37	1016-1		15	1247 thru 1248		79
330 thru 338		90	1017		24	1249 thru 1250		63
340 thru 344		145	1017-1		15	1251		79
345 thru 349		144	1018		25	1252		70
351 thru 359		90	1019		24	1256 thru 1263		67
397 thru 438		88	1020		25	1264		70
450 thru 476		123	1020-1		15	1265 thru 1266		65
480 thru 496		103	1021		24	1267		64
498 thru 504		2	1021-1		15	1269 thru 1271		67
510 thru 548		103	1022		25	1272 thru 1273		79
550		13	1023		24	1280		67
552		122	1024		25	1281 thru 1282		65

NUMERICAL INDEX

NUMERICAL INDEX

CAT. NO.	3552 – 4966	PAGE NO.	CAT. NO.	4970 – 8166	PAGE NO.	CAT. NO.	8166 – TL-22	PAGE NO.
1283 thru 1284		78	1606 thru 1607		112	2998 thru 3999		8
1285 thru 1286		64	1608 thru 1612		87	3000		11
1287 thru 1289		65	1614 thru 1619		112	3001		10
1287-R thru 1289-STR		66	1620 thru 1625		87	3002		11
1290 thru 1291		37	1626		112	3003		10
1292		65	1627 thru 1630		87	3004		11
1293		78	1635 thru 1639		85	3005		10
1294 thru 1295		37	1640 thru 1641		113	3006		11
1298 thru 1299		78	1642 thru 1643		85	3007		10
1300 thru 1328		147	1644 thru 1646		84	3008		11
1345		71	1650 thru 1655		87	3009		10
1352 thru 1365		115	1656 thru 1657		85	3010		11
1366 thru 1369		114	1658 thru 1659		112	3011		10
1370 thru 1371		115	1662 thru 1669		88	3012		11
1372 thru 1373		114	1673		112	3013		10
1374 thru 1377		115	1674 thru 1689		113	3020 thru 3025		9
1378 thru 1379		114	1692		85	3026		11
1380 1400		115	1693 thru 1699		112	3027		10
1401		114	1701 thru 1707		108	3028		11
1402		115	1708 thru 1710		101	3029		10
1404		114	1713 thru 1726		147	3030 thru 3031		8
1405		115	1719-1		144	3032		11
1406 thru 1408		114	1731 thru 1796		87	3033		10
1411 thru 1413		112	1797 thru 1904		85	3034		11
1414		113	1909 thru 1920		88	3035		10
1416		112	1921 thru 1923		85	3038		11
1417 thru 1418		113	1924 thru 1925		88	3039		10
1419 thru 1420		112	1927 thru 1933		91	3042 thru 3046		11
1421		114	1934 thru 1942		88	3047		10
1422		115	1944 thru 1964		84	3049		145
1424		114	1967 thru 2001		114	3050		8
1425		115	2002 thru 2005		67	3051 thru 3069		145
1426 thru 1428		114	2025 thru 2031		85	3070 thru 3074		9
1430		115	2032 thru 2036		88	3075 thru 3077		146
1431 thru 1433		112	2037 thru 2053		108	3078		11
1434		113	2060 thru 2073		100	3079		146
1436		112	2087 thru 2099		84	3080 thru 3096		11
1437 thru 1438		113	2103		23	3098		8
1439		112	2119 thru 2131		84	3101 thru 3110		145
1441 thru 1446		113	2139 thru 2140		23	3111 thru 3228		144
1447		115	2149 thru 2161		84	3229 thru 3331		145
1448 thru 1449		108	2162 thru 2176		23	3347 thru 3373		144
1450 thru 1451		85	2180 thru 2181		84	3381 thru 3391		146
1453		108	2182 thru 2199		23	3402 thru 3438		88
1454		88	2201 thru 2221		85	3440 thru 3450		146
1455		115	2222 thru 2233		23	3457 thru 3477		88
1456		108	2238 thru 2243		36	3478 thru 3500		85
1457		88	2244 thru 2253		144	3500		53
1458 thru 1459		108	2260 thru 2274		87	3501 thru 3509		113
1460 thru 1463		115	2284 thru 2293		144	3510 thru 3511		53
1464 thru 1467		108	2314		88	3512		52
1468 thru 1471		112	2341 thru 2398		90	3513 thru 3515		53
1472		108	2400 thru 2420		101	3517 thru 3520		52
1473		113	2421 thru 2435		102	3517C		51
1474 thru 1475		85	2438 thru 2440		31	3518 thru 3521		52
1476 thru 1477		144	2441 thru 2455		102	3521C		51
1478		112	2460 thru 2469		32	3522		47
1479		113	2470 thru 2476		33	3523		50
1480 thru 1484		88	2477 thru 2482		32	3525		68
1485		144	2484		31	3526 thru 3527		50
1486 thru 1497		113	2485 thru 2486		33	3527C		51
1535 thru 1537		79	2487 thru 2490		31	3528		68
1546		87	2500 thru 2508		101	3529 thru 3533		53
1547 thru 1548		85	2894 thru 2899		9	3534		68
1556		133	2915		13	3535		53
1560 thru 1561		87	2981 thru 2983		12	3536 thru 3543		51
1564 thru 1571		133	2986 thru 2989		8	3544		48
1589 thru 1596		87	2990 thru 2993		12	3545 thru 3548		68
1601		116	2994 thru 2995		8	3549		48
1603		112	2996		11	3550		47
1604 thru 1605		87	2997		10	3551		68

CAT. NO.	1283 - 1605	PAGE NO.	CAT. NO.	1606 - 2997	PAGE NO.	CAT. NO.	2998 - 3551	PAGE NO.
3552 thru 3554		51	4970-4986		86	8166 thru 8173		138
3555		46	5000 thru 5014		62	8174		75
3556		51	5015 thru 5019		61	8183 thru 8185		73
3557		47	5020 thru 5024		62	8189 thru 8191		74
3558 thru 3560		46	5025 thru 5026		60	8195 thru 8199		75
3561 thru 3562		52	5027 thru 5029		61	8200 thru 8271		71
3563 thru 3564		48	5033 thru 5048		62	8272 thru 8300		70
3565 thru 3566		52	5058 thru 3065		87	8309 thru 8310		106
3567		53	5100 thru 5112		60	8311 thru 8342		107
3568		48	5115 thru 5129		62	8360 thru 8383		72
3569		49	5133 thru 5199		99	8400 thru 8440		84
3570		53	5201		18	8441 thru 8442		85
3571 thru 3572		68	5202 thru 5204		17	8443 thru 8446		104
3573		47	5205 thru 5206		21	8447 thru 8457		105
3574		51	5207		19	8470 thru 8486		140
3575		68	5208 thru 5209		21	8487 thru 8499		104
3576		51	5210 thru 5212		18	8490 thru 8496		140
3577		47	5213 thru 5214		17	8497 thru 8499		104
3578		68	5217 thru 5223		18	8554 thru 8573		102
3579		69	5224 thru 5228		17	8600 thru 8613		140
3586 thru 3588		49	5230 thru 5231		14	8620 thru 8644		134
3590 thru 3592		112	5240 thru 5253		19	8645 thru 8648		135
3593 thru 3595		113	5330 thru 5331		14	8650 thru 8653		106
3621 thru 3622		52	5799		84	8654		135
4000 thru 4004		80	6000 thru 6035		116	8656 thru 8692		106
4005		67	6036 thru 6071		117	8700 thru 8711		101
4091 thru 4199		121	6072 thru 6075		122	8712 thru 8717		84
4245		50	6076 thru 6077		123	8730		78
4245C		51	6078 thru 6085		122	8731 thru 8733		84
4250		50	6090 thru 6096		123	8734 thru 8737		78
4258 thru 4269		88	6097		116	8799		84
4325 thru 4326		133	6098		123	8800 thru 8821		91
4332 thru 4334		132	6100 thru 6102		69	8822 thru 8828		93
4335 thru 4337		133	6799		84	8829 thru 8842		92
4469 thru 4473		70	7004 thru 7024		121	8843 thru 8851		89
4513 thru 4516		127	7140 thru 7194		103	8860 thru 8870		139
4525 thru 4527		50	7200 thru 7225		84	8871 thru 8893		91
4590 thru 4608		127	7226 thru 7299		100	8900 thru 8931		107
4616 thru 4626		126	7310 thru 7340		80	9018 thru 9054		92
4628		50	7351 thru 7382		107	9055 thru 9084		93
4632 thru 4634		127	7600 thru 7611		140	9100 thru 9123		103
4636 thru 4683		126	7620 thru 7640		139	9200 thru 9231		136
4687 thru 4689		143	7661 thru 7678		88	9200-1 thru 9200-19		137
4691 thru 4693		144	7680 thru 7688		145	9201-1 thru 9231-1		137
4694		143	7689		77	9300 thru 9608		143
4698		145	7690 thru 7693		74	9900 thru 9911		103
4699 thru 4700		144	7695 thru 7696		77	9920		76
4701		143	7697		75	9923		76
4702		145	7698		77	11001 thru 11016		117
4703		144	7699		75	11362-5		144
4704		80	7700 thru 7702		74	24283 thru 24498		89
4705 thru 4709		143	7710 thru 7720		88	24881 thru 24886		86
4711		145	7757 thru 7759		73	25501 thru 29358		89
4713 thru 4716		143	7760 thru 7772		77	CBH-1 thru CBH-3		94
4718 thru 4719		87	7773 thru 7774		74	SCR-4 thru SCR10		94
4724 thru 4734		126	7775 thru 7778		75	SPR-8 thru SPR-34		94
4799 thru 4841		84	7779 thru 7783		74	STH-14 thru STH-22		94
4842 thru 4848		86	7784 thru 7787		75	STR-15 thru STR-M4		94
4850 thru 4870		87	7788		77	TL-19 thru TL-22		87
4871 thru 4899		86	7789		75			
4900		64	7790		77			
4901 thru 4902		65	7791		75			
4903 thru 4907		64	7792 thru 7800		77			
4908		65	7801		75			
4909		64	7802 thru 7806		67			
4910 thru 4914		65	7807 thru 7808		77			
4915 thru 4920		64	7812 thru 7836		67			
4928		66	7837 thru 7839		73			
4929 thru 4949		86	8090 thru 8096		139			
4950 thru 4954		63	8100 thru 8165		138			
4966		65	8166		75			

ENGINEERING DATA

DRILL SIZE DIAMETER TABLE

Diameter	Drill Size	Diameter	Drill Size	Diameter	Drill Size	Diameter	Drill Size
.0135	80	.0935	42	.2031	13/64	.4040	Y
.0145	79	.0938	3/32	.2040	6	.4062	13/32
.0156	1/64	.0960	41	.2055	5	.4130	Z
.0160	78	.0980	40	.2090	4	.4219	27/64
.0180	77	.0995	39	.2130	3	.4375	7/16
.0200	76	.1015	38	.2188	7/32	.4531	29/64
.0210	75	.1040	37	.2210	2	.4688	15/32
.0225	74	.1065	36	.2280	1	.4844	31/64
.0240	73	.1094	7/64	.2340	A	.5000	1/2
.0250	72	.1100	35	.2344	15/64	.5156	33/64
.0260	71	.1110	34	.2380	B	.5312	17/32
.0280	70	.1130	33	.2420	C	.5469	35/64
.0292	69	.1160	32	.2460	D	.5625	9/16
.0310	68	.1200	31	.2500	1/4	.5781	37/64
.0312	1/32	.1250	1/8	.2500	E	.5938	19/32
.0320	67	.1285	30	.2570	F	.6094	39/64
.0330	66	.1360	29	.2610	G	.6250	5/8
.0350	65	.1405	28	.2656	17/64	.6406	41/64
.0360	64	.1406	9/64	.2660	H	.6562	21/32
.0370	63	.1440	27	.2720	I	.6719	43/64
.0380	62	.1470	26	.2770	J	.6875	11/16
.0390	61	.1495	25	.2810	K	.7031	45/64
.0400	60	.1520	24	.2812	9/32	.7188	23/32
.0410	59	.1540	23	.2900	L	.7344	47/64
.0420	58	.1562	5/32	.2950	M	.7500	3/4
.0430	57	.1570	22	.2969	19/64	.7656	49/64
.0465	56	.1590	21	.3020	N	.7812	25/32
.0469	3/64	.1610	20	.3125	5/16	.7969	51/64
.0520	55	.1660	19	.3160	O	.8120	13/16
.0550	54	.1695	18	.3230	P	.8281	53/64
.0595	53	.1719	11/64	.3281	21/64	.8438	27/32
.0625	1/16	.1730	17	.3320	Q	.8594	55/64
.0635	52	.1770	16	.3390	R	.8750	7/8
.0670	51	.1800	15	.3438	11/32	.8906	57/64
.0700	50	.1820	14	.3480	S	.9062	29/32
.0730	49	.1850	13	.3580	T	.9219	59/64
.0760	48	.1875	3/16	.3594	23/64	.9375	15/16
.0781	5/64	.1890	12	.3680	U	.9531	61/64
.0785	47	.1910	11	.3750	3/8	.9688	31/32
.0810	46	.1935	10	.3770	V	.9844	63/64
.0820	45	.1960	9	.3860	W	1.0000	1/1
.0860	44	.1990	8	.3906	25/64		
.0890	43	.2010	7	.3970	X		

SCREW/STUD CLEARANCE HOLE TABLE

Screw/Stud Size	Screw/Stud Dia. Max.	Recommended Clearance Hole Dia.
0	.060	.067
1	.073	.078
2	.086	.093
3	.099	.105
4	.112	.120
5	.125	.130
6	.138	.144
8	.164	.169
10	.190	.196
12	.216	.220
14	.242	.250
1/4	.250	.257

QUALITY ASSURANCE

Keystone's quality system is certified to ISO: 9001 by DNV Certification, Inc. under the ANAB accreditation. Our Quality Assurance Program is in accordance with these requirements and applies to all standard and custom interconnect components and electronic hardware.

Keystone Electronics Corp. is committed to meeting or exceeding our customer's expectations, and satisfying all applicable requirements, as well as meeting or exceeding our annual quality goals and objectives.

QUALITY ASSURANCE

- Baty Gage Master Comparator
- Thread, Plug and Ring Gauges
- Granite Surface Plates
- Dial Indicators
- Plating Thickness Tester (XRF)
- Ames Precision Hardness Tester
- Gauge Blocks and Pin Gauges
- Micrometers and Verniers
- Depth and Height Gauges
- ISO 9001:2015 Certified



MANAGEMENT SYSTEM CERTIFICATE

Certificate No: CERT-9053-2004-AQ-HOU-ANAB Initial certification date: 18 February 1996 Valid: 09 March 2019 - 09 March 2022

This is to certify that the management system of

Keystone Electronics Corporation
55 South Denton Avenue, New Hyde Park, NY, 11040, USA
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:
The design and manufacture of interconnect components and electronic hardware

Place and date:
Katy, TX, 04 March 2019



For the issuing office:
DNV GL - Business Assurance
1400 Ravello Drive, Katy, TX, 77449-5164, USA





John Stefan
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance USA, Inc., 1400 Ravello Drive, Katy, TX 77449 USA. TEL: 281-396-1000. dnvglcert.com

CONVERSION CHART

MILLIMETERS • DECIMALS • FRACTIONS

MM	Decimals	Fractions	MM	Decimals	Fractions	MM	Decimals	Fractions	MM	Decimals	Fractions	MM	Decimals	Fractions
0.1	.0039		5.2	.2047		10.319	.4063	13/32	15.5	.6102		20.638	.8125	13/16
0.2	.0079		5.3	.2087		10.4	.4094		15.6	.6142		20.7	.8150	
0.3	.0118		5.4	.2126		10.5	.4134		15.7	.6181		20.8	.8189	
0.397	.0156	1/64	5.5	.2165		10.6	.4173		15.8	.6220		20.9	.8228	
0.4	.0157		5.556	.2188	7/32	10.7	.4213		15.875	.6250	5/8	21.0	.8268	
0.5	.0197		5.6	.2205		10.716	.4219	27/64	15.9	.6260		21.034	.8281	53/64
0.6	.0236		5.7	.2244		10.8	.4252		16.0	.6299		21.1	.8307	
0.7	.0276		5.8	.2283		10.9	.4291		16.1	.6339		21.2	.8346	
0.794	.0313	1/32	5.9	.2323		11.0	.4331		16.2	.6378		21.3	.8386	
0.8	.0315		5.953	.2344	15/64	11.1	.4370		16.272	.6406	41/64	21.4	.8425	
0.9	.0354		6.0	.2362		11.113	.4375	7/16	16.3	.6417		21.431	.8438	27/32
1.0	.0394		6.1	.2402		11.2	.4409		16.4	.6457		21.5	.8465	
1.1	.0433		6.2	.2441		11.3	.4449		16.5	.6496		21.6	.8504	
1.191	.0469	3/64	6.3	.2480		11.4	.4488		16.6	.6535		21.7	.8543	
1.2	.0472		6.350	.2500	1/4	11.5	.4528		16.669	.6563	21/32	21.8	.8583	
1.3	.0512		6.4	.2520		11.509	.4531	29/64	16.7	.6575		21.828	.8594	55/64
1.4	.0551		6.5	.2559		11.6	.4567		16.8	.6614		21.9	.8622	
1.5	.0591		6.6	.2598		11.7	.4606		16.9	.6654		22.0	.8661	
1.588	.0625	1/16	6.7	.2638		11.8	.4646		17.0	.6693		22.1	.8701	
1.6	.0630		6.747	.2656	17/64	11.9	.4685		17.066	.6719	43/64	22.2	.8740	
1.7	.0669		6.8	.2677		11.906	.4688	15/32	17.1	.6732		22.225	.8750	7/8
1.8	.0709		6.9	.2717		12.0	.4724		17.2	.6772		22.3	.8780	
1.9	.0748		7.0	.2756		12.1	.4764		17.3	.6811		22.4	.8819	
1.984	.0781	5/64	7.1	.2795		12.2	.4803		17.4	.6850		22.5	.8858	
2.0	.0787		7.144	.2813	9/32	12.3	.4843		17.463	.6875	11/16	22.6	.8898	
2.1	.0827		7.2	.2835		12.303	.4844	31/64	17.5	.6890		22.622	.8906	57/64
2.2	.0866		7.3	.2874		12.4	.4882		17.6	.6929		22.7	.8937	
2.3	.0906		7.4	.2913		12.5	.4921		17.7	.6968		22.8	.8976	
2.381	.0938	3/32	7.5	.2953		12.6	.4961		17.8	.7008		22.9	.9016	
2.4	.0945		7.541	.2969	19/64	12.700	.5000	1/2	17.859	.7031	45/64	23.0	.9055	
2.5	.0984		7.6	.2992		12.8	.5039		17.9	.7077		23.019	.9063	29/32
2.6	.1024		7.7	.3031		12.9	.5079		18.0	.7087		23.1	.9094	
2.7	.1063		7.8	.3071		13.0	.5118		18.1	.7126		23.2	.9134	
2.778	.1094	7/64	7.9	.3110		13.097	.5156	33/64	18.2	.7165		23.3	.9173	
2.8	.1102		7.938	.3125	5/16	13.1	.5157		18.256	.7188	23/32	23.4	.9213	
2.9	.1142		8.0	.3150		13.2	.5197		18.3	.7205		23.416	.9219	59/64
3.0	.1181		8.1	.3189		13.3	.5236		18.4	.7244		23.5	.9252	
3.1	.1220		8.2	.3228		13.4	.5276		18.5	.7283		23.6	.9291	
3.175	.1250	1/8	8.3	.3268		13.494	.5313	17/32	18.6	.7323		23.7	.9331	
3.2	.1260		8.334	.3281	21/64	13.5	.5315		18.653	.7344	47/64	23.8	.9370	
3.3	.1299		8.4	.3307		13.6	.5354		18.7	.7362		23.813	.9375	15/16
3.4	.1339		8.5	.3346		13.7	.5394		18.8	.7402		23.9	.9409	
3.5	.1378		8.6	.3386		13.8	.5433		18.9	.7441		24.0	.9449	
3.572	.1406	9/64	8.7	.3425		13.891	.5469	35/64	19.0	.7480		24.1	.9488	
3.6	.1417		8.731	.3438	11/32	13.9	.5472		19.050	.7500	3/4	24.2	.9528	
3.7	.1457		8.8	.3465		14.0	.5512		19.1	.7520		24.209	.9531	61/64
3.8	.1496		8.9	.3504		14.1	.5551		19.2	.7559		24.3	.9567	
3.9	.1535		9.0	.3543		14.2	.5591		19.3	.7598		24.4	.9606	
3.969	.1563	5/32	9.1	.3583		14.288	.5625	9/16	19.4	.7638		24.5	.9646	
4.0	.1575		9.128	.3594	23/64	14.3	.5630		19.447	.7656	49/64	24.6	.9685	
4.1	.1614		9.2	.3622		14.4	.5669		19.5	.7677		24.606	.9688	31/32
4.2	.1654		9.3	.3661		14.5	.5709		19.6	.7717		24.7	.9724	
4.3	.1693		9.4	.3701		14.6	.5748		19.7	.7756		24.8	.9764	
4.366	.1719	11/64	9.5	.3740		14.684	.5781	37/64	19.8	.7795		24.9	.9803	
4.4	.1732		9.525	.3750	3/8	14.7	.5787		19.844	.7813	25/32	25.0	.9843	
4.5	.1772		9.6	.3780		14.8	.5827		19.9	.7835		25.003	.9844	63/64
4.6	.1811		9.7	.3819		14.9	.5866		20.0	.7874		25.1	.9882	
4.7	.1850		9.8	.3858		15.0	.5906		20.1	.7913		25.2	.9921	
4.763	.1875	3/16	9.9	.3898		15.081	.5938	19/32	20.2	.7953		25.3	.9961	
4.8	.1890		9.922	.3906	25/64	15.1	.5945		20.241	.7969	51/64	25.400	1.0000	1
4.9	.1929		10.0	.3937		15.2	.5984		20.3	.7992				
5.0	.1969		10.1	.3976		15.3	.6024		20.4	.8031				
5.1	.2008		10.2	.4016		15.4	.6063		20.5	.8071				
5.159	.2031	13/64	10.3	.4055		15.478	.6094	39/64	20.6	.8110				

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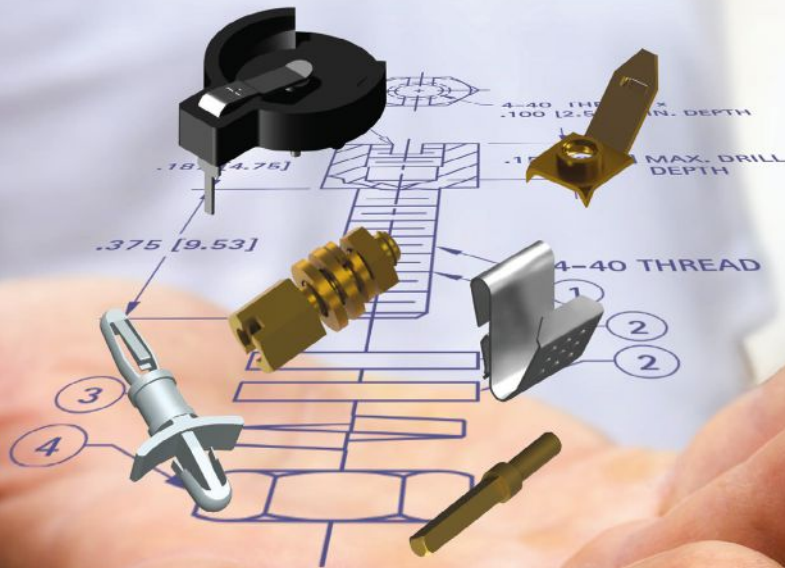
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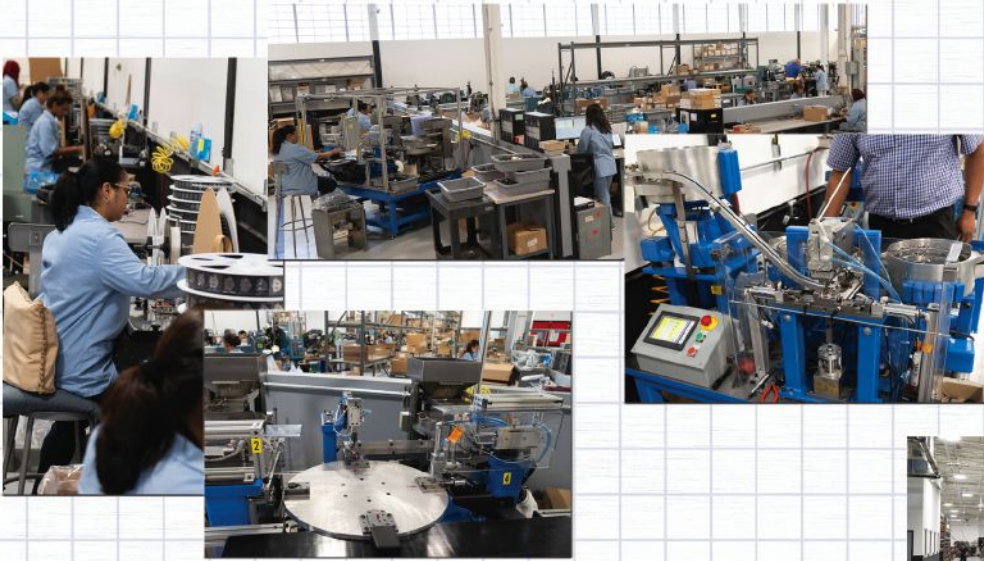
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