ADVANCED INTERCONNECTIONS®

<< View our Product Catalog by clicking on the bookmarks on the left side of the window

To SEARCH our catalog in Acrobat®, in the top menu options, select EDIT>SEARCH. You will see a popup window appear.

Visit our Web Site, www.advanced.com

Look up products, documentation, check stock, download CAD files, find sales reps and more!

Click on a product group below for more info >>

- BGA Socketing Systems
- Peel-A-Way® Carriers
- PGA Sockets
- PGA Adapters
- DIP Sockets
- DIP Adapters
- SIP Sockets
- SIP Adapters
- Board to Board Connectors
- Adapters
- Terminals
- BGA Footprints*
- Reference

Advanced Interconnections Corp.
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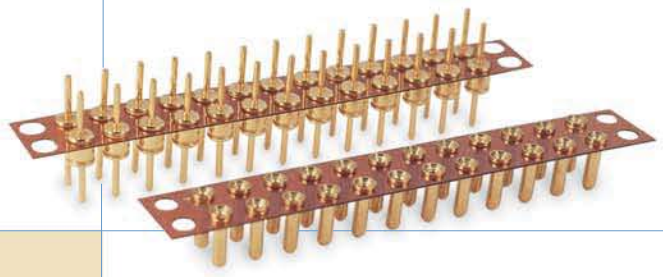
West Warwick, RI 02893
Tel: 800-424-9850
401-823-5200
Fax: 401-823-8723
info@advanced.com

RoHS Compliant Pb Free

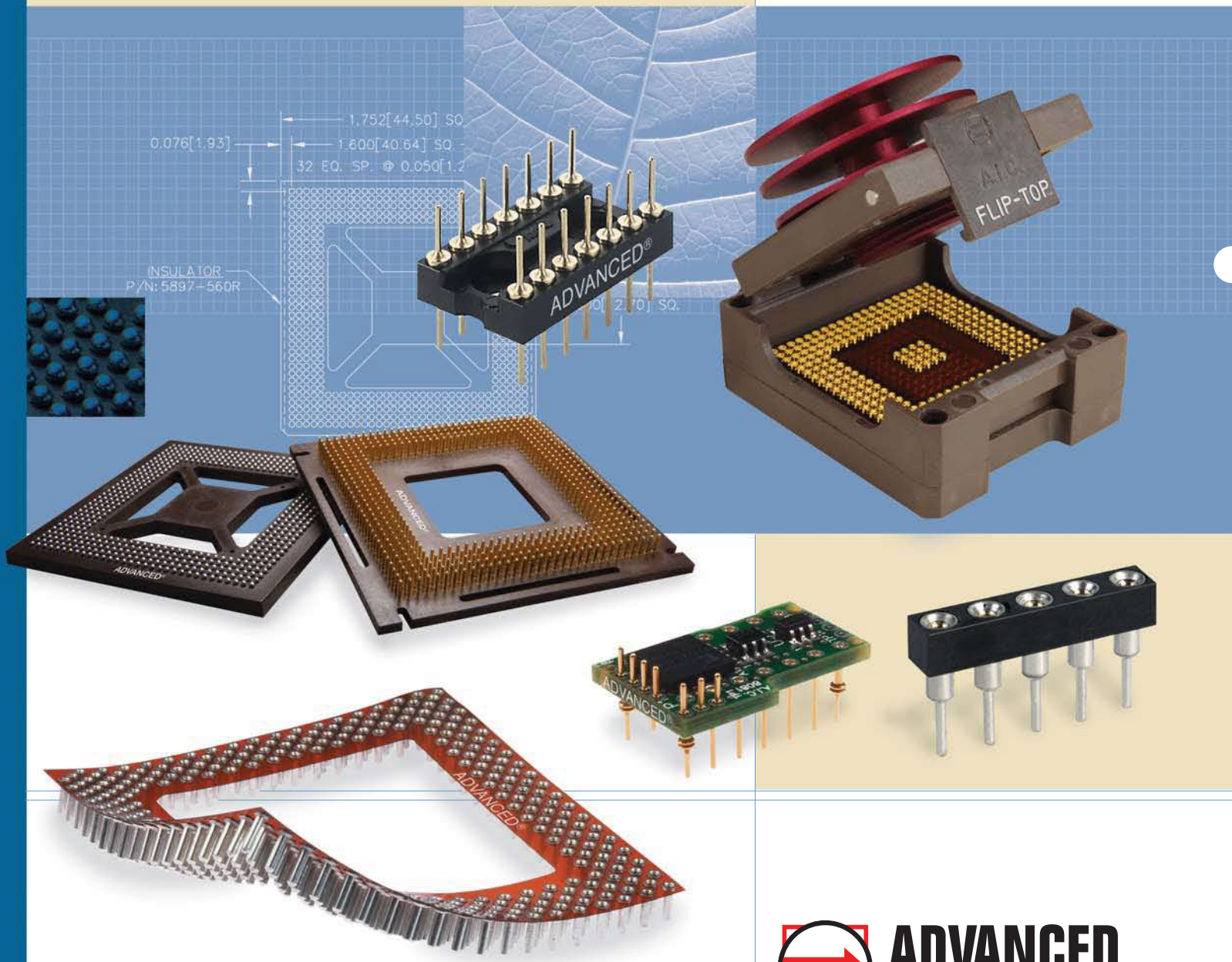
EXPRESS

*In order to keep the Catalog PDF to a manageable download size the BGA Footprints have been removed but can be downloaded as a separate file by clicking on the name to the right in red.



Catalog 16A

IC Sockets, Adapters, and Board to Board Connectors



ADVANCED INTERCONNECTIONS®

The Advanced® Difference

ADVANCED INTERCONNECTIONS®

Advanced Interconnections is a leading designer and manufacturer of innovative interconnect solutions for electronic applications worldwide. Founded in 1982, Advanced specializes in IC sockets, adapters and PC board connectors with technologically advanced features and benefits.

Our products feature the highest quality screw-machined terminals with multi-finger contacts. Standard and custom designs are available for thru-hole and surface mount applications. A variety of insulator and plating materials are available to meet RoHS and other worldwide directives for environmentally-friendly manufacturing.

Patented BGA Socketing System for 0.50/0.65mm Pitch Devices

Our new BGA Socket Adapter System is a breakthrough in fine pitch socket technology. The patented design alternates male and female pins in an interstitial pattern – offering the reliability of screw-machined terminals with multi-finger contacts in a compact SMT socket.

At only 2.00mm larger than the device package, this compact design is perfect for development and validation of BGA and LGA devices, production level socketing, and SMT board to board connector applications. See pages 4-5 for complete details.

Peel-A-Way® Removable Terminal Carriers

Our patented Peel-A-Way® Removable Terminal Carriers eliminate the need for hand loading terminals and offer a super low profile solution for socketing a wide variety of devices. The polyimide film carrier can be easily removed after processing or left in place for added stability.

Screw-machined Terminals

Precision machined brass terminals (pins) with multi-finger beryllium copper contacts are the hallmark of Advanced quality. We offer hundreds of high reliability standard and custom terminals for applications including ultra-low profile, surface mount, and intrusive reflow (solder preform).

The Solder Ball Advantage

Our exclusive solder ball terminals, available in standard Tin/Lead or new Tin/Silver/Copper, provide process yields equivalent to direct attach. From BGA Socketing Systems to our new B2B® High Density SMT Connectors, Advanced specializes in surface mount applications.

Solder Preform Terminals

For intrusive reflow applications or mixed technology applications (both thru-hole and SMT devices on same PC board), our solder preform terminals are the perfect solution. Available in either Tin/Lead or new Tin/Silver/Copper, the preforms eliminate the need for solder paste and screening operations and ensure reliable solder joints with controlled solder volumes.

RoHS Compliant Products

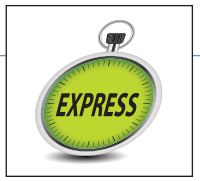
RoHS Compliant Pb Free

All of our standard and custom IC Sockets, Adapters and Board to Board Connectors are now available for RoHS Compliant applications, meeting requirements of the RoHS Directive for both material content and processing compatibility.

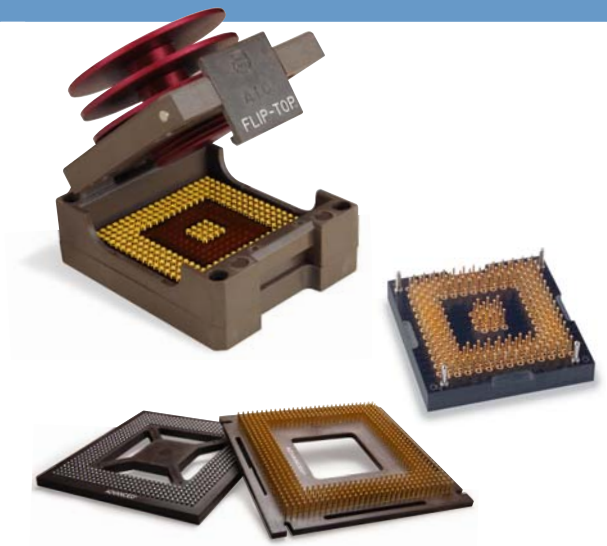
Custom Solutions

Our product application engineers are ready to assist with custom designs to handle everything from adapters for device package transitions to application-specific connectors.

Free Samples and EXPRESS Delivery

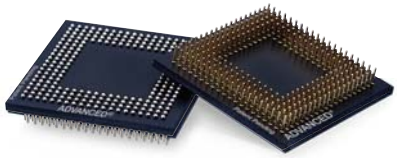


From prototype through production, we understand that samples and fast delivery are critical to the success of any project. Take advantage of our free samples and look for the EXPRESS symbol throughout this catalog for products that can be shipped within 3 days (some quantity restrictions apply).

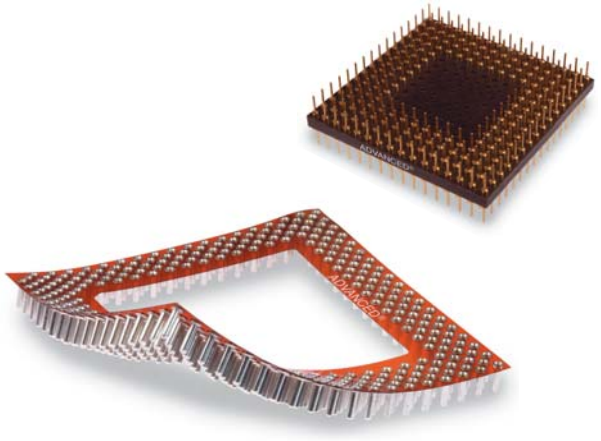


BGA Socketing Systems

Our Ball Grid Array Socket Adapter Systems and Flip-Top™ BGA Socket offer a reliable method for socketing BGA, LGA, and CSP devices in validation, test and production applications.



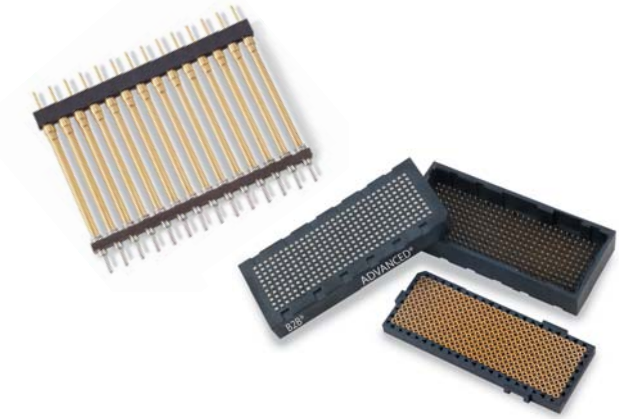
- Compact designs match IC device footprint.
- Patented solder ball terminals offer process yields equivalent to direct device attach.
- Available in tape and reel packaging for automated assembly.



IC Sockets and Adapters

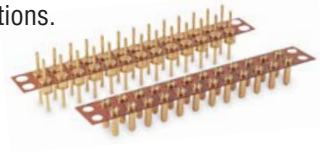
Advanced offers a wide variety of IC Sockets and Adapters for virtually any package configuration including PGA, DIP, and SIP, as well as application-specific designs such as Image Sensor Sockets.

- Insulator options include FR-4, molded, and our own patented Peel-A-Way® Removable Terminal Carriers.
- Thousands of standard designs are available with Quick-Turn delivery.
- Peel-A-Way® Carriers can be easily customized with multiple terminal types and unique footprints to replace hand loading operations or to provide a quick method for socketing heat-sensitive devices.

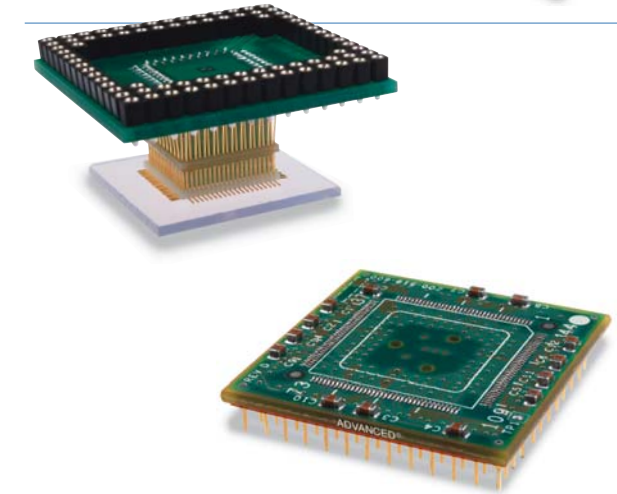


Board to Board Connectors

Proven reliability and design flexibility provide effective results for even the most demanding board to board and mezzanine board applications.



- Through-hole and surface mount designs available.
- High quality screw-machined terminals offer reliable electrical/mechanical interconnect.
- Unique solder preforms allow multi-tier Z-axis expansion.



Advanced® Adapters

Advanced® Adapters are designed to your specifications for IC package conversion, test, emulation and development applications.

- Standard designs include SOIC to DIP and PLCC to PGA adapters.
- Full line of IC Package Conversion and Test Emulation Adapters.
- Custom designs can include device enhancements or corrections by adding passive components.

ADVANCED INTERCONNECTIONS®

www.advanced.com

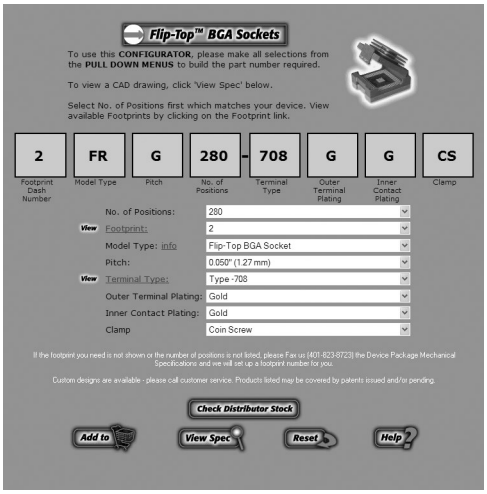
Please visit our web site at www.advanced.com for the latest product updates and access to test data, electrical performance, technical specifications, CAD drawings and more. In addition to products presented in this catalog and on our web site, we offer a wide variety of custom interconnect solutions. Please contact our experienced application engineers, manufacturer's representatives, and worldwide network of authorized distributors for standard and custom interconnect solutions to meet your application requirements.

Build-A-Part Number

Build a part number online using our eCatalog at www.advanced.com. Easy-to-use pull-down menus offer selections for terminal type, footprint, pitch, insulator material, plating, etc. Once the part number is built, enhanced options such as downloading a CAD drawing, searching distributor stock, requesting a quote, or printing a spec sheet are available.

In addition to this full-line catalog, our web site (www.advanced.com) is a great tool for selecting the exact socket, adapter, or connector part number for your application. Complete product information is available for download including:

- CAD drawings in PDF format
- Electrical performance including signal integrity data and models
- RoHS Compliance test reports
- Application notes
- Technical articles
- Distributor inventory
- Build-A-Part product configurator
- Searchable BGA Footprints database
- Product updates
- RFQ and Sample order forms
- Global sales directory of representatives and distributors



Our e-Catalog makes it easy to build the exact part number needed to match your device footprint and application. Also available for our wide variety of board to board connectors. Once your part number is built, select from a variety of useful features including Request for Quote, Sample Order, Spec Sheet, and CAD Drawing.

Advanced proudly manufactures in the USA from our 35,000 sq. ft. corporate headquarters in West Warwick, Rhode Island and our own screw-machine facility located nearby. Quality, in both manufacturing and customer service, is our guiding principle, as evidenced by our ISO 9001 certification.

Table of Contents

Table of Contents 2-3

BGA Socketing Systems . . .4-17

Peel-A-Way® Carriers 18

PGA Sockets & Adapters 19-27

DIP Sockets & Adapters . .28-35

SIP Sockets & Adapters . .36-39

Board to Board Connectors 40-57

Adapters 58-61

Terminals 62-83

BGA Footprints 84-135

Index by Part Number/ Terminal 136-143

Material Specifications 144

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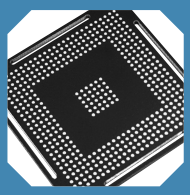
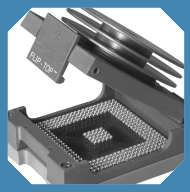
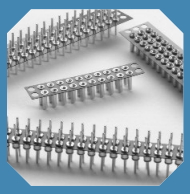
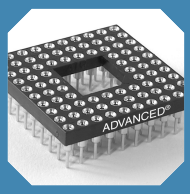
Catalog 16A

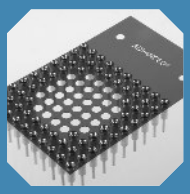
Table of Contents

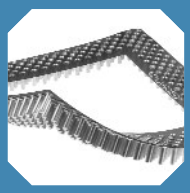


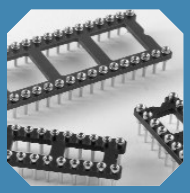


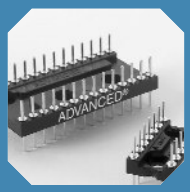












BGA Socketing Systems

Designed for use with Ball Grid Array (BGA), Land Grid Array (LGA), and Chip Scale Package (CSP) devices in development, test and production applications. Over 1,000 footprints available online in our searchable BGA Socket Finder™ database at www.bgasockets.com.

Fine Pitch BGA Socket Adapter System (0.50mm, 0.65mm) 4
Ball Grid Array (BGA) Adapters (0.80mm, 1.00mm, 1.27mm) 6
Ball Grid Array (BGA) Adapter Sockets (0.80mm, 1.00mm, 1.27mm) 8
Mod5 Series Flip-Top™ BGA Socket (0.50mm) 10
Flip-Top™ BGA Sockets (1.00mm, 1.27mm) 12
Typical Lead-free (RoHS) Applications (BGA Interposer) 14
Typical Solder Process Example - Generic Reflow Profiles 15
Design Your Own BGA Socket 16
BGA Value Added Services 17
BGA Footprints 84

Peel-A-Way® Carriers

Peel-A-Way® Removable Terminal Carriers offer a quick and cost-effective solution for loading socket terminals onto a PC board. Standard and custom designs offer a high temperature, low-profile solution that can be used with multiple terminal styles. The polyimide carrier can be removed after board processing for complete solder joint visibility or left in place for added stability.

Peel-A-Way® Removable Terminal Carriers 18

PGA Sockets & Adapters

High quality sockets and adapters for .100/(2.54mm) pitch Pin Grid Array (PGA) devices featuring industry's most reliable screw-machined terminals with multiple finger contacts. Hundreds of standard and interstitial footprints available in new high temperature molded LCP (liquid crystal polymer), FR-4, and our patented Peel-A-Way® insulators. Select your footprint online in our Build-A-Part feature at www.advanced.com/pgastart.html.

Pin Grid Array Adapters 19
Low Insertion Force PGA Sockets - Standard Grid 20
Low Insertion Force PGA Sockets - Staggered (Interstitial) Grid 22
Design Your Own PGA Socket 24
Proteksion™ Image Sensor Sockets 26

DIP Sockets & Adapters

High quality sockets and adapters for .100/(2.54mm) pitch Dual Inline Packages (DIP) featuring industry's most reliable screw-machined terminals with multi-finger contacts. Available in new high temperature molded LCP (liquid crystal polymer) and our patented Peel-A-Way® insulators.

Molded DIP Sockets 28
Peel-A-Way® DIP Socket Terminal Carriers 30
Molded DIP Adapters 32
Decoupling Capacitor DIPs with Murphy Circuits® 34
Closed Frame LED Sockets 35

ADVANCED INTERCONNECTIONS®
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Fax: 401.823.8723
info@advanced.com | www.advanced.com

Catalog 16A

inch/(mm)

SIP Sockets & Adapters

High quality sockets and adapters for Single Inline Packages (SIP) and Board to Board applications on .100/(2.54mm) pitch featuring industry's most reliable screw-machined terminals with multi-finger contacts. Available in new high temperature molded LCP (liquid crystal polymer) and our patented Peel-A-Way® insulators.

SIP Sockets – Molded and Peel-A-Way® Insulators 36
SIP Adapters – Molded and Peel-A-Way® Insulators 38

Board to Board Connectors

From thru-hole to high density SMT designs, Advanced offers a wide variety of solutions for board stacking applications. High quality screw-machined terminals offer long-term reliability for rigorous mating/unmating cycles.

.100/(2.54mm) Pitch 40
.079/(2.00mm) Pitch 44
.050/(1.27mm) Pitch 46
Staggered .050/(1.27mm) Pitch 50
.100/(2.54mm) Pitch Right Angle 52
B2B® SMT Connectors (1.27mm Pitch) 54
Mezza-pede® Low Profile SMT Connectors (.039/(1.00mm) Pitch) 56

Adapters

Advanced® Adapters provide high quality, proven solutions for device package conversion as well as device enhancements or corrections by adding passive components. Standard and custom designs are available for development, test and production applications.

SOIC Adapters 58
PLCC Adapters with Murphy Circuits® 59
Custom Interconnect Solutions 60

Terminals

Advanced designs and manufactures hundreds of RoHS Compliant screw-machined terminals for our high quality sockets, adapters, and connectors. Advanced also offers a complete line of EMC® insulated and non-insulated terminals and test jacks for RoHS Exempt applications.

EMC® Terminals and Test Jacks (complete catalog available online) 62
Socket (Female) Terminals 63
Adapter (Male) Terminals 74
Solder Preform Terminals 80
Design Your Own Terminal 81
Contacts 82

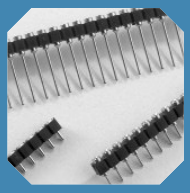
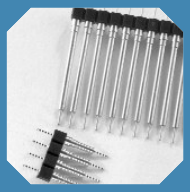
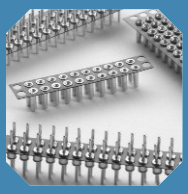
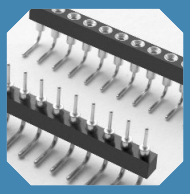
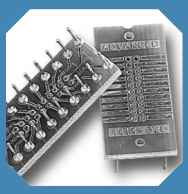
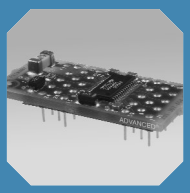
Reference

Product Index by Part Number 136
Terminals Index by Part Number 139
Terminals Index by Type Number 141
Material Specifications 144

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

Table of Contents

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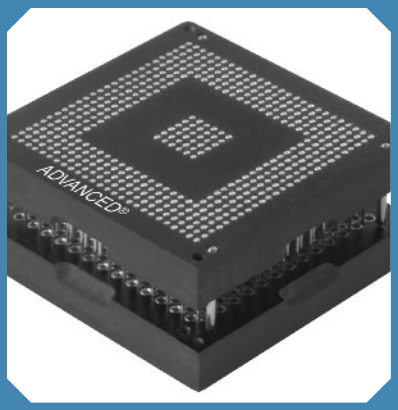
BGA Socket Adapter System



Features:

- Advanced's field-proven screw-machined terminals with multi-finger contacts, arranged in an interstitial male/female pin pattern are gold plated for gold/gold interconnect.
- Small overall size & same footprint as device – only 2.00mm larger than device.
- No external hold-downs required.
- Unique alignment pins protect pin field and aid in hand placement with optional stand-offs available.
- Sockets and Adapters are provided with protective covers which facilitate automated pick & place.
- Superior electrical performance – very low signal attenuation.

Specifications:

Terminals:
Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:
Beryllium Copper
(C17200) ASTM-B-194

Solder Ball:
Standard: 63Sn/37Pb
Lead-free: 0.50mm Pitch:
96.5Sn/3.0Ag/0.5Cu
0.65mm Pitch:
95.5Sn/4.0Ag/0.5Cu

Plating:
G - Gold over Nickel
Gold per ASTM-B-488
Nickel per QQ-N-290

Note: Alignment pins are Nickel plated.

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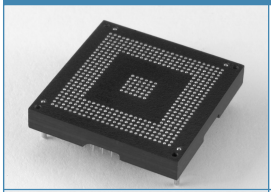
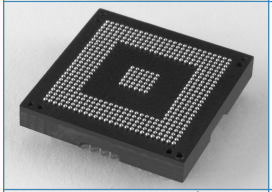
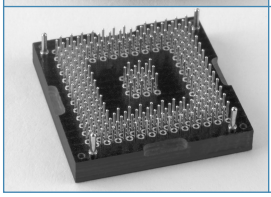
Catalog 16A

Fine Pitch BGA Socket Adapter System
0.50mm and 0.65mm Pitch

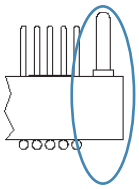
Table of Models

	Description: Standard Adapter (A) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F) Note: Mates with Standard Socket for BGA device socketing.	Insulator Size: BGA device body +.079/(2.00)
	Description: SMT Adapter (A) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F) Note: Mates with Standard Socket for LGA Socketing or Board to Board applications.	Insulator Size: LGA device body +.079/(2.00)
	Description: Standard Socket (S) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F) Note: Mates with either Standard Adapter or SMT Adapter.	Insulator Size: BGA/LGA device body +.079/(2.00)

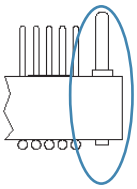
Note: Mated Height 0.214/(5.44)* approx.
(*will vary based on reflow profile, paste volume and PC board pad size)

Options

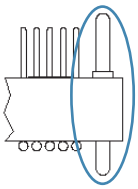
Alignment Pin Options



No Code
Alignment pin in each corner.



Code 1
Four alignment pins (top) with four stand-offs (bottom).



Code 2
Dual alignment pins (4 on top; 3 on bottom with stand-off in A1).

Note: Alignment pins are Nickel plated.

Packaging Options

Tape and Reel Packaging

- Conforms to EIA-481 Standard.
- Pick-up caps included.
- Add -T to end of part number when ordering.

How To Order

RoHS Compliant Pb Free

X F M S XXX - 833 G - X X

Footprint Dash #
If Applicable*

Body Type
RoHS Compliant Insulator:
F - FR-4

Pitch
M = .0197/(0.50mm)
L = .0256/(0.65mm)

Model Type
A - Adapter (device side)
S - Socket (board side)

Number of Positions
*See footprints section or online database.

Terminal Type
See terminal options

Terminal/Contact Plating
RoHS Compliant:
G - Gold

Alignment Pin Option Code
No code - Std. alignment pins
1 - Alignment pins & stand-offs
2 - Dual alignment pins

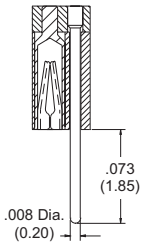
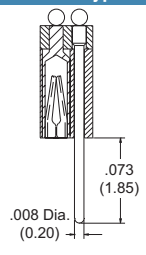
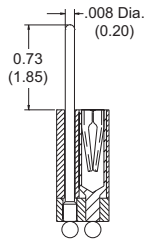
Packaging Option
T - Tape & Reel

Note: If no packaging code is indicated, parts are supplied in standard trays.
Both sockets and adapters are supplied with protective covers and one extraction tool.
Extraction Tool is also available separately; order P/N 8794.

inch/(mm)

Fine Pitch BGA Socket Adapter System
0.50mm and 0.65mm Pitch

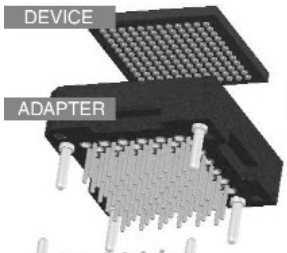
Standard Terminals

Type -834	Tin/Lead: Type -832 Lead-free: Type -833	Tin/Lead: Type -832 Lead-free: Type -833
		
Standard Adapter	SMT Adapter	Standard Socket

Note: Solder ball diameter is 0.012/(0.30mm) on 0.50mm pitch models and 0.014/(0.36mm) on 0.65mm pitch models.

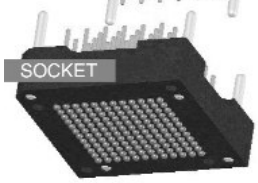
How It Works

See page 15 for Generic Reflow Profiles.



Reflow solder device to Adapter.

- Adapter matches footprint of BGA/LGA device and plugs into mating socket using unique male/female terminals in an interstitial pattern (patented design).



Reflow solder Socket to PC Board.

- Socket matches footprint of BGA/LGA device. Use alignment pins to align Device/Adapter assembly during insertion into board-mounted Socket.

- One extraction tool (P/N 8794) is supplied with each order.

Performance

Superior Electrical Performance

Even with adjacent Aggressor excitation, our socket system provides a Differential Data path of +/- 175mV @ 100psec and a Single-ended Data path of +/- 125mV @ 140psec.

Patented hybrid design ensures that adjacent terminal electromagnetic coupling is trivial; greatly reducing NeXT & FeXT, while creating a pseudo-matched impedance environment; stabilizing the Insertion & Return Loss response rates.

	0.50mm Pitch	0.65mm Pitch
Differential Insertion Loss	-0.40dB @ 1.0 GHz -0.55dB @ 1.9 GHz	-0.25dB @ 3.5 GHz
Differential Return Loss	-15.0dB @ 1.0 GHz -10.0dB @ 1.9 GHz	-14.0dB @ 3.5 GHz

Note: U.S. Patents 7,179,108 and 7,419,398

Insertion/Extraction Force

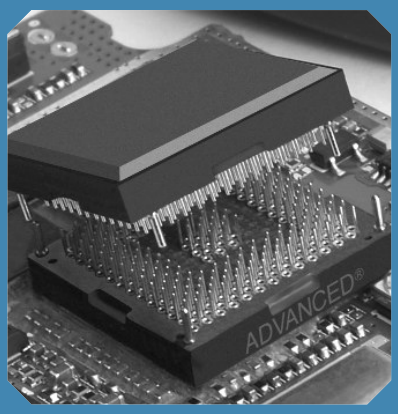
35g avg. Insertion & 30g Withdrawal (per pin)

Additional electrical performance, signal integrity data and models available online.

inch/(mm)

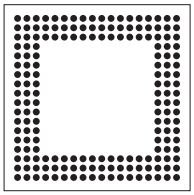
Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

BGA Socket Adapter System



Footprints:

180 Pins
Footprint Number 180-2



18 x 18 rows

- Footprint specific insulators drilled to exact device pattern.
- Many footprints available - see page 88, search online or submit your device specs.
- Use our Build-A-Part feature or search in our online BGA Socket Finder™ at www.bgasockets.com.

Available Online:

- RoHS Qualification Test Report
- Application specification
- Technical articles
- Test data
- Signal Integrity Performance
- CAD drawings
- BGA Footprints

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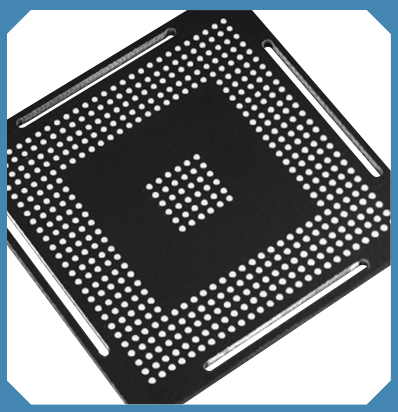
Fax: 401.823.8723
info@advanced.com | www.advanced.com

Ball Grid Array (BGA) Adapters
For use with BGA Sockets on pages 8-9



Features:

- Soldering BGA Device to adapter subjects BGA to less thermal stress than soldering BGA directly to a PCB due to the adapter's lower mass.
- Uses same footprint as BGA device.
- Custom adapters available for heat sink attachment.
- Gold plated screw-machined terminals for superior durability.
- Unique SMT Adapter provides reliable solution for mounting or socketing LGA or re-worked BGA devices.
- SMT Adapters mate with our BGA Sockets for LGA to BGA conversion or SMT Board to Board applications.

Specifications:

Terminals:

Brass - Copper Alloy (C36000) ASTM-B-16

Solder Ball:

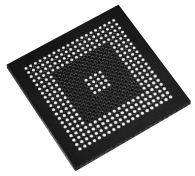
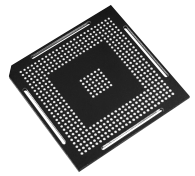
Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:

G - Gold over Nickel

Gold per ASTM-B-488
Nickel per QQ-N-290

Table of Models

	Description: Standard Adapter (A) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F) Note: Mates with Standard Socket (S)	Insulator Size: BGA device body +.079/(2.00mm)
	Description: Extraction Slot Adapter (AX) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F) Note: Mates with Extraction Socket (SB)	Insulator Size: BGA device body +.157/(4.00mm)

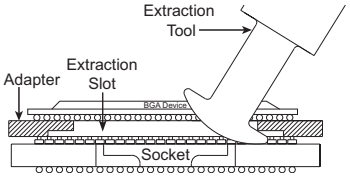
Note: For use with LGA or reworked BGA devices, select surface mount (SMT) terminals which feature solder balls on device side. SMT Adapter terminals may also be used for surface mount board to board applications.

Options

P/N 8125

Extraction Tool

- Insert "T" bar end of tool into extraction slot adapter.
- Slide tool to end of slot and pry adapter from socket.
- Repeat in additional slots until adapter is separated from socket.
- Works with LCP or FR-4 sockets.



How To Order

RoHS Compliant Pb Free

1 F H A XXX - 715 G

Footprint Dash #
If Applicable*

Body Type
RoHS Compliant Insulators:
F - FR-4

Pitch
G = .050/(1.27mm)
H = .039/(1.00mm)
J = .0315/(0.80mm)

Model Type
A = Standard Adapter
AX = Extraction Slot Adapter (1.27 and 1.00mm only)

Number of Positions
*See footprints section or online database.

Terminal Type
See options - available with Standard, male to male, or surface mount terminal styles.

Terminal Plating
RoHS Compliant:
G - Gold

Note: See pages 4-5 for 0.50mm and 0.65mm pitch.
Consult factory for custom 0.75mm pitch designs.
For SMT Adapters, select Model Type A or AX and appropriate SMT Terminal Type from page 7.

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Catalog 16A

inch/(mm)

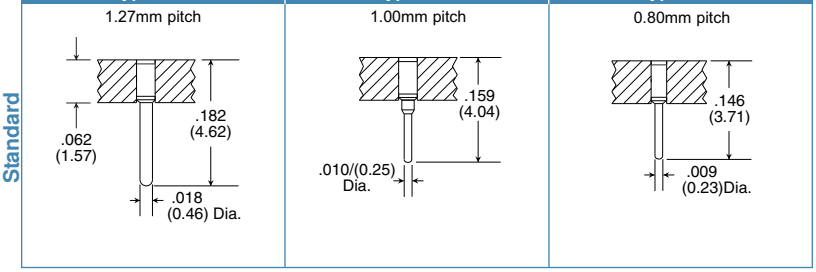
Ball Grid Array (BGA) Adapters
For use with BGA Sockets on pages 8-9

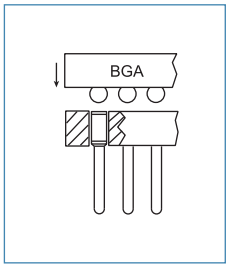
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

Standard

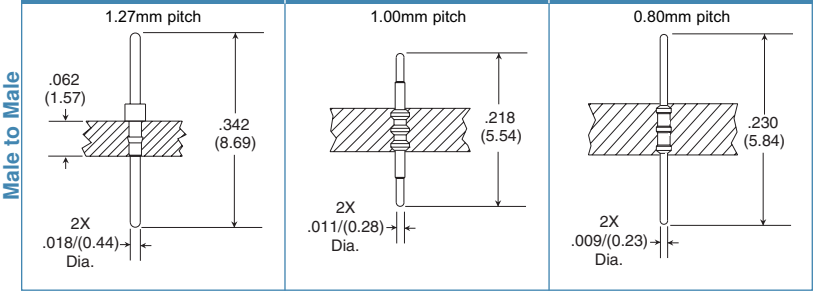
Type -638	Type -715	Type -700
1.27mm pitch	1.00mm pitch	0.80mm pitch

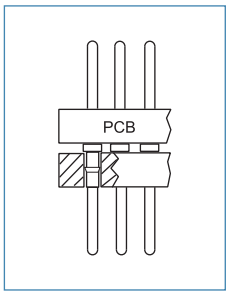




Male to Male

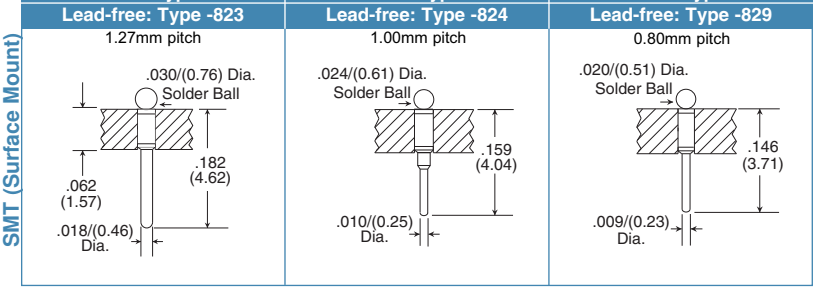
Type -721	Type -735	Type -732
1.27mm pitch	1.00mm pitch	0.80mm pitch

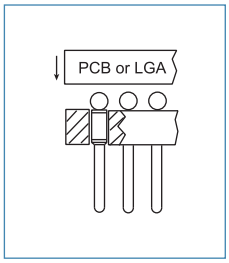




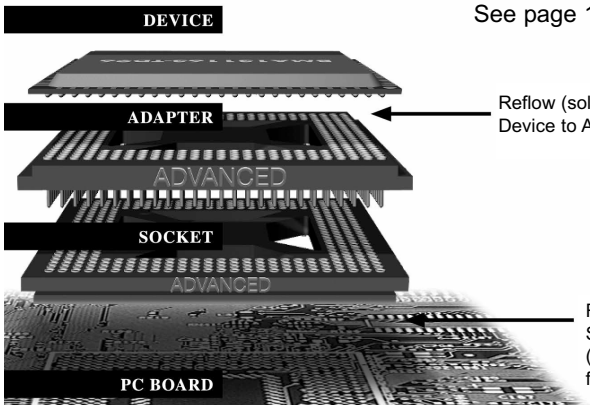
SMT (Surface Mount)

Tin/Lead: Type -720 Lead-free: Type -823	Tin/Lead: Type -737 Lead-free: Type -824	Tin/Lead: Type -736 Lead-free: Type -829
1.27mm pitch	1.00mm pitch	0.80mm pitch





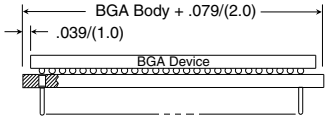
How It Works

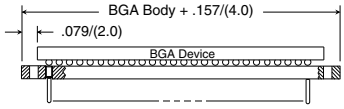


See page 15 for Generic Reflow Profiles.

- Either Tin/Lead or Lead-free device packages can be attached to our RoHS Compliant Adapters.
- PC boards can be processed with Tin/Lead BGA sockets in standard profiles or lead-free BGA sockets in RoHS Compliant, high temperature profiles.

Dimensional Information





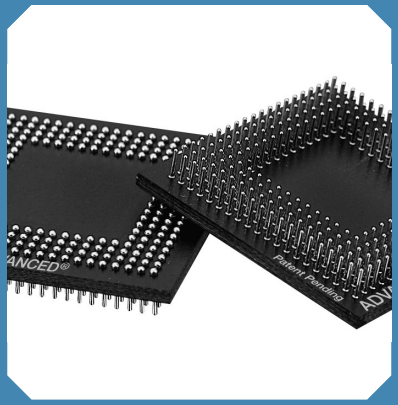
Standard Adapter (A)

- Mates with Standard Socket (S)
- Adapter size equals BGA Device body + .079/(2.00)

Extraction Slot Adapter (AX)

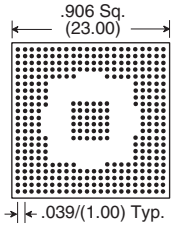
- Slots allow AIC extraction tool (sold separately) to easily remove device/adapter assembly from socket
- Mates with Extraction Socket (SB)
- Adapter size equals BGA Device body + .157/(4.00)

inch/(mm)



Footprints:

360 Pins
Footprint Number 360-2



22 x 22 rows

- Footprint specific insulators drilled to exact device pattern.
- Over 1000 footprints available - see page 88, search online or submit your device specs.
- Use our Build-A-Part feature or search in our online BGA Socket Finder™ at www.bgasockets.com.

Available Online:

- RoHS Qualification Test Report
- Technical articles
- Test data
- Signal Integrity Performance
- CAD Drawings
- BGA Footprints

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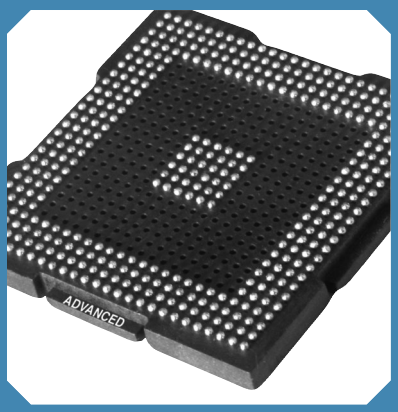
Catalog 16A

BGA Adapter Sockets



Features:

- Advanced® exclusive solder ball terminals offer superior SMT processing.
- Same footprint as BGA device.
- Proven long-term performance in vigorous temperature cycling applications - solder ball terminal absorbs TCE mismatch.
- Closed bottom socket terminal for 100% anti-wicking of solder.
- Gold contacts allow gold/gold interconnections to Adapter pins.
- Low insertion force socket with multi-fingered high reliability Beryllium Copper contacts.
- Coplanarity consistently under .006 inch industry standard.
- Custom designs available.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Solder Ball:

Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:

G - Gold over Nickel

Gold per ASTM-B-488
Nickel per QQ-N-290

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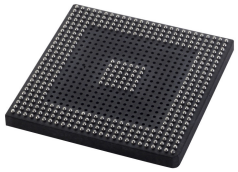
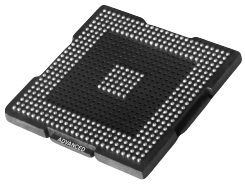
Catalog 16A

Ball Grid Array (BGA) Adapter Sockets

For use with BGA Adapters on pages 6-7

Table of Models

	Description: Standard Socket (S) Mat'l: High Temp. Liquid Crystal Polymer (LCP)* Index: -60°C to 260°C (-76°F to 500°F)	Insulator Size: Same size as BGA device body
	Description: Extraction Socket (SB) Mat'l: High Temp. Liquid Crystal Polymer (LCP)* Index: -60°C to 260°C (-76°F to 500°F)	Insulator Size: 1.27mm Pitch: BGA device body +.079/(2.00) 1.00mm Pitch: BGA device body +.138/(3.50)

RGS/RGSB replaces MGS/MGSB, MHS/MHSB replaces FHS/FHSB.
* Some sizes may only be available in FR-4. See How To Order section or consult factory.

Options

Tape and Reel Packaging

- Conforms to EIA-481 Standard.
- Pick-up tape included.
- Add -TR to end of part number when ordering.
- Custom packaging available
- If -TR is not specified, standard tray packs are used.

- Extraction tool (P/N 8125) is available separately.
- Works with Extraction Slot Adapters and LCP or FR-4 sockets.

How To Order

RoHS Compliant Pb Free

1 M H S XXX - 788 G G

Footprint Dash #
If Applicable*

Body Type
RoHS Compliant Insulators:
F - FR-4 (0.80mm pitch)
M - Molded LCP (1.00mm pitch)*
R - Molded LCP (1.27mm pitch)
*some sizes may be available in FR-4 only

Pitch
G = .050/(1.27mm)
H = .039/(1.00mm)
J = .0315/(0.80mm)

Model Type
S = Standard Socket
SB = Extraction Socket (1.27 and 1.00mm only)

Number of Positions
*See footprints section or online database.

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold

Contact Plating
RoHS Compliant:
G - Gold

Note: See pages 4-5 for 0.50mm and 0.65mm pitch.

inch/(mm)

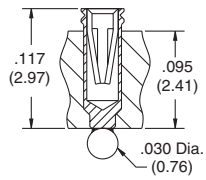
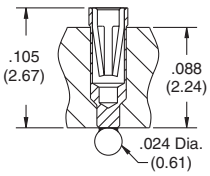
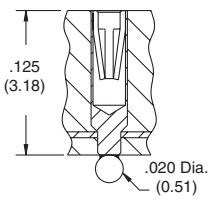
Ball Grid Array (BGA) Adapter Sockets

For use with BGA Adapters on pages 6-7

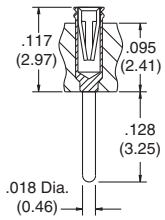
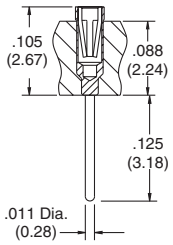
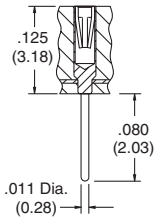
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

SMT (Surface Mount)

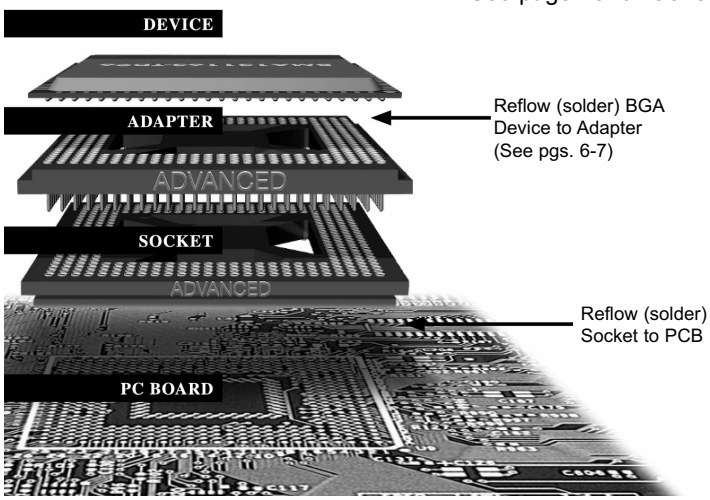
Tin/Lead: Type -636 Lead-free: Type -819	Tin/Lead: Type -790 Lead-free: Type -788	Tin/Lead: Type -702 Lead-free: Type -828
1.27mm pitch	1.00mm pitch	0.80mm pitch
		
PATENTED	PATENTED	PATENTED

Thru-Hole

Type -673	Type -789	Type -731
1.27mm pitch	1.00mm pitch	0.80mm pitch
		

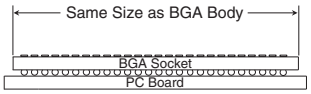
How It Works

See page 15 for Generic Reflow Profiles.



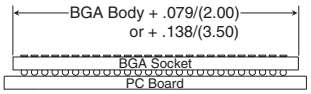
- Either Tin/Lead or Lead-free device packages can be attached to our RoHS Compliant Adapters.
- PC boards can be processed with Tin/Lead BGA sockets in standard profiles or lead-free BGA sockets in RoHS Compliant, high temperature profiles.

Dimensional Information



Standard Socket (S)

- Mates with Standard Adapter (A)
- Socket size same as BGA device body
- Use with SMT Adapter for LGA and reworked BGA device socketing (or board to board applications)

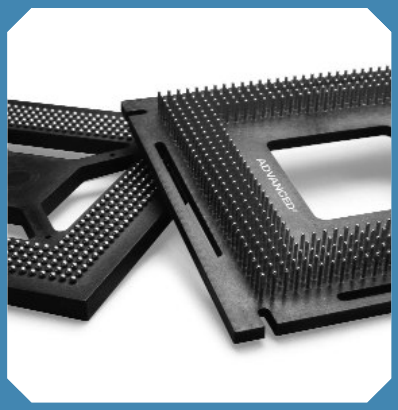


Extraction Socket (SB)

- Mates with Extraction Slot Adapter (AX)
- Socket size equals BGA body + .079/(2.00) for 1.27mm pitch or BGA body + .138/(3.50) for 1.00mm pitch
- Protects valuable PCB during device/adapter extraction - tool never touches PCB
- Available in 1.00 and 1.27mm pitch only

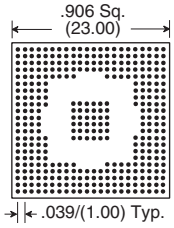
inch/(mm)

BGA Adapter Sockets



Footprints:

360 Pins
Footprint Number 360-2



22 x 22 rows

- Full grid molded insulators populated to exact device pattern.
- Over 1000 footprints available - see page 88, search online or submit your device specs.
- Use our Build-A-Part feature or search in our online BGA Socket Finder™ at www.bgasockets.com.

Available Online:

- RoHS Qualification Test Report
- Technical articles
- Test data
- Signal Integrity Performance
- CAD drawings
- Generic Tin/Lead and Lead-free Reflow Profiles

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5 Energy Way, West Warwick, RI 02893 USA
Tel: 800.424.9850 | 401.823.5200
Fax: 401.823.8723
info@advanced.com | www.advanced.com

Flip-Top™ BGA Sockets

Features:

- Model shown accommodates BGA packages up to 12mm sq. (22 x 22 rows) with larger sizes available upon request.
- Precision machined spring probes offer high bandwidth with very low insertion loss.
- Compact size (small keepout zone) enables use on design boards.

Specifications:

Guide Box:
High Temp. Glass Filled Thermoplastic (PPS)
Screws: 18-8 Stainless Steel

Base Socket:
FR-4 Glass Epoxy, U.L. Rated 94V-0

Lid, Latch, Heat Sink, and Support Plate:
Anodized Aluminum

Spring Probe Terminals:
Crown-point Plunger: Tool Steel, Gold Plated
Spring: Stainless Steel, Gold Plated
Terminal: Brass (C36000), Gold Plated

Solder Ball (Board Interface) RoHS Compliant (Lead-free):
96.5Sn/3.0Ag/0.5Cu (SAC305)

Not RoHS (Tin/Lead):
63Sn/37Pb

Continuous Operating Temperature Range:
-40°C to 140°C (-40°F to 284°F)

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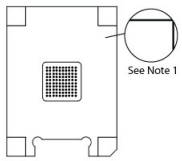
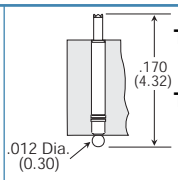
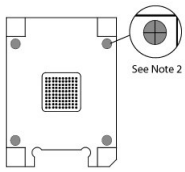
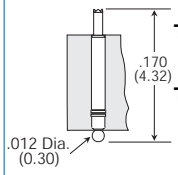
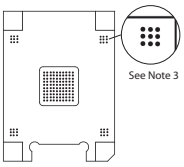
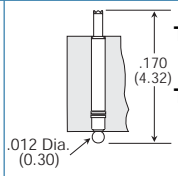
Mod5 Series Flip-Top™ BGA Sockets
0.50mm Pitch

Table of Models

	Description: SMT Standard (FRM) Note 1: See Application Spec. for recommended adhesive (epoxy) instructions.	 **Terminal Type -860** Sn/Ag/Cu Solder Ball **Terminal Type -861** Sn/Pb Solder Ball
	Description: SMT/Screw Mount (FRM) Note 2: Screws provided for additional strain relief when needed; reflow still required.	 **Terminal Type -864** Sn/Ag/Cu Solder Ball **Terminal Type -865** Sn/Pb Solder Ball
	Description: SMT Plus (FRM) Note 3: Additional solder balls provided for strain relief in low pin count SMT applications.	 **Terminal Type -862** Sn/Ag/Cu Solder Ball **Terminal Type -863** Sn/Pb Solder Ball

For device packages up to 12mm square:

Body Size
0.79/(20mm) W x 1.06/(27mm) L

Height
0.68/(17.4mm)* approx. (*will vary based on reflow profile, paste volume, etc.)

Additional mounting options and custom designs available.
Consult factory for QFN and LGA devices.

How To Order

RoHS Compliant Pb Free

16 FR M 064 - 860 GG H1

Footprint Dash #
If Applicable*

Model Type
RoHS Compliant Insulator:
FR - Flip-Top™ BGA Socket

Pitch
M = .0197/(0.50mm)

Number of Positions
*Footprints available online

Terminal Type (Includes Mounting Option)
See Lead-free (RoHS) and Tin/Lead options with various mounting styles

Terminal Plating (Probe Termination)
RoHS Compliant:
GG - Gold

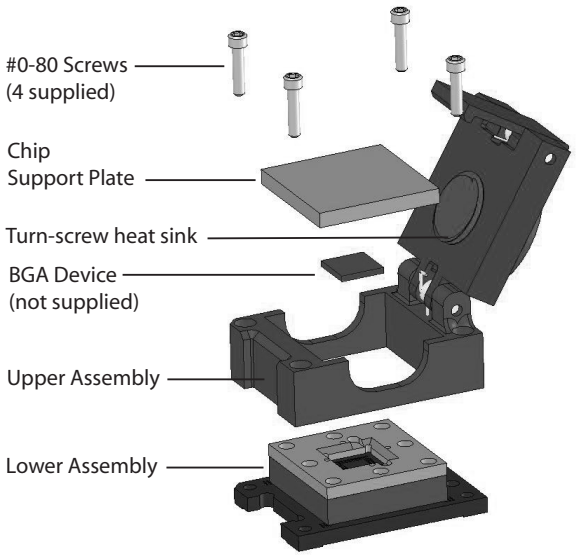
Turn-Screw Heat Sink
H1 - 1 Fin (standard)
H3 - 3 Fins

- 4-point crown tip spring probes accurately align device solder balls, leaving only minimal witness marks to preserve the solder ball integrity
- Device mechanical specifications are required prior to ordering to ensure accuracy of device-specific chip support plate
- Sockets are packaged in foam-lined cartons

inch/(mm)

Mod5 Series Flip-Top™ BGA Sockets
0.50mm Pitch

How It Works



Step 1: Solder lower assembly to PC board.

Step 2: Attach upper assembly using four supplied screws.

Step 3: Insert BGA device by hand or with the aid of a vacuum pen (recommended).

Step 4: Place device-specific chip support plate (supplied) over device, close lid, and screw down heat sink actuator for device engagement.

Performance

Durability
Actuation cycles: 500 minimum

Current Carrying Capacity
2.8 Amps Max.

Probe Contact Force
18 g (per position)

Probe Contact Resistance
80 mOhms

Return Loss*

Differential	Single-Ended
-10db @ 2.6 GHz	-10db @ 8.0 GHz
-15db @ 1.3 GHz	-15db @ 3.5 GHz

Insertion Loss*

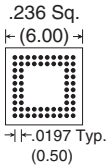
Differential	Single-Ended
-0.6db @ 2.6 GHz	-2.1db @ 8.0 GHz
-0.2db @ 1.3 GHz	-0.9db @ 3.5 GHz

*Complete SI Simulation Report Available

inch/(mm)

Footprints:

64 Pins
Footprint Number 64-16



10 x 10 rows

- Footprint specific insulators drilled to exact device pattern.
- Over 100 footprints available - search online, see pg. 84, or submit your device specs.
- Use our Build-A-Part feature or search in our online BGA Socket Finder™ at www.bgasockets.com.

Available Online:

- Technical articles
- Test data
- Signal Integrity Performance
- CAD drawings
- BGA Footprints

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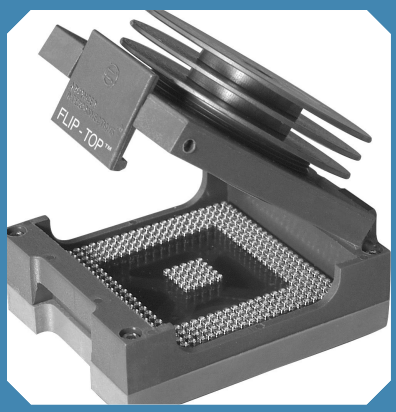
Flip-Top™ BGA Sockets



Features:

- Designed to save space on new and existing PC boards in test, development, programming and production applications.
- No external hold-downs or soldering of BGA device required.
- AIC exclusive solder ball terminals offer superior processing.
- Uses same footprint as BGA device.
- Available with integral, finned heat sink or coin screw clamp assembly.

Specifications:

Terminals:
Brass - Copper Alloy (C36000) ASTM-B-16

Contacts:
Beryllium Copper (C17200) ASTM-B-194

Plating:
G - Gold over Nickel

Terminal Support:
Polyimide Film

Spring Material:
Stainless Steel

Lid, Latch, Heat Sink/Coin Screw and Support Plate Material:
Aluminum

Solder Ball:
Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

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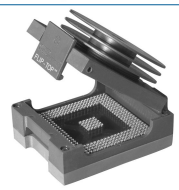
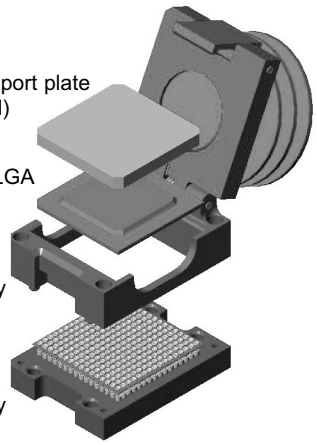
Catalog 16A

Table of Models

	Description: Socket (FRG, 1.27mm pitch) Guide Box and Base Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	Socket Size: 3.00mm wider and 10.00mm longer than BGA device (for packages larger than 15.00mm square).*
	Description: Socket (FRH, 1.00mm pitch) Guide Box Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F) Base Mat'l: FR-4 Glass Filled Epoxy Index: -40°C to 140°C (-40°F to 284°F)	Socket Size: 3.00mm wider and 10.00mm longer than BGA device (for packages larger than 15.00mm square).*

FRG replaces FTG.
* For device packages smaller than 15.00mm square, the socket size is X = .709/(18.00) and Y = .984/(25.00).

How It Works



SMT models are shipped un-assembled to ease solderability. Thru-hole models are shipped fully assembled.

1. Lower assembly is soldered to PC board with no external hold-down mechanism. Thru-hole models may be soldered to PC board or plugged into a mating socket.
2. Upper assembly inserts easily to lower assembly by aligning guide posts and installing four (supplied) screws.
3. Finned heat sink or coin screw is screwed down to flush with bottom of lid.
4. Lid opens easily by pressing latch.
5. BGA device is inserted by aligning A1 position with chamfered corner of Flip-Top™ socket. Place support plate on top of device, close lid, engage heat sink or coin screw, and socket is ready for use.

See page 15 for Generic Reflow Profiles.

Detailed Installation and General Usage Instructions are provided with product.

How To Order

RoHS Compliant Pb Free

1 FR G XXXX - 821 G G XX

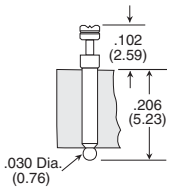
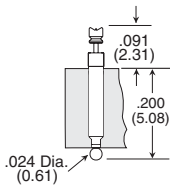
- **Footprint Dash #** — If Applicable*
- **Model Type** — RoHS Compliant Insulator: FR - Flip-Top™ BGA Socket
- **Pitch** — G = .050/(1.27mm); H = .039/(1.00mm)
- **Number of Positions** — *See footprints section or online database.
- **Terminal Type** — See options
- **Terminal Plating** — RoHS Compliant: G - Gold
- **Contact Plating** — RoHS Compliant: G - Gold
- **Clamp Options** — HS - Heat Sink (3 Fins Std.); CS - Coin Screw

inch/(mm)

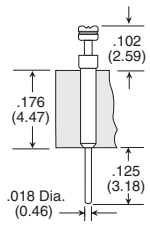
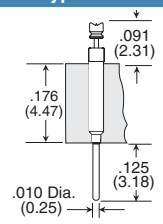
Flip-Top™ BGA Sockets
1.27mm and 1.00mm Pitch

Terminals (for test, development and production applications)

SMT (Surface Mount)

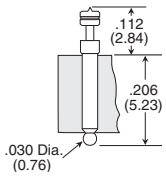
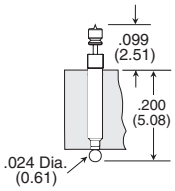
Tin/Lead: Type -690	Tin/Lead: Type -752
Lead-free: Type -821	Lead-free: Type -837
1.27mm pitch	**1.00mm pitch**
	

Thru-Hole

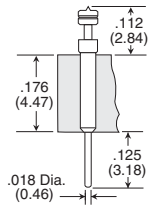
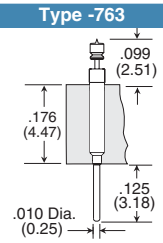
Type -708	Type -754
	

Terminals (for LGA or de-balled BGA device applications)

SMT (Surface Mount)

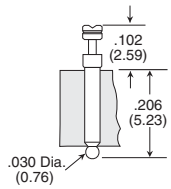
Tin/Lead: Type -713	Tin/Lead: Type -762
Lead-free: Type -822	Lead-free: Type -838
1.27mm pitch	**1.00mm pitch**
	

Thru-Hole

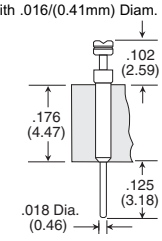
Type -712	Type -763
	

Terminals (for BGA device test applications)

SMT (Surface Mount)

Tin/Lead: Type -659	Tin/Lead: Type -TBD
Lead-free: Type -820	Lead-free: Type -TBD
1.27mm pitch	**1.00mm pitch**
	Consult Factory

Thru-Hole

Type -657	Type -TBD
Available with .016/(0.41mm) Diam. tail; Type -709 	Consult Factory

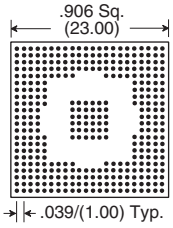
inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

Flip-Top™ BGA Sockets

Footprints:

360 Pins
Footprint Number 360-2



22 x 22 rows

- Full grid molded insulators populated to exact device pattern.
- Over 1000 footprints available - see page 99, search online or submit your device specs.
- Use our Build-A-Part feature or search in our online BGA Socket Finder™ at www.bgasockets.com.

Available Online:

- RoHS Qualification Test Report
- Technical articles
- Test data
- Signal Integrity Performance
- CAD drawings
- BGA Footprints

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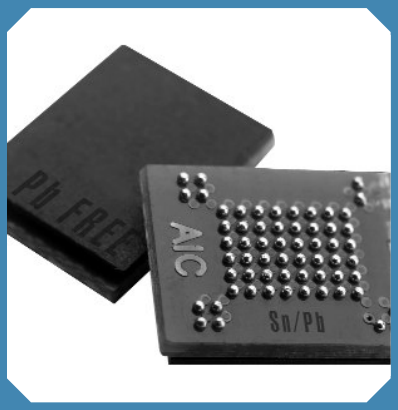
Lead-free Applications



Features:

When BGA devices are transitioned to lead-free packages, OEMs with RoHS exempt applications are faced with costly PC board redesign and/or the added cost and time delays associated with re-qualifying the board soldering profile. BGA Interposers and Socket Adapter Systems from Advanced are cost-effective methods for converting lead-free BGA device packages for use on boards processed with traditional Tin/Lead solder reflow profiles. These proven solutions solve BGA device transition, obsolescence, and solderability issues associated with the higher temperatures required in lead-free solder reflow profiles.

- Reduces costs associated with device package transition or obsolescence
- Solutions available for both RoHS compliant and exempt applications
- Industry proven screw-machined terminals with solder balls provide the high reliability required in medical, military, telecom, and automotive applications
- Same footprint as BGA device
- Device attach services available in-house
- Standard and custom designs
- Tape and Reel packaging available

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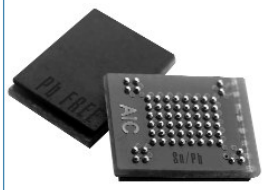
Catalog 16A

Custom BGA Interposer



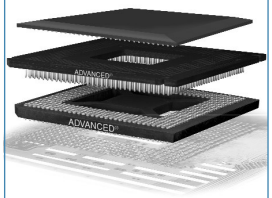
New BGA Interposers from Advanced Interconnections are a cost-effective method for converting lead-free BGA device packages for use on boards processed with lower temperature, Tin/Lead solder profiles.

Designed for RoHS exempt applications, Interposers from Advanced solve BGA device transition, obsolescence, and solderability issues associated with the higher temperature requirements to process lead-free BGA packages.

Advanced's turn-key solution consists of lead-free BGA device attach to an Interposer adapter board in a high temperature reflow process, followed by mounting of eutectic (63/37) Tin/Lead solder balls on the bottom of the Interposer. The compact Interposer assembly is shipped ready for use on existing PC boards, eliminating the need to change Tin/Lead solder profiles or subject other components to higher processing temperatures.

- Reduces costs associated with device package transition or obsolescence.
- Lead-free device attach service provided.
- Industry-proven solder ball terminal design provides the high reliability required in medical, military, telecom, and automotive applications.
- High temperature FR-4 adapter board closely matches original package size.
- Same footprint as BGA device (currently available in 0.80, 1.00, and 1.27mm pitch).
- Custom designed to customer's requirements.
- Tape and Reel packaging available.

Standard BGA Socket Adapter System



BGA Socketing Systems from Advanced® offer an economical and dependable alternative to direct device attach. Our patented SMT designs are field-proven in production, development, programming and test applications. Compact designs and patented features offer you cost effective solutions for BGA, LGA or CSP device replacement, repair, upgrade, and testing while protecting valuable PC boards and devices from damage associated with direct device attach and removal.

- See pgs. 4-11 for standard models.
- Custom designs available.
- See page 15 for typical solder process example.

inch/(mm)

Typical Solder Process Example*

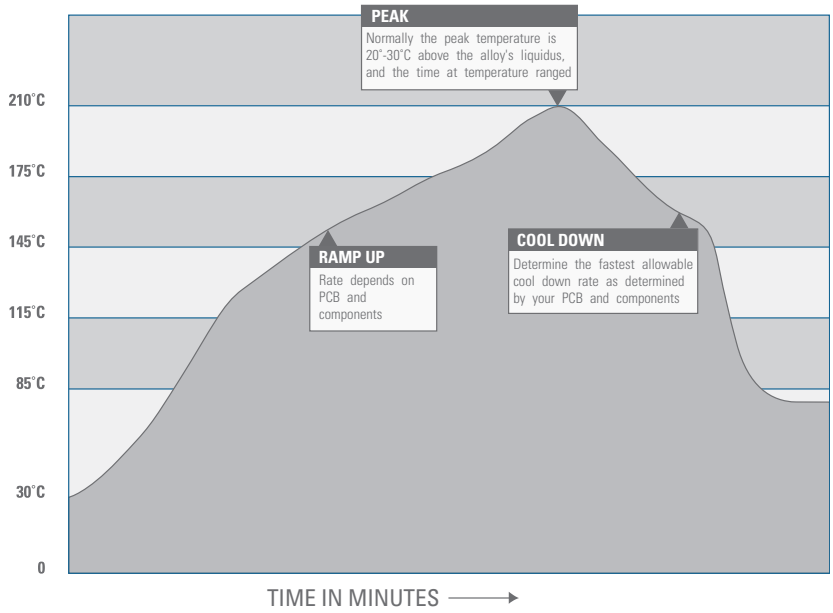
1. Solder Paste Deposition
- Solder paste should be selected based on application requirements.
- The recommended solder volume is 0.0016 - 0.0032 cubic inches (0.040 - 0.080 cubic mm) with a pad diameter of 0.020 - 0.028 inches (0.51 - 0.71mm).

2. Solder Reflow
- See profile.

3. Inspection and Testing
- Initial visual inspection for positioning of solder ball to pad along perimeter is recommended to verify reflow of balls.
- Secondary X-Ray tests for overall continuity verification are recommended.
- For production applications, electrical MDA (Mfg. Defects Analysis) tests are recommended.

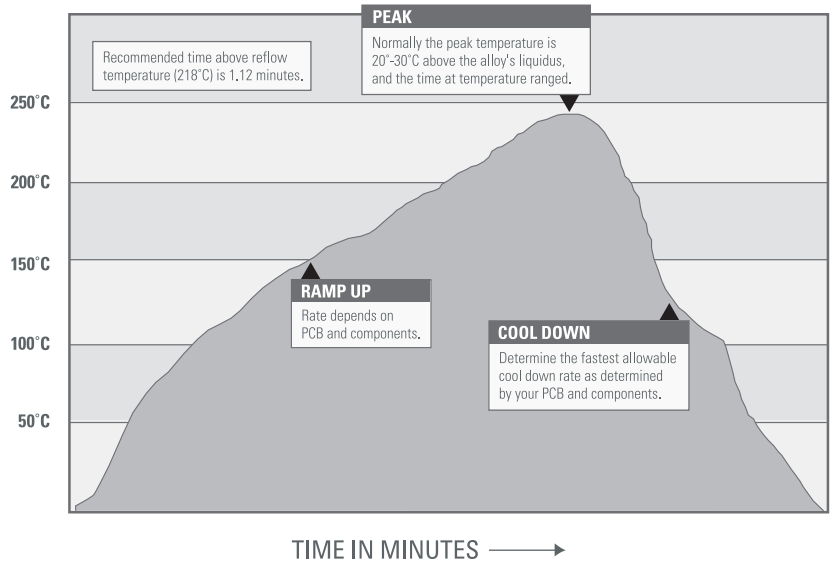
Generic Reflow Profile

63Sn/37Pb Solder Liquidus@183°C (361°F)



Generic Lead-free Reflow Profile

95.5Sn/4.0Ag/0.5Cu Liquidus@218°C (424°F)

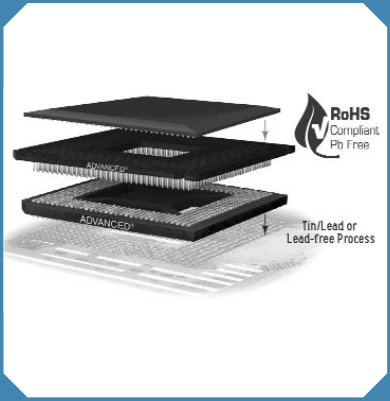


*Solder process recommendation is presented for guidance only. Factors such as different board sizes, densities, and equipment will change actual solder process requirements. Example presented should be used as a starting point only - actual solder process specifications should be developed based on individual requirements and capabilities.

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

Generic Reflow Profiles



Notes:

- These typical solder process examples are presented as a guideline for use with our BGA Socketing Systems in both Tin/Lead and Lead-free Reflow Profiles.
- A Generic Lead-free Solder Reflow Profile is provided as a guideline when using our products that feature the new Sn/Ag/Cu solder balls.
- Actual solder process requirements will be determined by the customer, based on the specific application.
- Contact our customer service department for application assistance and additional information.

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Fax: 401.823.8723
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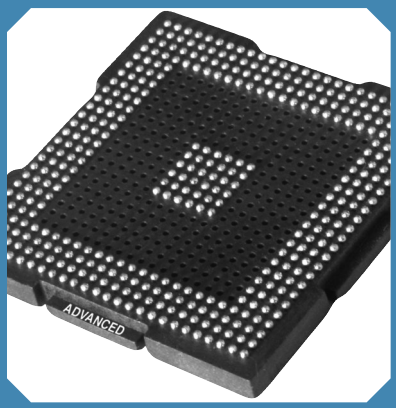
Catalog 16A

Design Your Own BGA Socket



Advanced Interconnections has complete design and manufacturing capabilities for your BGA socket needs.

By answering the following questions we can design a socket to meet your requirements.

Copy this page and fill in the information required and/or attach complete device mechanical spec. Fax to 401-823-8723, or email to info@advanced.com.

BGA Device Dimension and I/O Requirements

Contact Information

Date: _____

Company Name: _____

Address: _____

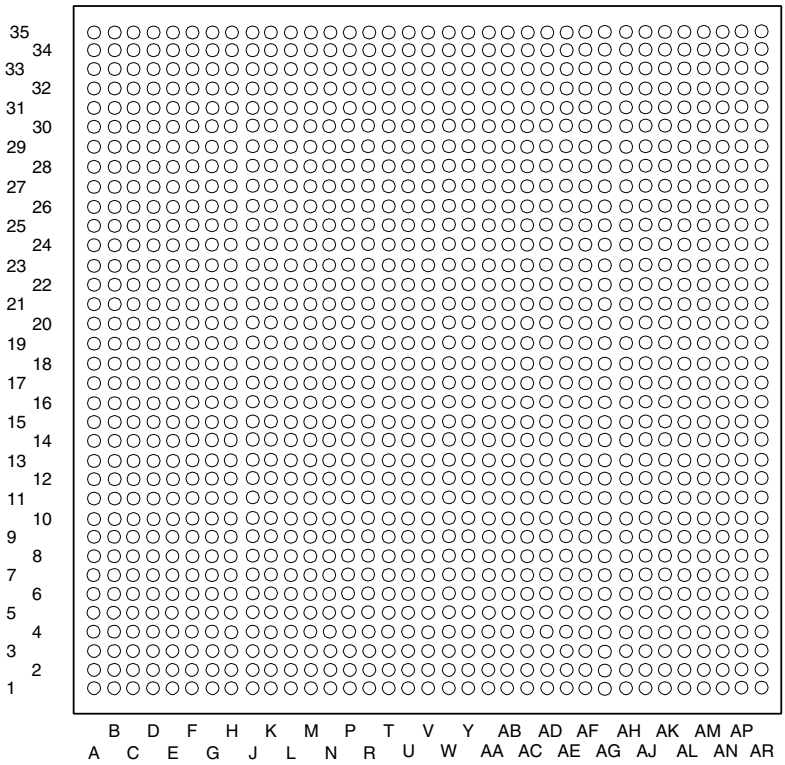
City: _____ State: _____ ZIP: _____ Country: _____

Specifier: _____ Title: _____

Phone: _____ Fax: _____

Email: _____

Fill in Ball Location

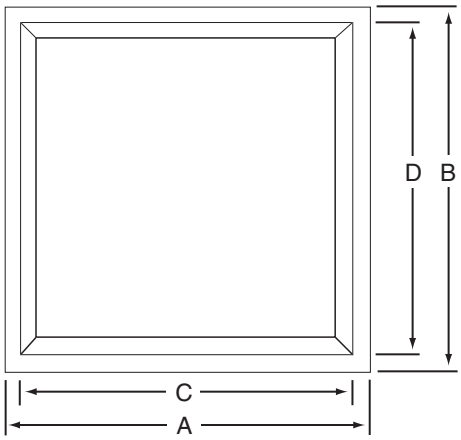


Fill in ball location* or attach complete device mechanical specifications.

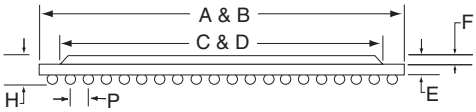
*All sockets (footprints) viewed top down - looking toward seating plane of PCB and into female side of socket.

Complete the required dimensional table and attach BGA mechanical specifications including footprint.

BGA Device - Top View



BGA Device - Side View



Dim.	inches	mm	Tol.
A			
B			
C			
D			
E			
F			
H			
P			

Device Manufacturer: _____

BGA Device Model No.: _____

Application: _____

Number of Balls: _____

Grid Pattern (rows across x down): _____

Pitch (specify inches or mm): _____

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

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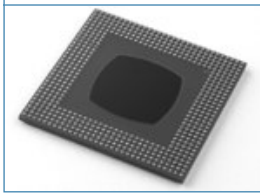
BGA Device Attach and Solder Ball Re-attach Services

Value Added Services

	Advanced offers **BGA Device Attach Services** on either customer supplied BGA Adapters or our own Advanced® BGA Adapters. Save time and money by ordering your Device Attach Service in conjunction with Advanced® BGA Adapters and mating sockets, both featuring the highest quality, screw-machined terminals.
	**BGA Solder Ball Re-attach Services** are available to restore previously used BGA devices to usable condition - perfect for expensive or hard to find BGA devices.

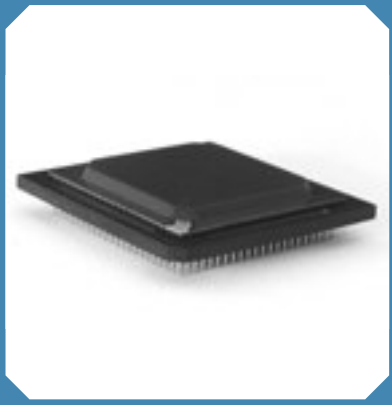
Order Requirements

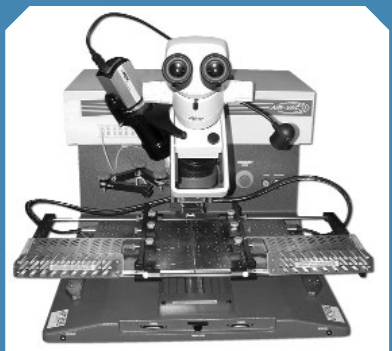
Device Attach	Solder Ball Re-attach
Quantity	Quantity
Adapters (indicate if supplied or we should add to the quote)	Solder ball composition
Electrical testing requirements (shorts, etc.)	Additional requirements
Device mfg. name, part number, and mechanical specifications (see form on page 12, use online form, or submit required information via email)	Device mfg. name, part number, and mechanical specifications (see form on page 12, use online form, or submit required information via email)
Bake-out for moisture control and thermal cycle specifications.	Bake-out for moisture control and thermal cycle specifications.

Notes:

- Semiconductors must be supplied in ESD protective (anti static) packaging, vacuum sealed for moisture control, with outside containers marked accordingly.
- Advanced Interconnections assumes no responsibility or liability for the function of customer-supplied semiconductors either before or after the value added service is performed.
- Device attachment assemblies will be x-rayed for quality assurance. (AQL .4)
- Product is reshipped in ESD trays with internal foam layers in ESD shielded Vacuum sealed bags. If alternative method is required, customer shall provide all materials.
- Delivery will be supplied with quote.
- Volume above 10 pieces should be supplied in pick-and-place carriers.

BGA Value Added Services





Equipment photo provided by Air-Vac Engineering.

Equipment List:

- Air-Vac DRS24 BGA Rework Station
- Speedline MPM Ultraprint 2000 Fully Automatic Stenciler
- HTI Semi-Automatic Stenciler
- Quad Meridian 1030P Precision Pick & Place Machine
- Quad 4C Precision Pick & Place Machine
- BTU Oven VIP 98 Reflow Oven
- J.O.T. Panelmaster 18HS PC Board Router
- Nicolet X-Ray NXR-10HR X-Ray with Photo

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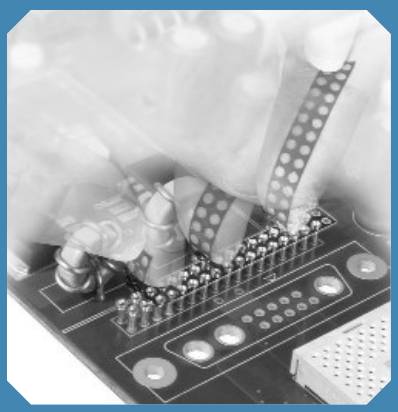
Catalog 16A

inch/(mm)

Peel-A-Way® Carriers



Features:

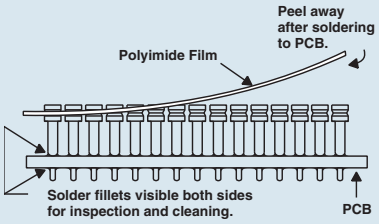
- Low profile.
- Eliminates hand-loading of socket terminals.
- Multiple terminal styles available on single sheet.
- Compatible with high temperature, RoHS Compliant profiles.
- Peel-A-Way® carrier can be removed after soldering for complete solder joint visibility or left in place for added stability.

Material:

RoHS Compliant Pb Free

Polyimide Film
Index: -269°C to 400°C
(-452°F to 752°F)

How To Use:



1. Place socket on PC board.
2. Send PC board and socket through soldering operation.
3. Peel away polyimide film carrier for complete solder joint visibility or leave in place for added stability.

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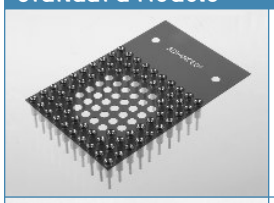
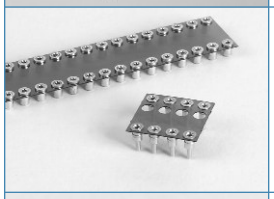
Catalog 16A

Peel-A-Way® Removable Terminal Carriers
Standard & Custom Configurations

Standard Models

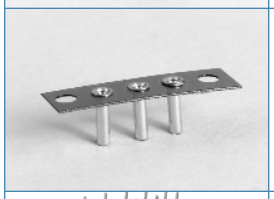


PGA Sockets and Adapters
- Standard and interstitial grids
- Hundreds of terminal styles to choose from
- See pgs. 19-25



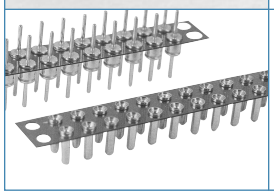
DIP Sockets
- Standard sizes in row to row spacing from .300/(7.62mm) to .900/(22.86mm) with 8 to 64 positions
- See pgs. 30-31

EXPRESS



SIP Sockets and Adapters
- Available from 2 to 100 positions for SIP device socketing or board to board connector applications
- See pgs. 36-39

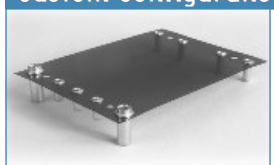
EXPRESS



Board to Board Connectors
- Single, dual and triple row configurations
- .100/(2.54mm), .079/(2.00mm), .050/(1.27mm) pitch and staggered models available
- See pgs. 40-51

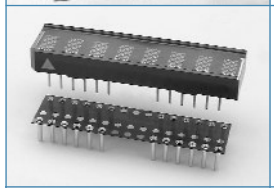
EXPRESS

Custom Configurations



SocketPac® Relay Sockets
- Sockets for power converters, splitters, I/O voltage modules, transformers, or test jack locations
- Power module sockets for DC/DC converters
- Eliminates heat distribution problems during wave soldering operations
- Facilitates power supply replacement, upgrades, and repairs

Sheets of Sockets
- Maximizes socket loading rate
- No expensive tooling required
- Available with cut-out areas for loading caps, resistors, ICs, etc.



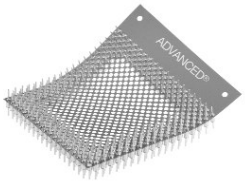
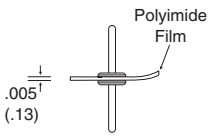
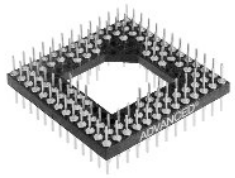
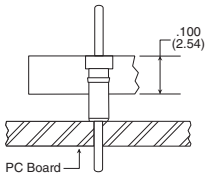
Custom LED Socket
- Allows LED to be plugged in after board is processed in a lead-free profile
- Protects device from damage caused by high temperature processing

Custom 6 Position Peel-A-Way® Socket
- This custom flex circuit socket features solder preform terminals in our patented Peel-A-Way® Removable Terminal Carrier. The design eliminated the need for hand loading terminals and wave soldering while meeting a low-profile specification and allowing complete solder joint visibility.

inch/(mm)

Pin Grid Array Adapters
.100/(2.54mm) Standard Grid

Table of Models

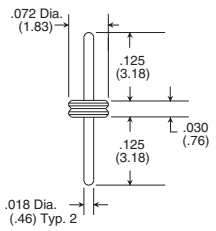
	Description: Peel-A-Way® (KA) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)	
	Description: Molded (RCA) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	

RCA replaces HCA.

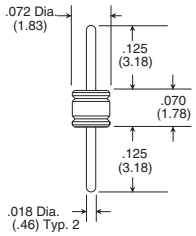
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

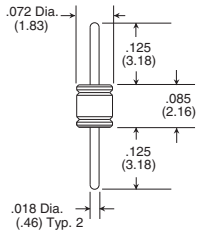
Type -79
Peel-A-Way® only



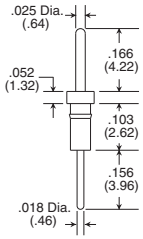
Type -80
Peel-A-Way® only



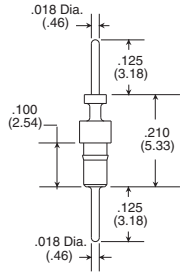
Type -81
Peel-A-Way® only



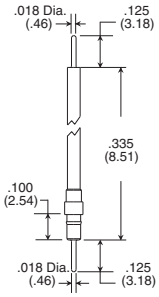
Type -08
Molded only



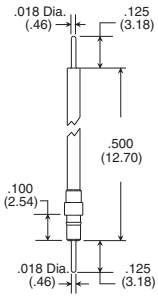
Type -68
Molded only



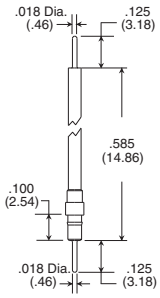
Type -43
Molded only



Type -185
Molded only



Type -42
Molded only



How To Order

RoHS Compliant Pb Free

1 RCA 068 - 08 M

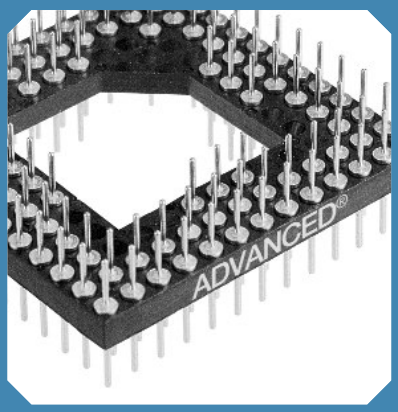
Footprint Dash #
If Applicable*

Body Type
RoHS Compliant Insulators:
KA - Peel-A-Way®
RCA - Hi-Temp Molded LCP

Number of Pins
004 to 484
*Footprints available online

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin-Lead

Terminal Type
See options above for fastest delivery or select from additional styles in Terminals section.



Features:

- Screw-machined terminals for long-term durability.
- Mating sockets available.
- Custom designs available.

Specifications:

Terminals:
Brass - Copper Alloy (C36000) ASTM-B-16

Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Available Online:

- Hundreds of footprints
- Extraction Tools
- RoHS Qualification Test Report
- CAD Drawings

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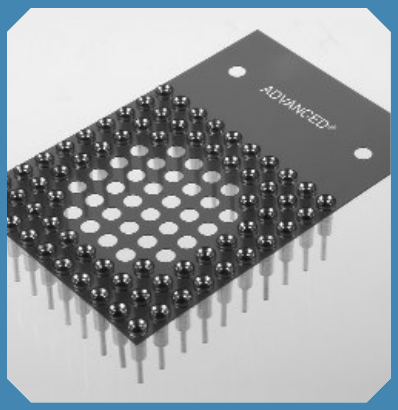
inch/(mm)

Low Insertion Force PGA Sockets
.100/(2.54mm) Standard Grid



Features:

- Low insertion force (1 oz. average per pin).
- Screw-machined terminals with multiple finger contacts for reliability.
- Closed bottom terminal for 100% anti-wicking of solder.
- Tapered entry for ease of insertion.
- Custom designs available.

Specifications:

Terminals:
Brass - Copper Alloy
(C36000) ASTM-B-16

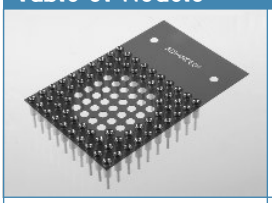
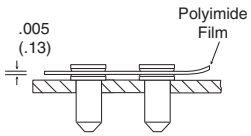
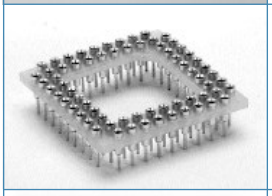
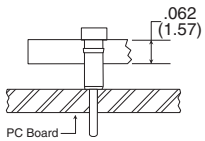
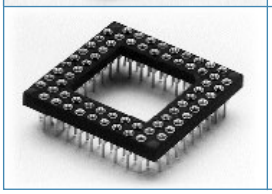
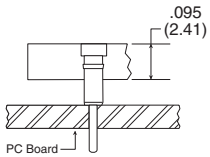
Contacts:
Beryllium Copper
(C17200) ASTM-B-194

Solder Preform:
Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

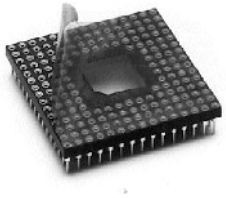
Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models

	Description: Peel-A-Way® (KIS) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)	
	Description: FR-4 (FIS) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F)	
	Description: Molded (RIS) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	

RIS replaces HCIS, HCS, CIS, and CS. KIS replaces KS. FIS replaces FS.

Options



Tape Seal - add 3M to end of part number

- Removable tape seal protects plated contact in harsh environments
- Sealed socket will not allow dirt and other contaminants to enter socket chamber and become entrapped behind contact fingers
- Spray flux without contaminating contact area

Material

Silicone Backed Polyimide Film, -74°C to 260°C (-100°F to 500°F)
Intermittent to 371°C (700°F)

How To Order

RoHS Compliant Pb Free

1 RIS 068 - 04 M G

Footprint Dash #
If Applicable*

Body Type
RoHS Compliant Insulators:
KIS - Peel-A-Way®
FIS - FR-4
RIS - Hi-Temp Molded LCP

Number of Pins
004 to 484
*Footprints available online

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Terminal Type
See options on next page

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

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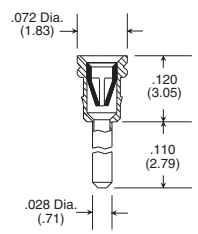
inch/(mm)

Low Insertion Force PGA Sockets
.100/(2.54mm) Standard Grid

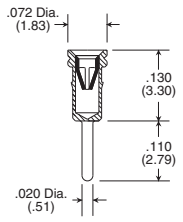
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

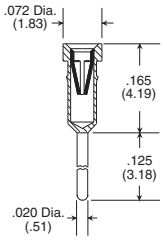
Type -04
.157/(3.99) Hole Depth



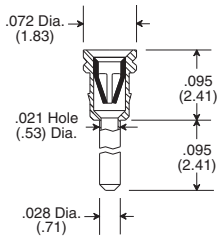
Type -51



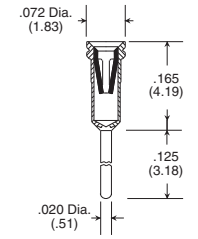
Type -01
Molded or FR-4 only



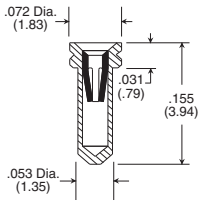
Type -49



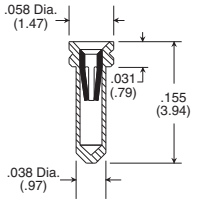
Type -33
Peel-A-Way® only



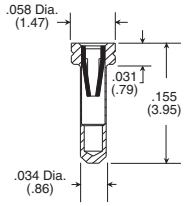
Type -50
Peel-A-Way® only



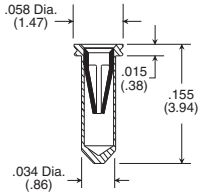
Type -85
Peel-A-Way® only



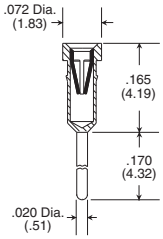
Type -176
Peel-A-Way® only



Type -210
Peel-A-Way® only

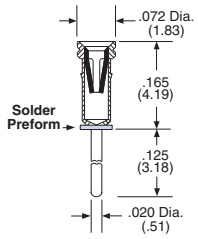


Type -29
Molded or FR-4 only

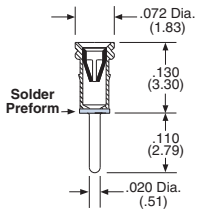


Solder Preform Terminals

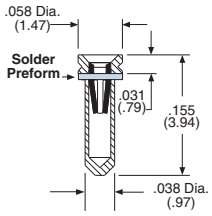
Tin/Lead: Type -150 / Lead-free: Type -811



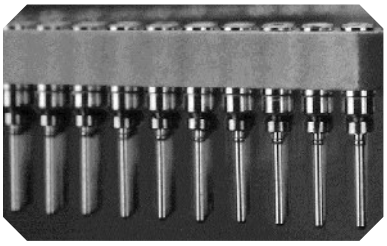
Tin/Lead: Type -151 / Lead-free: Type -812

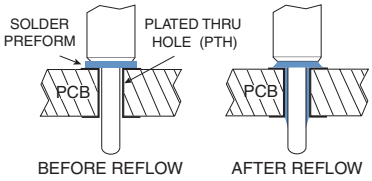


Tin/Lead: Type -111 / Lead-free: Type -810
Peel-A-Way® only



Intrusive Reflow Application



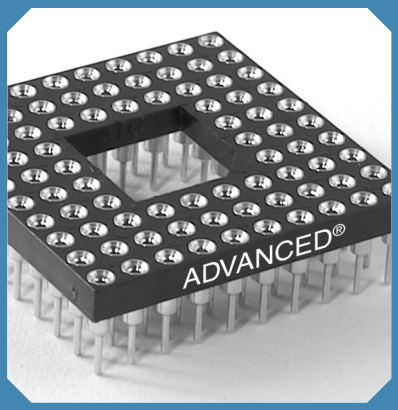


Solder Preform Terminals

- Combines the labor of socket loading and solder application into one operation.
- Eliminates the use of solder paste and screening operation.
- Eliminates solder bridges and/or solder shorts due to excess solder.
- Ensures a reliable solder joint with controlled solder volume.
- Ideal for surface mount and mixed technology applications.
- For custom solder preform terminal applications consult factory.

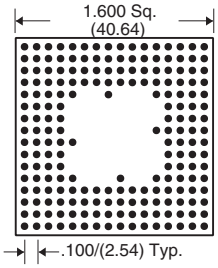
inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.



Footprints:

200 Pins
Footprint Number 200-1



16 x 16 rows

- Full grid insulators loaded to your specific footprint.
- Open centers available upon request (consult factory).
- Hundreds of footprints available online.
- Use our online Build-A-Part feature or download a Footprints Booklet in PDF format.

Available Online:

- Extraction Tools
- RoHS Qualification Test Report
- CAD Drawings

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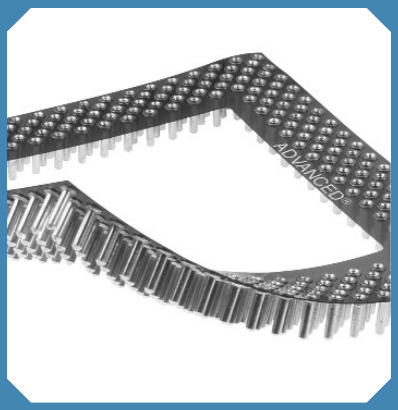
Catalog 16A

Interstitial PGA Sockets
Low Insertion Force .100/(2.54mm) Staggered Grid



Features:

- Low insertion force (1 oz. average per pin).
- Screw-machined terminals with multi-finger contacts for reliability.
- Closed bottom terminal for 100% anti-wicking of solder.
- Tapered entry for ease of insertion.
- Custom designs available.

Specifications:

Terminals:
Brass - Copper Alloy (C36000) ASTM-B-16

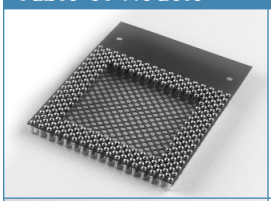
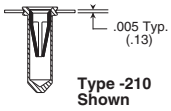
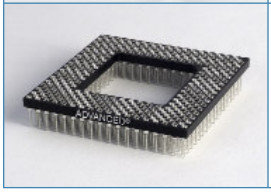
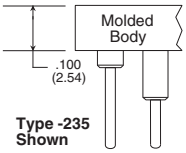
Contacts:
Beryllium Copper (C17200) ASTM-B-194

Solder Preform:
Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

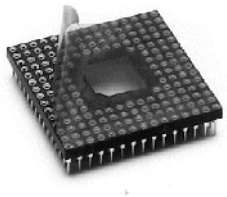
Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models

	Description: Peel-A-Way® (KSX) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)	 Type -210 Shown
	Description: Molded (RSX) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	 Type -235 Shown

RSX replaces CSX.

Options



Tape Seal - add 3M to end of part number

- Removable tape seal protects plated contact in harsh environments
- Sealed socket will not allow dirt and other contaminants to enter socket chamber and become entrapped behind contact fingers
- Spray flux without contaminating contact area

Material

Silicone Backed Polyimide Film, -74°C to 260°C (-100°F to 500°F)
Intermittent to 371°C (700°F)

How To Order

RoHS Compliant Pb Free

1 RSX 503 - 234 M G

Footprint Dash #
If Applicable*

Body Type
RoHS Compliant Insulators:
KSX - Peel-A-Way®
RSX - Hi-Temp Molded LCP

Number of Pins
004 to 2209
*Footprints available online

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

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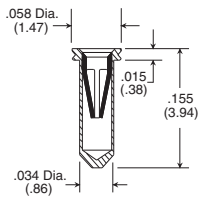
inch/(mm)

Interstitial PGA Sockets
Low Insertion Force .100/(2.54mm) Staggered Grid

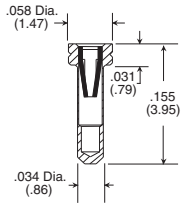
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

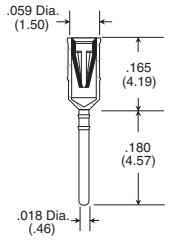
Type -210
Peel-A-Way® only



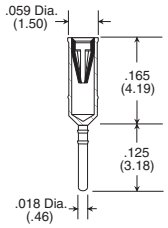
Type -176
Peel-A-Way® only



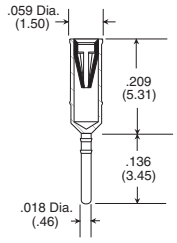
Type -234
Molded only



Type -82
Molded only

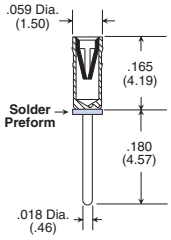


Type -235
Molded only
4 standoffs per socket
Type -234 used in
remaining positions

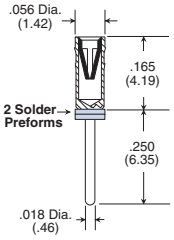


Solder Preform Terminals

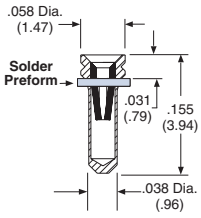
Tin/Lead: Type -311
Lead-free: Type -813
Molded only



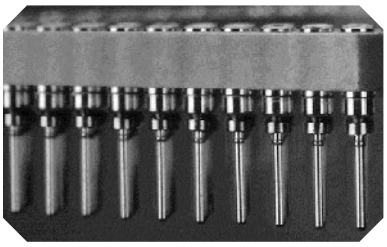
Tin/Lead: Type -313
Lead-free: Type -814
Molded only

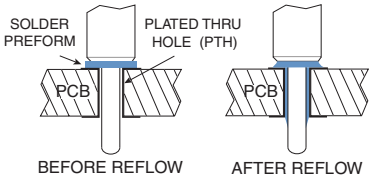


Tin/Lead: Type -432
Lead-free: Type -815
Peel-A-Way® only



Intrusive Reflow Application





Solder Preform Terminals

- Combines the labor of socket loading and solder application into one operation.
- Eliminates the use of solder paste and screening operation.
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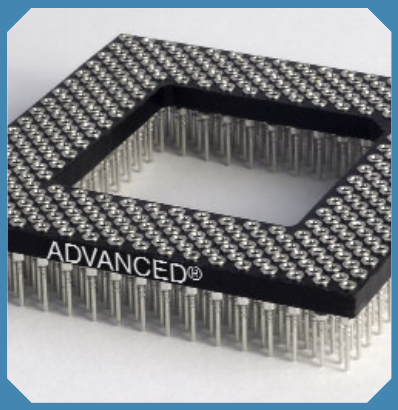
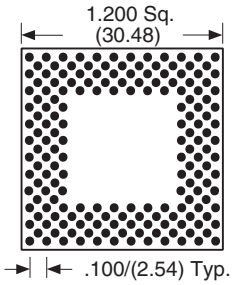
- Ensures a reliable solder joint with controlled solder volume.
- Ideal for surface mount and mixed technology applications.
- For custom solder preform terminal applications consult factory.



Footprints:

180 Pins
Footprint Number 180



23 x 23 rows

- Full grid insulators loaded to your specific footprint.
- Open centers available upon request (consult factory).
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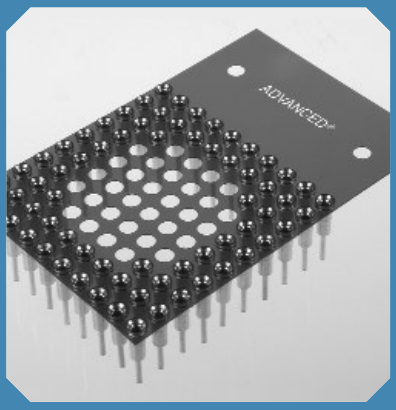
inch/(mm)

Design Your Own PGA Socket



Advanced has complete design and manufacturing capabilities available for your PGA socket needs.

By answering the following questions we can manufacture a socket to accept your device.

Copy this page and fill in the information required.
Fax to 401-823-8723.

Check insulator required.

- ☐ High Temp. Molded LCP
- ☐ FR-4
- ☐ Peel-A-Way® Polyimide Film

Fill in the following information.

a. What is the pin diameter of device?

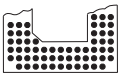
_____

b. What is the min/max lead lengths of device?

_____

c. Keying chamfer required on socket?

☐ Yes ☐ No



d. Is there a standoff on device?

☐ Yes ☐ No

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Catalog 16A

Standard Grid Design Your Own PGA Socket
.100/(2.54mm) Pitch

Contact Information

Date: _____

Company Name: _____

Address: _____

City: _____ State: _____ ZIP: _____ Country: _____

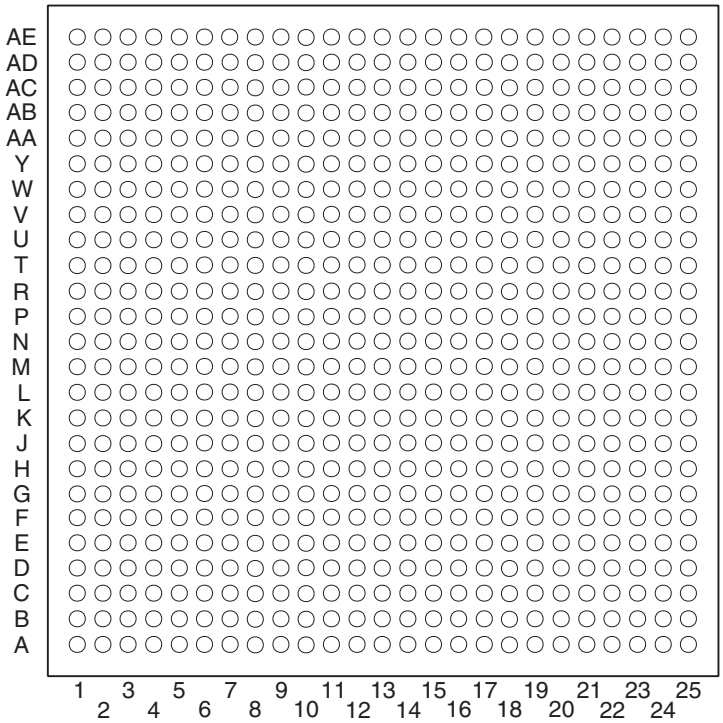
Specifier: _____ Title: _____

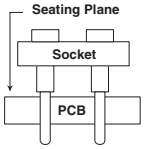
Phone: _____ Fax: _____

Email: _____ Pin Count: _____

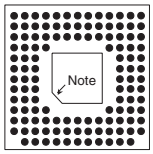
Fill in Pin Location

(Fill in or submit device mechanical specifications.)





All sockets viewed looking toward seating plane of PCB and into female side of socket.



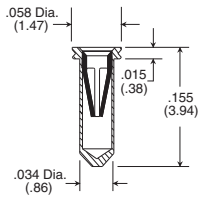
Note: Chamfer one corner for pin No. 1 location.

Circle Terminal Style Required

Additional standard and custom terminals available. See Terminals section or consult factory.

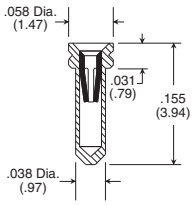
Type -210

Peel-A-Way® only

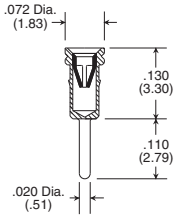


Type -85

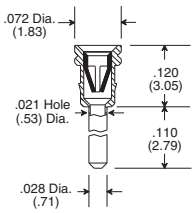
Peel-A-Way® only



Type -51

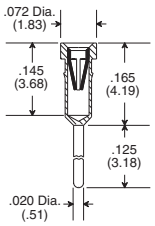


Type -04



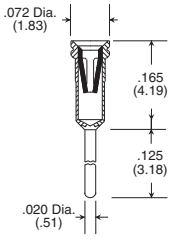
Type -01

Molded or FR-4 only

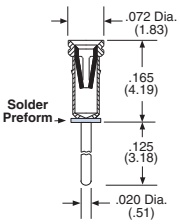


Type -33

Peel-A-Way® only



Tin/Lead: Type -150
Lead-free: Type -811



Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

Interstitial Grid Design Your Own PGA Socket
.100/(2.54mm) Pitch Staggered

Contact Information

Date: _____

Company Name: _____

Address: _____

City: _____ State: _____ ZIP: _____ Country: _____

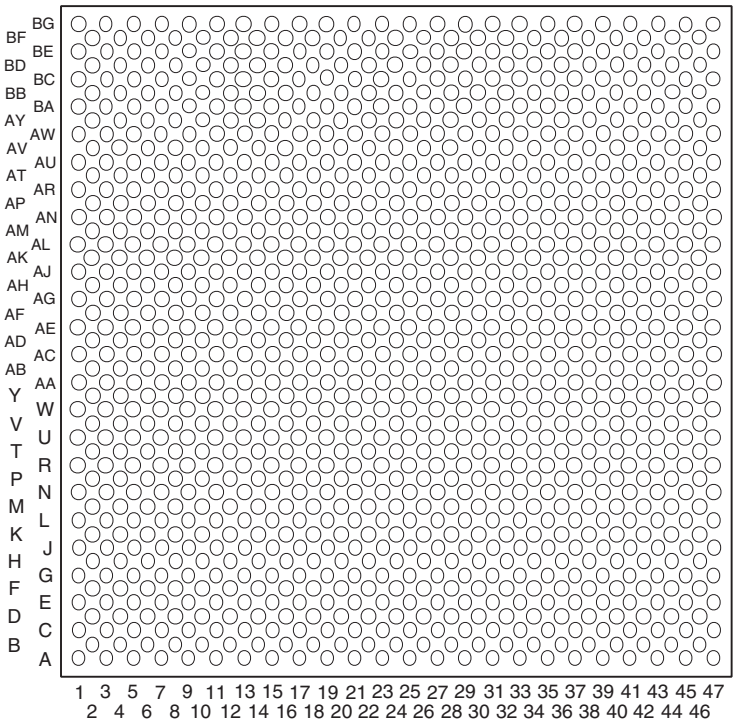
Specifier: _____ Title: _____

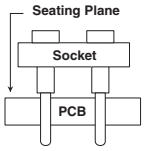
Phone: _____ Fax: _____

Email: _____ Pin Count: _____

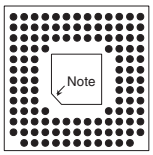
Fill in Pin Location

(Fill in or submit device mechanical specifications.)





All sockets viewed looking toward seating plane of PCB and into female side of socket.

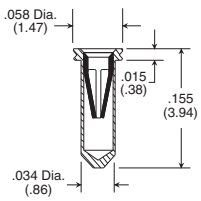


Note: Chamfer one corner for pin No. 1 location.

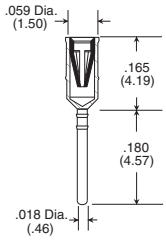
Circle Terminal Style Required

Additional standard and custom terminals available. See Terminals section or consult factory.

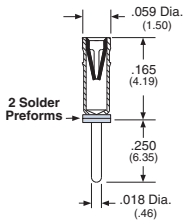
Type -210
Peel-A-Way® only



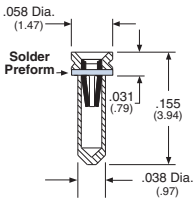
Type -234
Molded/FR-4



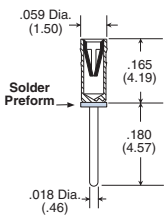
Tin/Lead: Type -313
Lead-free: Type -814
Molded/FR-4



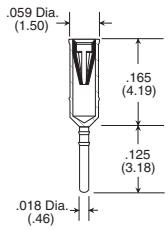
Tin/Lead: Type -432
Lead-free: Type -815
Peel-A-Way® only



Tin/Lead: Type -311
Lead-free: Type -813
Molded/FR-4



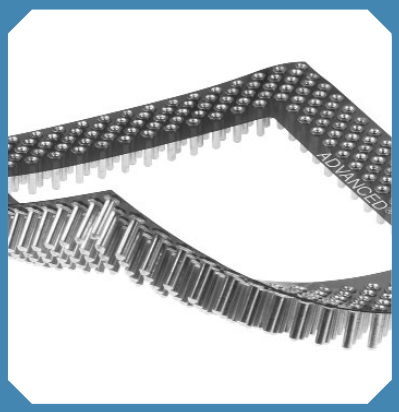
Type -82
Molded/FR-4



inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

Design Your Own PGA Socket



Advanced has complete design and manufacturing capabilities available for your PGA socket needs.

By answering the following questions we can manufacture a socket to accept your device.

Copy this page and fill in the information required.
Fax to 401-823-8723.

Check insulator required.

- ☐ High Temp. Molded LCP
- ☐ FR-4
- ☐ Peel-A-Way® Polyimide Film

Fill in the following information.

a. What is the pin diameter of device?

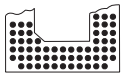
_____

b. What is the min/max lead lengths of device?

_____

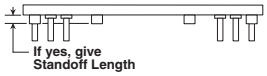
c. Keying chamfer required on socket?

☐ Yes ☐ No



d. Is there a standoff on device?

☐ Yes ☐ No



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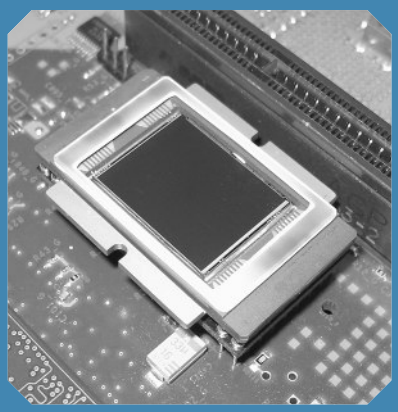
Tel: 800.423.9850 | 401.823.5200
Fax: 401.823.8723
info@advanced.com | www.advanced.com
Catalog 16A

Image Sensor Sockets



Features:

- Protect sensor performance by inserting after the reflow soldering process.
- Eliminate the chance for damage to valuable sensors during exposure to heat and errant solder flux on glass components.
- Reduce costs by eliminating the need for glass cleaning operations.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Body Material:

F: FR-4 Glass Epoxy,
U.L. Rated 94V-0

Thermal Index:

-40°C to 140°C (-40°F to 284°F)

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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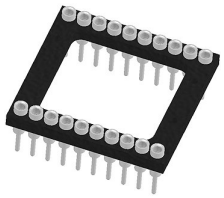
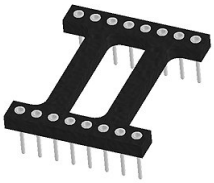
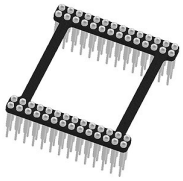
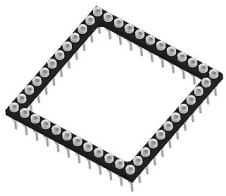
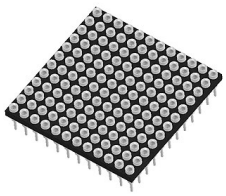
Proteksion™ Image Sensor Sockets

Table of Models

Standard Body		Recessed Body	
PS	PD	PR	PL
Dual Row	Quad Row	Dual Row	Quad Row
			

Footprint-Specific Sockets	
PC	PF
Open (Cutout)	Full (Solid)
	

Shown above left with Kodak image sensor device, courtesy of Eastman Kodak Company, for demonstration purposes only.

How To Order

RoHS Compliant Pb Free

Dual Row and Quad Row Standard Sockets

PS F 04 A 056 - 141 M G

Model Type
RoHS Compliant Insulators:
PS - Dual Row Standard
PR - Dual Row Recessed
PD - Quad Row Standard
PL - Quad Row Recessed

Body Type
F - FR-4

Row to Row Spacing
See table on next page

Pitch (Pin to Pin)
A = .100/(2.54mm)
B = .070/(1.78mm) [dual row models only]
C = .050/(1.27mm) [dual row models only]

Number of Positions
Total number of pins per socket

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Footprint-Specific Sockets

1 F B PC 056 - 141 T G

Footprint Dash #
If Applicable*

Body Type
F - FR-4

Pitch (Pin to Pin)
A = .100/(2.54mm)
B = .070/(1.78mm)
C = .050/(1.27mm)

Model Type
RoHS Compliant Insulators:
PC - Open Body (Cutout)
PF - Full Body (Solid Wafer)

Number of Positions
Total number of pins per socket

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

**Submit your device's mechanical specs and we will create a footprint number for you.*

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

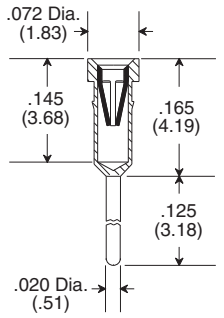
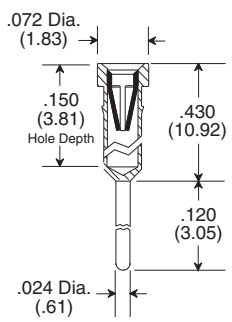
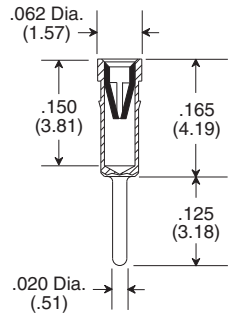
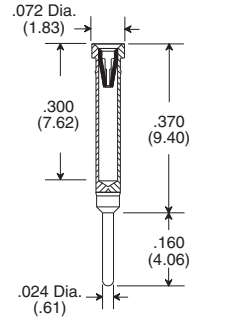
inch/(mm)

Proteksion™ Image Sensor Sockets

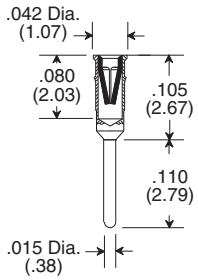
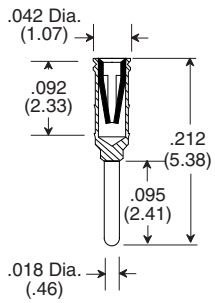
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

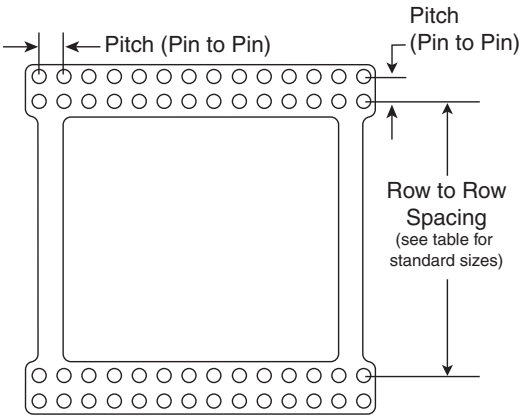
.100/(2.54mm) Pitch

Type -01	Type -141	Type -217	Type -346
			

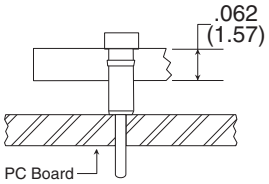
1.78mm and 1.27mm Pitch

Type -385	Type -674
	

Row to Row Spacing



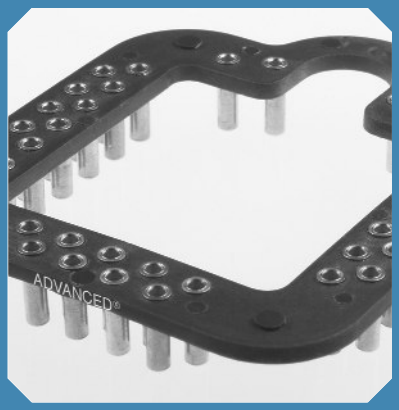
Example Part Number: PLF18A056-141TG



Code	inch	mm
01	0.300	7.62
02	0.400	10.16
03	0.450	11.43
04	0.600	15.24
05	0.610	15.49
06	0.700	17.78
07	0.800	20.32
08	0.802	20.37
09	0.880	22.35
10	0.900	22.86
11	0.910	23.11
12	1.005	25.53
13	1.010	25.65
14	1.200	30.48
15	1.300	33.02
16	1.320	33.53
17	1.400	35.56
18	1.410	35.81
19	1.520	38.61
20	1.700	43.18
21	1.800	45.72
22	2.000	50.80
23	2.010	51.05
24	2.600	66.04

inch/(mm)

Image Sensor Sockets

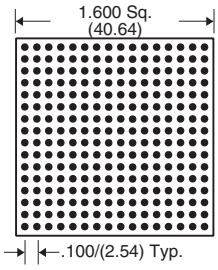


Custom Options:

- Molded insulators
- Peel-A-Way® Removable Terminal Carriers for low profile applications
- Low, medium and high insertion force contacts

Footprints:

256 Pins
Footprint Number 256



16 x 16 rows

- Virtually any footprint available.
- Submit your device's mechanical specs and we will create a footprint number for you.
- Fully customizable.

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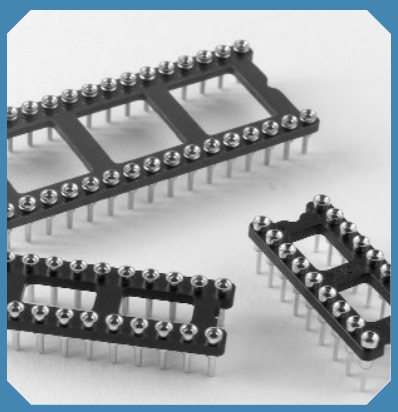
Catalog 16A

Molded DIP Sockets
Closed Frame and Open Frame



Features:

- Multiple finger contact on all sockets assures maximum reliability.
- Tapered entry for ease of insertion.
- Closed bottom sleeve for 100% anti-wicking of solder.
- To fit .100/(2.54mm) pitch.
- Easily customized to fit your application.

Specifications:

Terminals:
Brass - Copper Alloy (C36000) ASTM-B-16

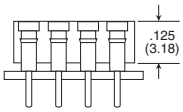
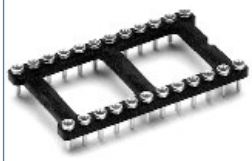
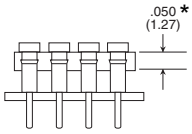
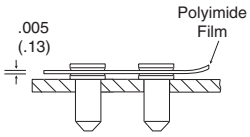
Contacts:
Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Solder Preform:
Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

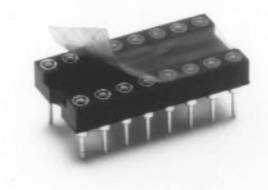
Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models

	Description: Closed Frame Socket (RDS) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	
	Description: Open Frame Socket (RLS) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F) EXPRESS	 *.100/(2.54) for 48 and 60 pos.
	Description: Peel-A-Way® Socket (KS) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F) For more information, refer to the Peel-A-Way® DIP Sockets pages (30-31). EXPRESS	

RDS replaces DS and HDS.
RLS replaces LS and HLS.

Options



Tape Seal - add 3M to end of part number

- Removable tape seal protects plated contact in harsh environments
- Sealed socket will not allow dirt and other contaminants to enter socket chamber and become entrapped behind contact fingers
- Spray flux without contaminating contact area

Material

Silicone Backed Polyimide Film, -74°C to 260°C (-100°F to 500°F)
Intermittent to 371°C (700°F)

How To Order

RoHS Compliant Pb Free

RDS 3 16 - 01 M G

Body Type
RoHS Compliant:
RDS - Hi-Temp LCP Closed Frame Molded
RLS - Hi-Temp LCP Open Frame Molded

DIP Spacing
3 - .300/(7.62mm)
4 - .400/(10.16mm)
6 - .600/(15.24mm)
9 - .900/(22.86mm)*
*Open Frame only

Number of Pins
Closed Frame 8 - 40
Open Frame 8 - 64
(see table on next page for standard pin counts)

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

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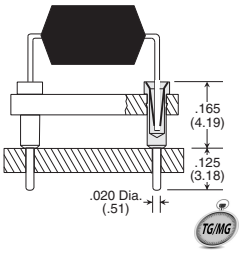
inch/(mm)

Molded DIP Sockets
Closed Frame and Open Frame

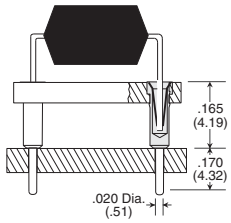
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

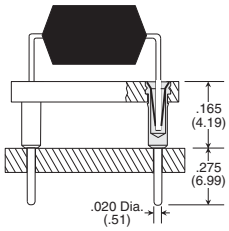
Type -01
Low Profile Solder Tail



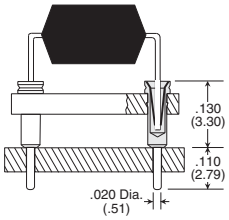
Type -29
Low Profile Solder Tail



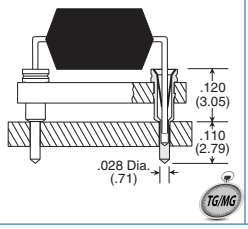
Type -30
Low Profile Solder Tail



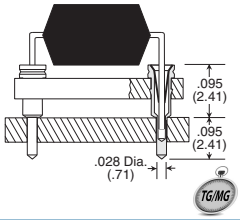
Type -51
Low Profile Solder Tail



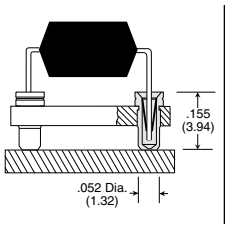
Type -04
Super Low Profile
Not for use with Closed Frame



Type -49
Ultra Low Profile
Not for use with Closed Frame

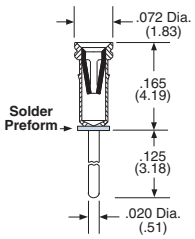


Type -237
Surface Mount

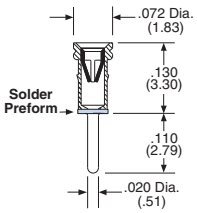


Solder Preform Terminals

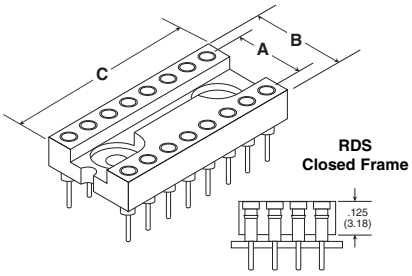
Tin/Lead: Type -150
Lead-free: Type -811

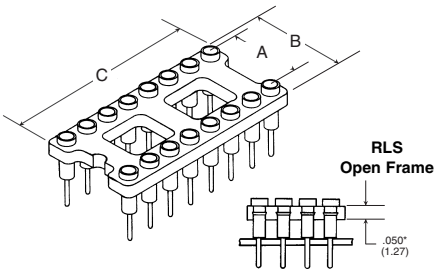


Tin/Lead: Type -151
Lead-free: Type -812



Dimensional Information





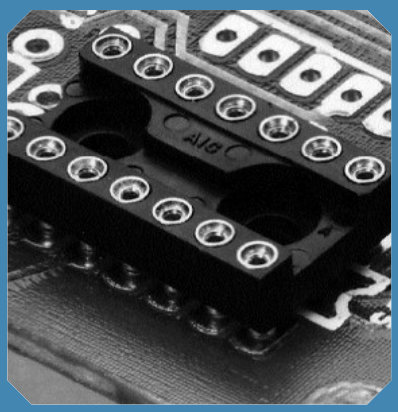
# of Pins	A	B	C
8 EXPRESS	.300 (7.62)	.400 (10.16)	.400 (10.16)
14 EXPRESS	.300 (7.62)	.400 (10.16)	.700 (17.78)
16 EXPRESS	.300 (7.62)	.400 (10.16)	.800 (20.32)
18	.300 (7.62)	.400 (10.16)	.900 (22.86)
20 EXPRESS	.300 (7.62)	.400 (10.16)	1.000 (25.40)
22	.300 (7.62)	.400 (10.16)	1.100 (27.94)
24 EXPRESS	.300 (7.62)	.400 (10.16)	1.200 (30.48)
28 EXPRESS	.300 (7.62)	.400 (10.16)	1.400 (35.56)

# of Pins	A	B	C
22	.400 (10.16)	.500 (12.70)	1.100 (27.54)
24	.400 (10.16)	.500 (12.70)	1.200 (30.48)
24 EXPRESS	.600 (15.24)	.700 (17.78)	1.200 (30.48)
28 EXPRESS	.600 (15.24)	.700 (17.78)	1.400 (35.56)
32	.600 (15.24)	.700 (17.78)	1.600 (40.64)
40 EXPRESS	.600 (15.24)	.700 (17.78)	2.000 (50.80)
48*	.600 (15.24)	.700 (17.78)	2.400 (60.96)
64*	.900 (22.86)	1.000 (25.40)	3.200 (81.28)

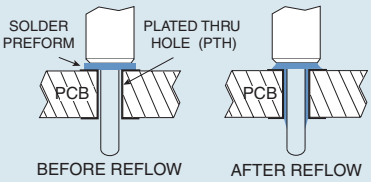
The dimensions in blue are for Open Frame only.
*Socket body thickness is .100/(2.54) for 48 and 64 positions.

EXPRESS = EXPRESS in RLS

inch/(mm)



Intrusive Reflow Application:



- Combines the labor of socket loading and solder application into one operation.
- Eliminates the use of solder paste and screening operation.
- Eliminates solder bridges and/or solder shorts due to excess solder.
- Ensures a reliable solder joint with controlled solder volume.
- Ideal for surface mount and mixed technology applications.
- For custom solder preform terminal applications consult factory.

Available Online:

- RoHS Qualification Test Report
- CAD Drawings

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

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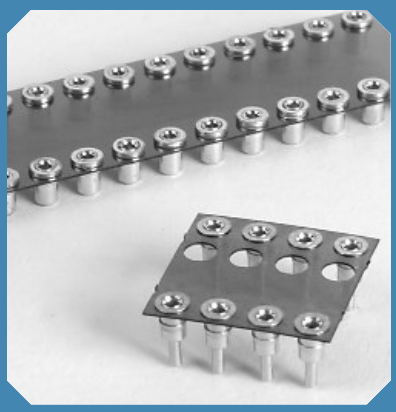
Tel: 800.424.9850 | 401.823.5200
Fax: 401.823.8723
info@advanced.com | www.advanced.com

Peel-A-Way® DIP Socket Terminal Carriers



Features:

- Peel away terminal carrier after soldering.
- Disposable carrier.
- Complete soldering visibility on both sides of PCB.
- Maximum air flow.
- Better flux rinse.
- No contact damage due to terminal carrier insertion.
- No contact pull out due to extraction of terminal carrier.

Specifications:

Terminals:

Brass - Copper Alloy (C36000) ASTM-B-16

Contacts:

Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Solder Preform:

Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:

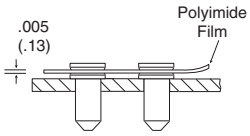
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models

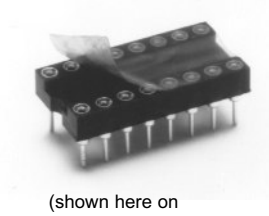
Description: Peel-A-Way® Socket (KS)
Material: Polyimide Film
Index: -269°C to 400°C (-452°F to 752°F)

EXPRESS



For molded insulators, see pages 28-29.

Options



(shown here on molded socket)

Tape Seal - add 3M to end of part number

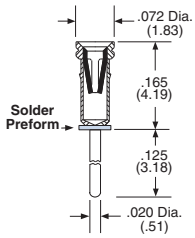
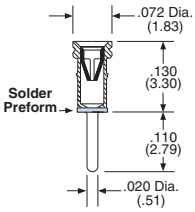
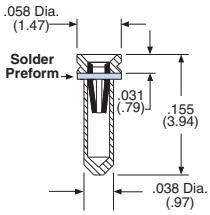
- Removable tape seal protects plated contact in harsh environments
- Sealed socket will not allow dirt and other contaminants to enter socket chamber and become entrapped behind contact fingers
- Spray flux without contaminating contact area

Material

Silicone Backed Polyimide Film, -74°C to 260°C (-100°F to 500°F)
Intermittent to 371°C (700°F)

Solder Preform Terminals

See pg. 29 for intrusive reflow application.

Tin/Lead: Type -150 Lead-free: Type -811	Tin/Lead: Type -151 Lead-free: Type -812	Tin/Lead: Type -111 Lead-free: Type -810 Peel-A-Way® only
		

How To Order

RoHS Compliant Pb Free

KS 3 16 - 85 M G

Body Type
RoHS Compliant Insulators:
KS - Peel-A-Way®

DIP Spacing
3 - .300/(7.62mm)
4 - .400/(10.16mm)
6 - .600/(15.24mm)
9 - .900/(22.86mm)

Number of Pins
(8 to 64)
Additional sizes available - consult factory.

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

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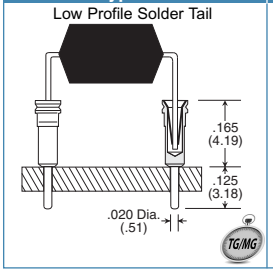
inch/(mm)

Peel-A-Way® DIP Socket Terminal Carriers

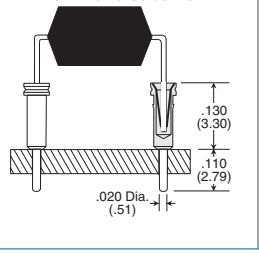
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

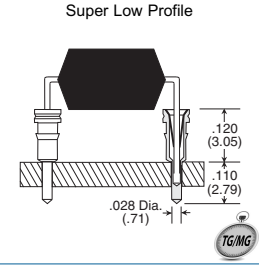
Type -33
Low Profile Solder Tail



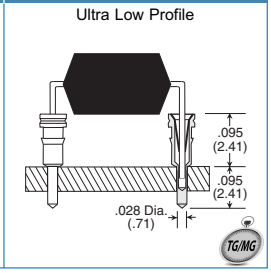
Type -51
Low Profile Solder Tail



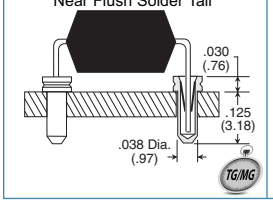
Type -04
Super Low Profile



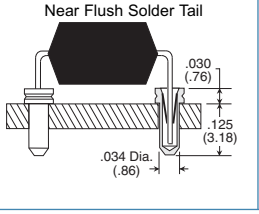
Type -49
Ultra Low Profile



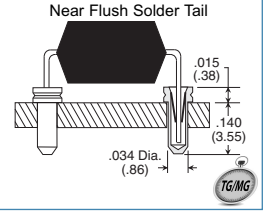
Type -85
Near Flush Solder Tail



Type -176
Near Flush Solder Tail

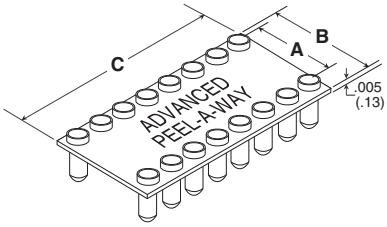


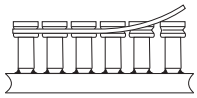
Type -210
Near Flush Solder Tail



Note: Terminals shown with insulator removed.

Dimensional Information





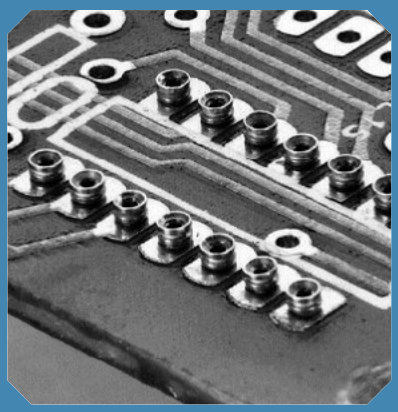
Surface Mount Options Available

# of Pins	A	B	C
8	.300 (7.62)	.400 (10.16)	.400 (10.16)
10	.300 (7.62)	.400 (10.16)	.500 (12.70)
12	.300 (7.62)	.400 (10.16)	.600 (15.24)
14	.300 (7.62)	.400 (10.16)	.700 (17.78)
16	.300 (7.62)	.400 (10.16)	.800 (20.32)
18	.300 (7.62)	.400 (10.16)	.900 (22.86)
20	.300 (7.62)	.400 (10.16)	1.000 (25.40)
22	.300 (7.62)	.400 (10.16)	1.100 (27.94)
24	.300 (7.62)	.400 (10.16)	1.200 (30.48)
28	.300 (7.62)	.400 (10.16)	1.400 (35.56)
40	.300 (7.62)	.400 (10.16)	2.000 (50.80)
16	.400 (10.16)	.500 (12.70)	.800 (20.32)
20	.400 (10.16)	.500 (12.70)	1.000 (25.40)
22	.400 (10.16)	.500 (12.70)	1.100 (27.94)
24	.400 (10.16)	.500 (12.70)	1.200 (30.48)
28	.400 (10.16)	.500 (12.70)	1.400 (35.56)
32	.400 (10.16)	.500 (12.70)	1.600 (40.64)

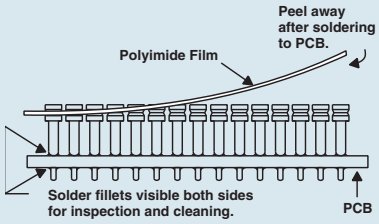
# of Pins	A	B	C
10	.600 (15.24)	.700 (17.76)	.500 (12.70)
18	.600 (15.24)	.700 (17.76)	.900 (22.86)
20	.600 (15.24)	.700 (17.76)	1.000 (25.40)
22	.600 (15.24)	.700 (17.76)	1.100 (27.94)
24	.600 (15.24)	.700 (17.76)	1.200 (30.48)
28	.600 (15.24)	.700 (17.76)	1.400 (35.56)
32	.600 (15.24)	.700 (17.76)	1.600 (40.64)
36	.600 (15.24)	.700 (17.76)	1.800 (45.72)
40	.600 (15.24)	.700 (17.76)	2.000 (50.80)
42	.600 (15.24)	.700 (17.76)	2.100 (53.34)
48	.600 (15.24)	.700 (17.76)	2.400 (60.96)
64	.600 (15.24)	.700 (17.76)	3.200 (81.28)
32	.900 (22.86)	1.000 (25.40)	1.600 (40.64)
36	.900 (22.86)	1.000 (25.40)	1.800 (45.72)
40	.900 (22.86)	1.000 (25.40)	2.000 (50.80)
52	.900 (22.86)	1.000 (25.40)	2.600 (66.04)
56	.900 (22.86)	1.000 (25.40)	2.800 (71.12)
64	.900 (22.86)	1.000 (25.40)	3.200 (81.28)

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.



How To Use:



1. Place socket on PC board.
2. Send PC board and socket through soldering operation.
3. Peel away polyimide film carrier for complete solder joint visibility or leave in place for added stability.

Available Online:

- RoHS Qualification Test Report
- CAD Drawings

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

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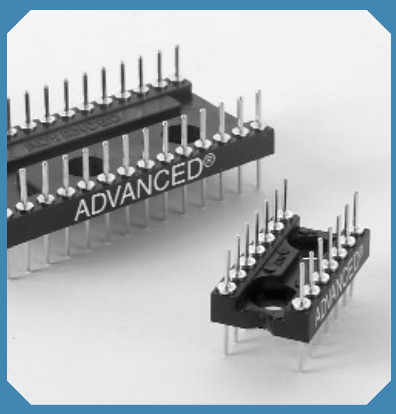
Molded DIP Adapters
Dual In-Line Adapters / Discrete Component Carriers



Features:

- Low profile.
- Design allows for stacking on .100/(2.54mm) grid.
- Board to Board applicable.
- Easily customized to fit your applications.
- Mating sockets available in Open Frame or Closed Frame molded designs and Peel-A-Way® Removable Terminal Carriers.

Specifications:

Terminals:

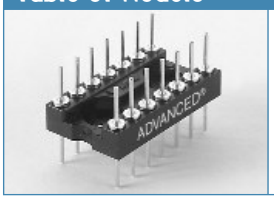
Brass - Copper Alloy (C36000) ASTM-B-16

Plating:

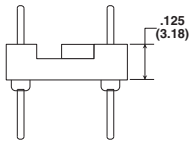
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models

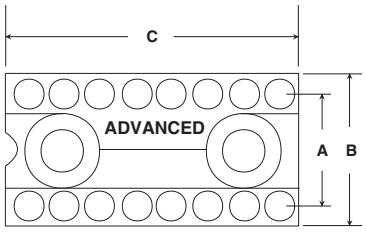


Description: Molded DIP Adapter (RDA)
Mat'l: High Temp. Liquid Crystal Polymer (LCP)
Index: -40°C to 260°C (-40°F to 500°F)

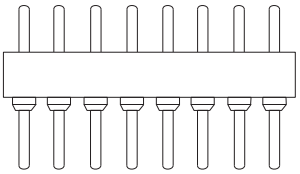


RDA replaces DA and HDA.

Dimensional Information



Terminal Type -09 Shown



# of Pins	A	B	C
8	.300 (7.62)	.400 (10.16)	.400 (10.16)
14	.300 (7.62)	.400 (10.16)	.700 (17.78)
16	.300 (7.62)	.400 (10.16)	.800 (20.32)
18	.300 (7.62)	.400 (10.16)	.900 (22.86)
20	.300 (7.62)	.400 (10.16)	1.000 (25.40)
22	.400 (10.16)	.500 (12.70)	1.100 (27.94)
24	.600 (15.24)	.700 (17.78)	1.200 (30.48)
28	.600 (15.24)	.700 (17.78)	1.400 (35.56)
40	.600 (15.24)	.700 (17.78)	2.000 (50.80)

How To Order

RoHS Compliant Pb Free

RDA 3 16 - 09 M

Body Type
RoHS Compliant:
RDA - Hi-Temp Molded LCP

DIP Spacing
3 - .300/(7.62mm)
4 - .400/(10.16mm)
6 - .600/(15.24mm)
*Open frame only from DIP Spacing

Number of Pins
(8 to 40)

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

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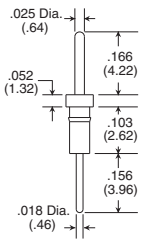
inch/(mm)

Molded DIP Adapters
Dual In-Line Adapters / Discrete Component Carriers

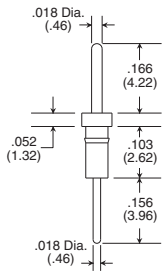
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

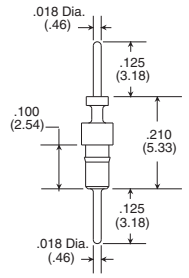
Type -08



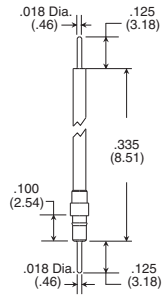
Type -09



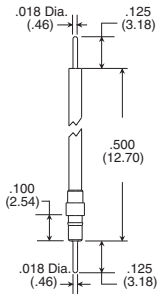
Type -68



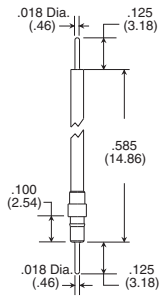
Type -43



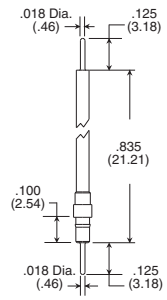
Type -185



Type -42



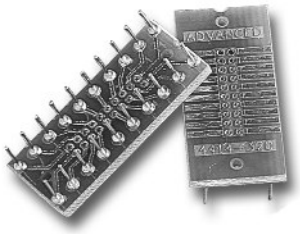
Type -71



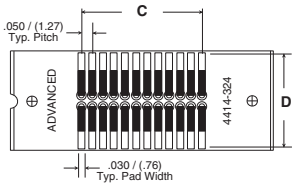
Package Conversion Applications

See page 58 for complete details.

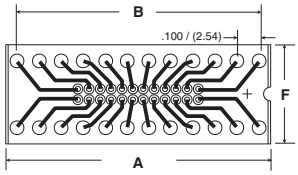
SOIC to DIP Adapters



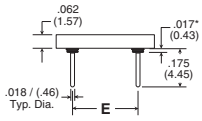
- Wide variety of package conversion adapters available including these standard SOIC to DIP adapters.
- Adapter allows present Gull Wing devices to be solderable or socketable in a thru-hole application.
- Pin spacing allows space for conductor runs on PCB.
- Saves space (X, Y & Z) when used with Advanced sockets.
- Radius ends of adapter pins to improve socketing.
- Allows testing with standard test clips.
- See page 58 for complete details.



Top View



Bottom View

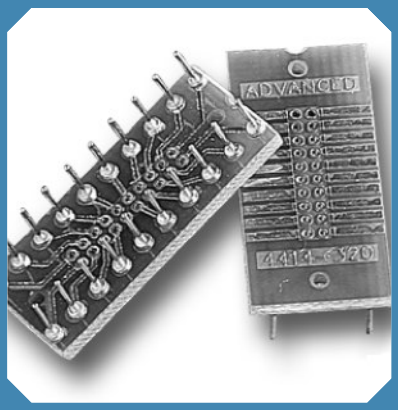


Side View

RoHS Compliant Pb Free

Standard Part Numbers	Lead-free Part Numbers	# of Pins
4414-308	4414-308LF	8
4414-314	4414-314LF	14
4414-316	4414-316LF	16
4414-320	4414-320LF	20
4414-324	4414-324LF	24
4414-328	4414-328LF*	28
4414-628*	4414-628LF*	28
4414-632*	4414-632LF*	32

* Consult factory for availability.



Available Online:

- RoHS Qualification Test Report
- CAD Drawings

inch/(mm)

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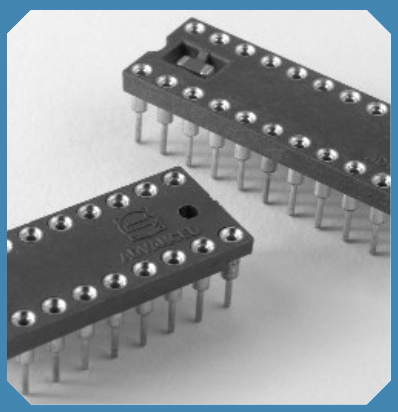
Decoupling Capacitor DIPs with Murphy Circuits®



Features:

- Quietest decoupling capacitor socket available.
- Insert molded circuit with committed voltage and ground terminals.
- .014/(.36mm) thick copper circuit offers excellent electrical and thermal conductivity.
- Standard decoupling capacitor values of .01µf, .1µf and .33µf. Other capacitor values available to suit your electrical requirements.
- Mounted height above PCB of .165/(4.19mm).
- Test report available upon request.

Specifications:

Terminals and Contacts:

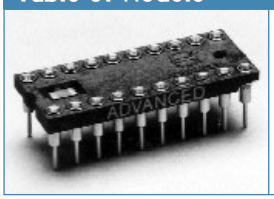
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16
Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194
Circuit: Copper

Plating:

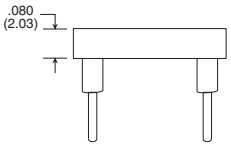
Terminal: G - Gold over Nickel
T - Tin/Lead over Nickel
Contact: G - Gold over Nickel
T - Tin/Lead over Nickel
Circuit: Tin/Lead*

Gold per ASTM-B-488
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models



Description: Decoupling Capacitor Socket (MDC)
Material: High Temperature Glass Filled Thermoplastic* U.L. Rated 94V-0
Index: -60°C to 260°C (-76°F to 500°F)

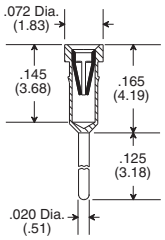


*Note: This product is not RoHS Compliant.

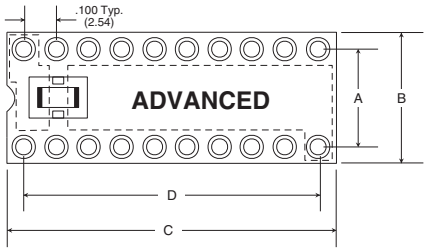
Standard Terminals

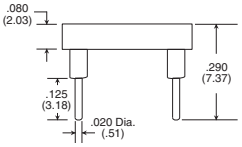
Additional standard and custom terminals available. See Terminals section or consult factory.

Type -01
Low Profile

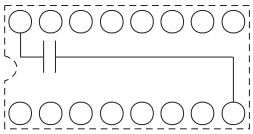


Dimensional Information

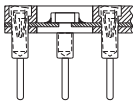




Terminal Type -01 Shown



Electrical Schematic



Sectional View of Capacitor

# of Pins	A	B	C	D
14	.300 (7.62)	.400 (10.16)	.700 (17.78)	.600 (15.24)
16	.300 (7.62)	.400 (10.16)	.800 (20.32)	.700 (17.78)
20	.300 (7.62)	.400 (10.16)	1.000 (25.40)	.900 (22.86)
22	.300 (7.62)	.400 (10.16)	1.100 (27.94)	1.000 (25.40)
24	.300 (7.62)	.400 (10.16)	1.200 (30.48)	1.100 (27.94)
24	.600 (15.24)	.700 (17.78)	1.200 (30.48)	1.100 (27.94)
28	.600 (15.24)	.700 (17.78)	1.400 (35.56)	1.300 (33.02)
40	.600 (15.24)	.700 (17.78)	2.000 (50.80)	1.900 (48.26)

Available Online

- Design your own Decoupling Capacitor DIP Socket
- Decoupling Capacitor Socket Effectiveness Study

How To Order

MDC 3 14 -01 T G .01

Body Type
Decoupling Capacitor Socket with Murphy Circuits®

DIP Spacing
3 - .300/(7.62mm)
6 - .600/(15.24mm)

Number of Pins
(14 to 40)

Terminal Type

Terminal Plating
G - Gold
T - Tin/Lead

Contact Plating
G - Gold
T - Tin/Lead

Capacitance Value
.1 = 1µf, .01 = .01µf, .33 = .33µf

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inch/(mm)

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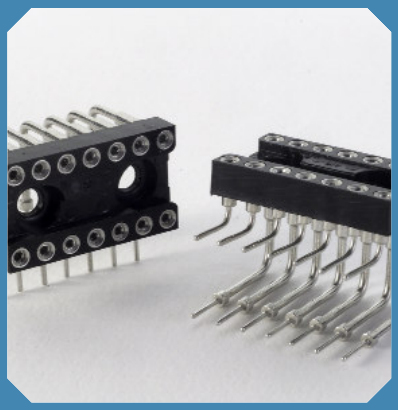
Closed Frame LED Sockets
(Light Emitting Diode)

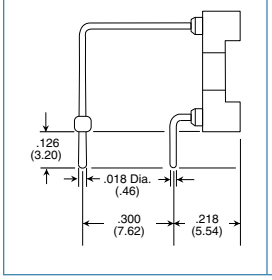
Table of Models

Description: Closed Frame LED Sockets (RDL)
Material: High Temp. Liquid Crystal Polymer (LCP)
Index: -40°C to 260°C (-40°F to 500°F)

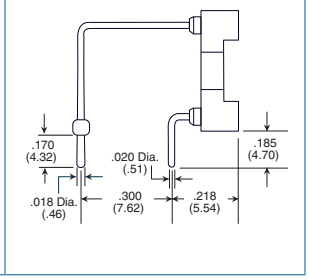


Standard Terminals

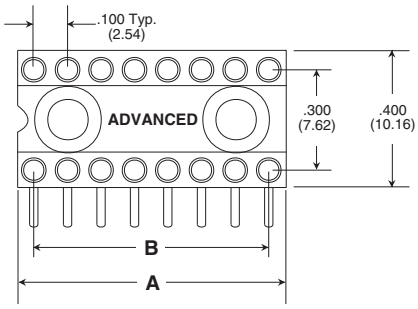
Type -370



Type -31



Dimensional Information



Part Number	# of Pins	A	B
RDL308-XXXMG	8	.395 (10.03)	.300 (7.62)
RDL314-XXXMG	14	.695 (17.65)	.600 (15.24)
RDL316-XXXMG	16	.795 (20.19)	.700 (17.78)
RDL318-XXXMG	18	.895 (22.73)	.800 (20.32)
RDL320-XXXMG	20	.995 (25.27)	.900 (22.86)

XXX denotes terminal type

Features:

- Right angle design allows readable position of LED on PCB.
- Multiple finger contact for reliability.
- Tapered entry for ease of insertion.
- Closed bottom sleeve for 100% anti-wicking of solder.

Specifications:

Terminals:

Brass - Copper Alloy (C36000) ASTM-B-16

Contacts:

Beryllium Copper (C17200) ASTM-B-194

Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

How To Order

RoHS Compliant Pb Free

RDL 3 08 - 370 M G

Body Type
RoHS Compliant:
RDL - Closed Frame LED

DIP Spacing
3 - .300/(7.62mm)

Number of Pins
8, 14, 16, 18, 20

Terminal Type
See options above

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

inch/(mm)

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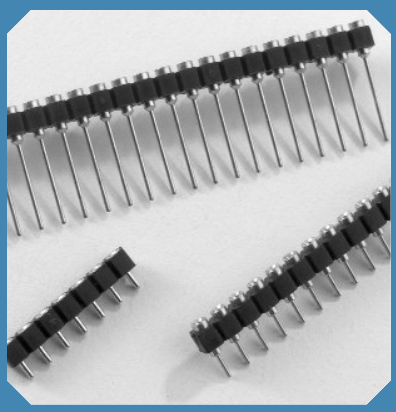

Features:

- Available in three body types: Peel-A-Way® Removable Terminal Carriers, molded Solid Strips, and molded Snap Strips [breakable at .100/(2.54mm)].
- Tapered entry for ease of insertion.
- Multi-finger contacts for reliability.
- Closed bottom sleeve for 100% anti-wicking of solder.
- Custom configurations available.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Solder Preform:

Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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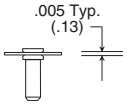
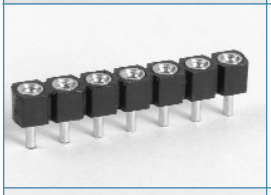
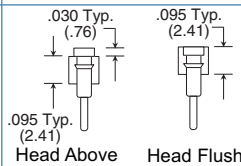
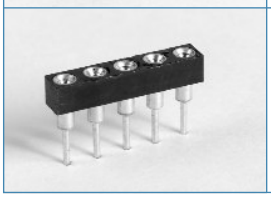
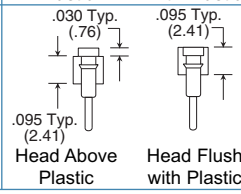
Catalog 16A

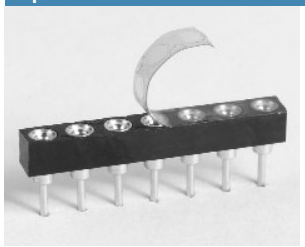
SIP Sockets
Molded and Peel-A-Way® Insulators

Table of Models

	Description: Peel-A-Way® Strips (KSS) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F) EXPRESS	
	Description: Molded Snap Strips (HSS/HLSS) Mat'l: Glass Filled Thermoplastic (PPS) Index: -60°C to 220°C (-76°F to 428°F) EXPRESS	
	Description: Molded Solid Strips (RNB, RLNB) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F) EXPRESS	

HSS/HLSS replaces RSS/RLSS and SS/LSS. RNB/RLNB replaces HNB/HLNB and NB/LNB.

Options

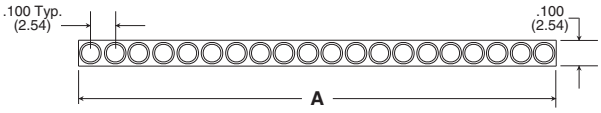


Tape Seal - add 3M to end of part number

- Removable tape seal protects plated contact in harsh environments.
- Sealed socket will not allow dirt and other contaminants to enter socket chamber and become entrapped behind contact fingers.
- Spray flux without contaminating contact area.
- Material - Silicone Backed Polyimide Film, -74°C to 260°C (-100°F to 500°F) Intermittent to 371°C (700°F)

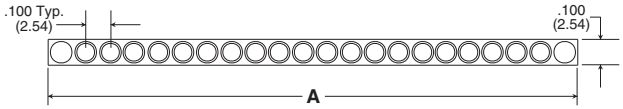
Dimensional Information

Molded Body Types



A Dimension = number of pins X .100/(2.54)

Peel-A-Way® Body Types



A Dimension = [number of pins X .100/(2.54)] + .200/(5.08)

How To Order

RoHS Compliant Pb Free

KSS 032 -85 M G

Body Type
RoHS Compliant:
KSS - Peel-A-Way®
RNB - Molded Solid (head above)
RLNB - Molded Solid (head flush)
HSS* - Molded Snap (head above)
HLSS* - Molded Snap (head flush)

Number of Pins
KSS: 2-100 pos.
HSS/HLSS: 20, 30 or 32 pos.
RNB/RLNB: 3-20, 30 or 32 pos.

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

**PSS Insulators (HSS/HLSS) are not suitable for high temperature, lead-free (RoHS) solder profiles.*
Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

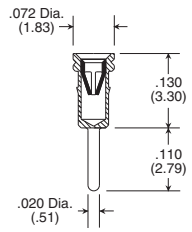
inch/(mm)

SIP Sockets
Molded and Peel-A-Way® Insulators

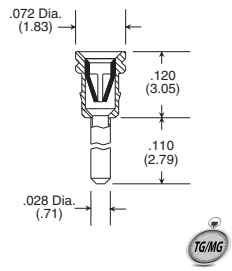
Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

Type -51

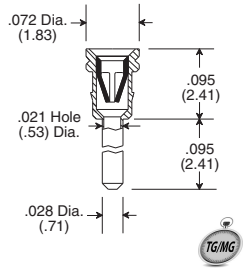


Type -04



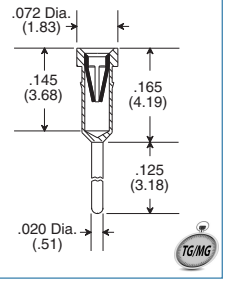
Type -49

Not for use with HSS or RNB.



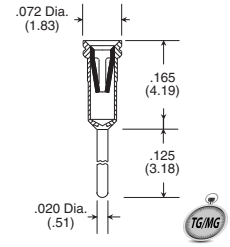
Type -01

Molded only



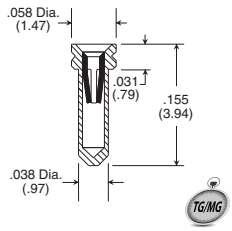
Type -33

Peel-A-Way® only



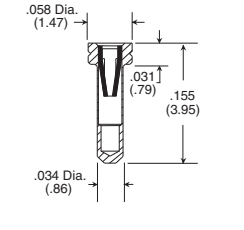
Type -85

Peel-A-Way® only



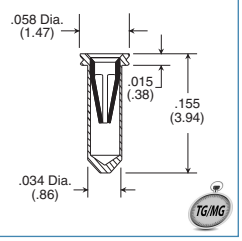
Type -176

Peel-A-Way® only



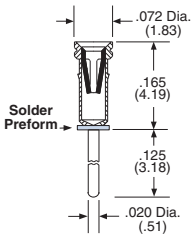
Type -210

Peel-A-Way® only

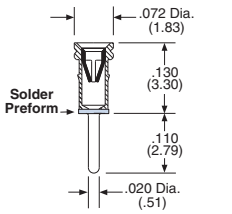


Solder Preform Terminals

Tin/Lead: Type -150
Lead-free: Type -811

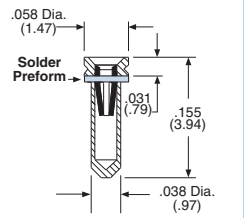


Tin/Lead: Type -151
Lead-free: Type -812

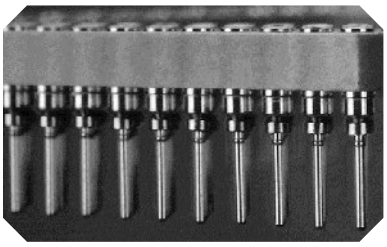


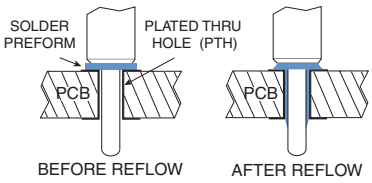
Tin/Lead: Type -111
Lead-free: Type -810

Peel-A-Way® only



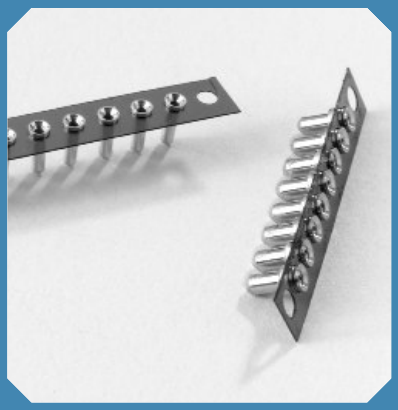
Intrusive Reflow Application





Solder Preform Terminals

- Combines the labor of socket loading and solder application into one operation.
- Eliminates the use of solder paste and screening operation.
- Eliminates solder bridges and/or solder shorts due to excess solder.
- Ensures a reliable solder joint with controlled solder volume.
- Ideal for surface mount and mixed technology applications.
- For custom solder preform terminal applications consult factory.



Available Online:

- RoHS Qualification Test Report
- CAD Drawings

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

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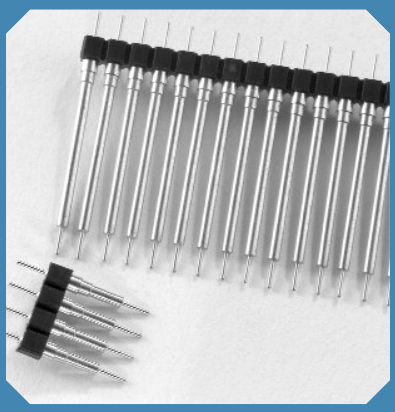


Features:

- Available in three body types: Peel-A-Way® Removable Terminal Carriers, molded Solid Strips, and molded Snap Strips [breakable at .100/(2.54mm)].
- Board to board applications.
- Peel-A-Way® Removable Terminal Carrier can be easily removed to allow inspection of solder joints on both sides of PC board, or left in place for added stability.
- Custom designs available.

Specifications:

Terminals:

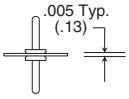
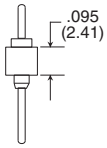
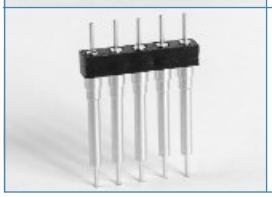
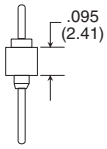
Brass - Copper Alloy (C36000) ASTM-B-16

Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

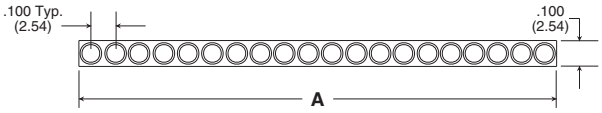
Table of Models

	Description: Peel-A-Way® Strips (KSA) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F) EXPRESS	
	Description: Molded Snap Strips (HSA) Mat'l: Glass Filled Thermoplastic (PPS) Index: -60°C to 220°C (-76°F to 428°F)	
	Description: Molded Solid Strips (RNA) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	

HSA replaces RSA and SA, RNA replaces NA and HNA.

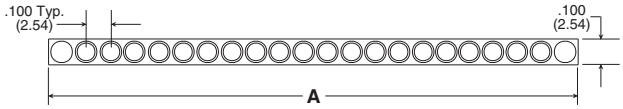
Dimensional Information

Molded Body Types



A Dimension = number of pins X .100/(2.54)

Peel-A-Way® Body Types



A Dimension = [number of pins X .100/(2.54)] + .200/(5.08)

How To Order

RoHS Compliant Pb Free

KSA 032 -79 M

Body Type
RoHS Compliant:
KSA - Peel-A-Way®
RNA - Molded Solid
HSA* - Molded Snap

Number of Pins
KSA: 2-100 pos.
HSA: 20, 30 or 32 pos.
RNA: 3-20, 30 or 32 pos.

Terminal Type
See options on next page

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

**PSS Insulators (HSA) are not suitable for high temperature, lead-free (RoHS) solder profiles.*

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inch/(mm)

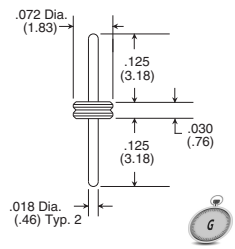
SIP Adapters
Molded and Peel-A-Way® Insulators

Standard Terminals

Additional standard and custom terminals available.
See Terminals section or consult factory.

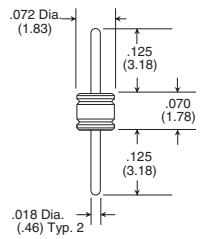
Type -79

Peel-A-Way® only



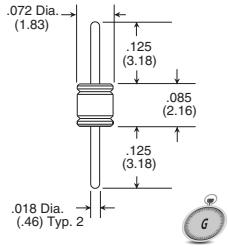
Type -80

Peel-A-Way® only



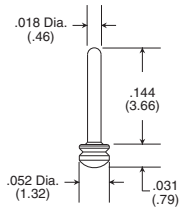
Type -81

Peel-A-Way® only



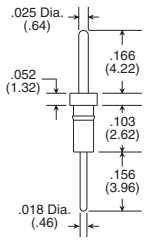
Type -574

Peel-A-Way® only



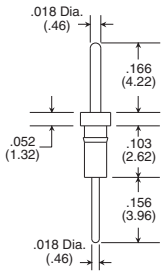
Type -08

Molded only



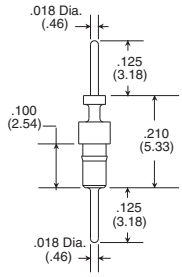
Type -09

Molded only



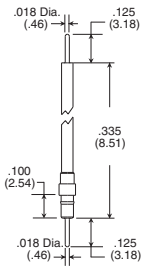
Type -68

Molded only



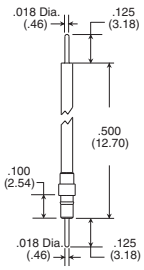
Type -43

Molded only



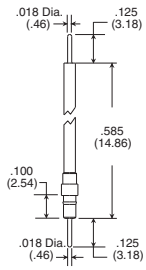
Type -185

Molded only



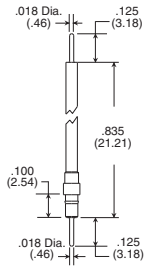
Type -42

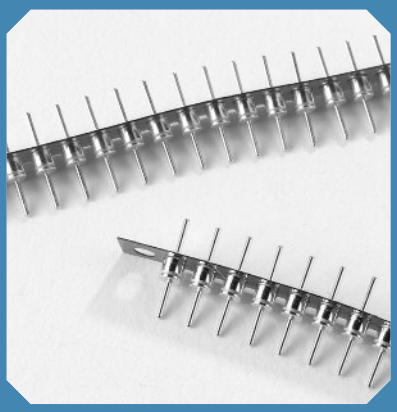
Molded only



Type -71

Molded only





Available Online:

- RoHS Qualification Test Report
- CAD Drawings

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

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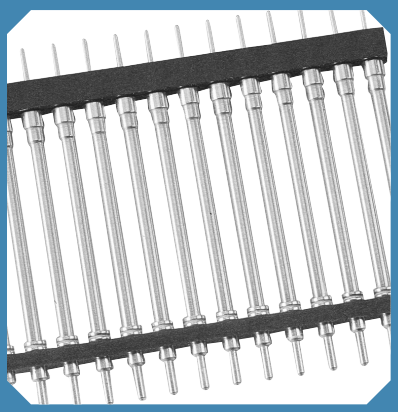
Board to Board Connectors



Features:

- Male and female connectors are designed in mating pairs.
- .100/(2.54mm) row to row pitch.
- High reliability screw-machined terminals with closed-end construction for 100% anti-wicking of solder.
- For surface mount options, consult factory.
- Reliable mechanical support.
- Custom configurations available.

Specifications:

Terminals:

Brass - Copper Alloy (C36000) ASTM-B-16

Contacts:

Beryllium Copper (C17200) ASTM-B-194

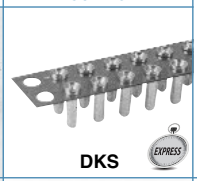
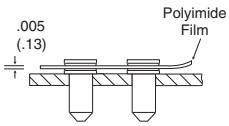
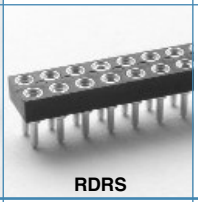
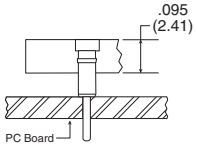
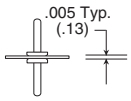
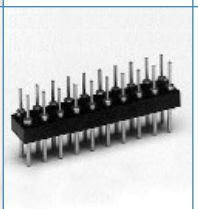
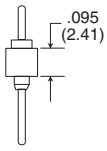
Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

.100/(2.54mm) Pitch Board to Board Connectors
Molded and Peel-A-Way® Insulators

Table of Models

	Single Row	Dual Row		
Female	 KSS	 DKS	Description: Peel-A-Way® (KSS, DKS) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F) EXPRESS	
Female	 RNB/ RLNB	 RDRS	Desc: Molded (RNB, RLNB, RDRS) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F) EXPRESS	
	Single Row	Dual Row		
Male	 KSA	 DKA	Description: Peel-A-Way® (KSA, DKA) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F) EXPRESS	
Male	 RNA	 RDRA	Description: Molded (RNA, RDRA) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	

RNB/RLNB replaces HNB/HLNB and NB/LNB. RDRS replaces HDRS and DRS.
RNA replaces HNA and NA. RDRA replaces HDRA and DRA.

How To Order

RoHS Compliant Pb Free

Female

RNB 010 - 01 M G

Body Type
RoHS Compliant Insulators:
KSS - Single Row Peel-A-Way®
RNB* - Single Row Hi-Temp Molded
RLNB* - Single Row Hi-Temp Molded
DKS - Dual Row Peel-A-Way®
RDRS - Dual Row Hi-Temp Molded

Total Number of Pins
KSS: 2-100, DKS: 4-200
RNB/RLNB: 3-32, RDRS: 20-70

**RNB - Terminal head above insulator*
**RLNB - Terminal head flush with insulator*

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Male

RNA 010 - 68 M

Body Type
RoHS Compliant Insulators:
KSA - Single Row Peel-A-Way®
RNA - Single Row Hi-Temp Molded
DKA - Dual Row Peel-A-Way®
RDRA - Dual Row Hi-Temp Molded

Total Number of Pins
KSA: 2-100, DKA: 4-200
RNA: 3-32, RDRA: 20-70

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

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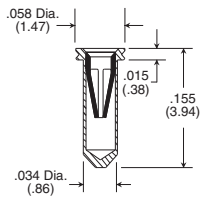
.100/(2.54mm) Pitch Board to Board Connectors
Molded and Peel-A-Way® Insulators

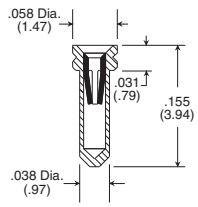
Additional standard and custom terminals available. See Terminals section or consult factory.

Standard Female Terminals

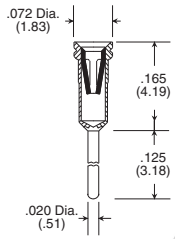
Type -210
Peel-A-Way® only



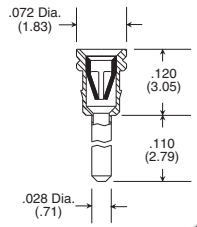
Type -85
Peel-A-Way® only



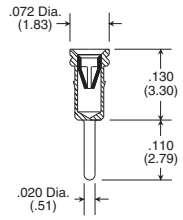
Type -33
Peel-A-Way® only



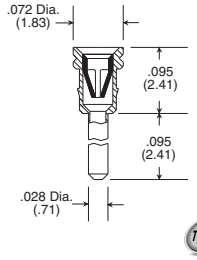
Type -04



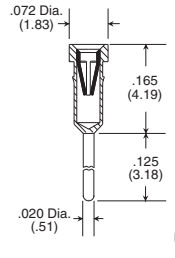
Type -51



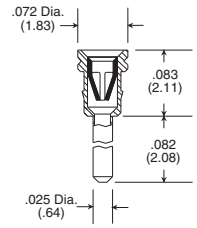
Type -49
Not for use with RNB.



Type -01
Molded only

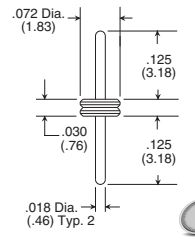


Type -299
Available in Peel-A-Way® or FR-4 (use FNB body type) only.

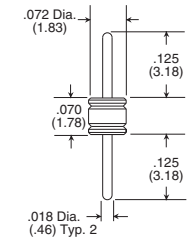


Standard Male Terminals

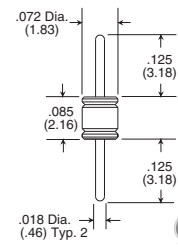
Type -79
Peel-A-Way® only



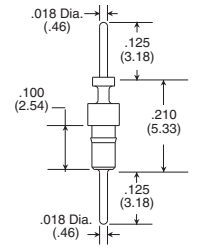
Type -80
Peel-A-Way® only



Type -81
Peel-A-Way® only



Type -68



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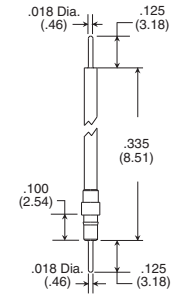
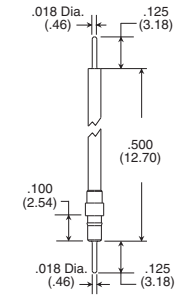
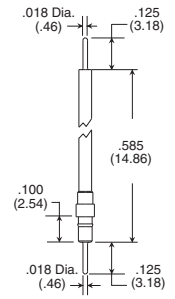


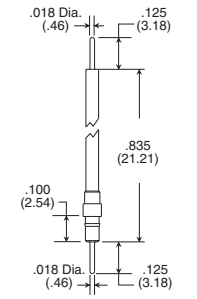
Type -185



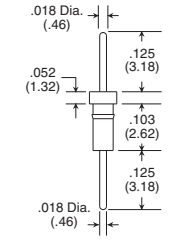
Type -42



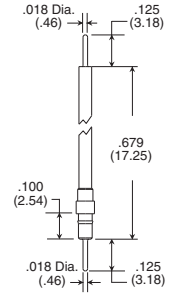
Type -71



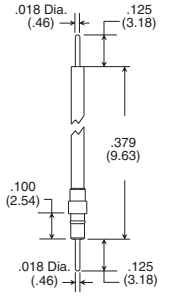
Type -444



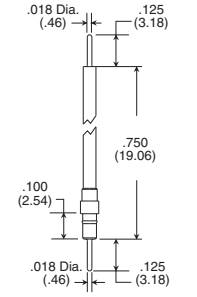
Type -398



Type -399



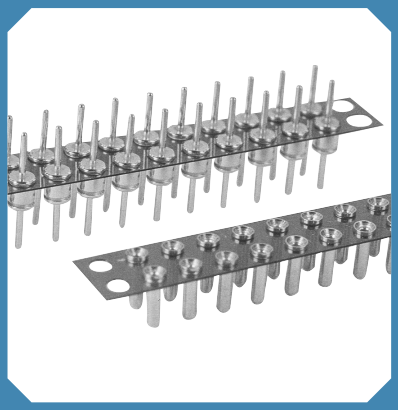
Type -403



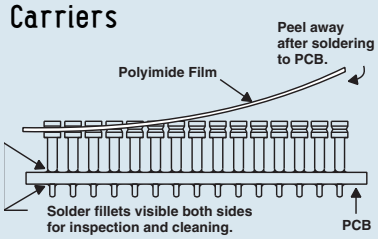
inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

Board to Board Connectors



Peel-A-Way® Removable Carriers



1. Place socket on PC board.
2. Send PC board and socket through soldering operation.
3. Peel away polyimide film carrier for complete solder joint visibility or leave in place for added stability.

Available Online:

- RoHS Qualification Test Report

See following pages for typical board to board spacing configuration and additional dimensional information.

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

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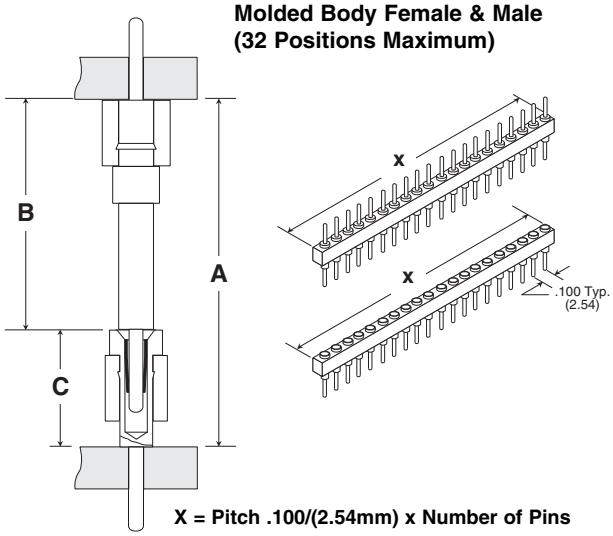
.100/(2.54mm) Pitch Board to Board Connectors

Dimensional Information



Order one each Male & Female to get the required "A" dim.

B	C	A	Male Part #	Female Part #
.155/(3.94)	.083/(2.11)	.238/(6.05)	RNA020-444G	FNB020-299MG
.155/(3.94)	.095/(2.41)	.250/(6.35)	RNA020-444G	RLNB020-49MG
.155/(3.94)	.120/(3.05)	.275/(6.99)	RNA020-444G	RLNB020-04MG
.155/(3.94)	.130/(3.30)	.285/(7.24)	RNA020-444G	RNB020-51MG
.210/(5.33)	.083/(2.11)	.293/(7.44)	RNA020-68G	FNB020-299MG
.210/(5.33)	.095/(2.41)	.305/(7.74)	RNA020-68G	RLNB020-49MG
.155/(3.94)	.165/(4.19)	.320/(8.13)	RNA020-444G	RNB020-01MG
.210/(5.33)	.120/(3.05)	.330/(8.37)	RNA020-68G	RLNB020-04MG
.210/(5.33)	.130/(3.30)	.340/(8.63)	RNA020-68G	RNB020-51MG
.210/(5.33)	.165/(4.19)	.375/(9.52)	RNA020-68G	RNB020-01MG
.335/(8.51)	.083/(2.11)	.418/(10.62)	RNA020-43G	FNB020-299MG
.335/(8.51)	.095/(2.41)	.430/(10.92)	RNA020-43G	RLNB020-49MG
.335/(8.51)	.120/(3.05)	.455/(11.56)	RNA020-43G	RLNB020-04MG
.379/(9.63)	.083/(2.11)	.462/(11.74)	RNA020-399G	FNB020-299MG
.335/(8.51)	.130/(3.30)	.465/(11.81)	RNA020-43G	RNB020-51MG
.379/(9.63)	.095/(2.41)	.474/(12.04)	RNA020-399G	RLNB020-49MG
.379/(9.63)	.120/(3.05)	.499/(12.68)	RNA020-399G	RLNB020-04MG
.335/(8.51)	.165/(4.19)	.500/(12.70)	RNA020-48G	RNB020-01MG
.379/(9.63)	.130/(3.30)	.509/(12.93)	RNA020-399G	RNB020-51MG
.379/(9.63)	.165/(4.19)	.544/(13.82)	RNA020-399G	RNB020-01MG
.500/(12.70)	.083/(2.11)	.583/(14.81)	RNA020-185G	FNB020-299MG
.500/(12.70)	.095/(2.41)	.595/(15.11)	RNA020-185G	RLNB020-49MG
.500/(12.70)	.120/(3.05)	.620/(15.75)	RNA020-185G	RLNB020-04MG
.500/(12.70)	.130/(3.30)	.630/(16.00)	RNA020-185G	RNB020-51MG
.500/(12.70)	.165/(4.19)	.665/(16.89)	RNA020-185G	RNB020-01MG
.585/(14.86)	.083/(2.11)	.668/(16.87)	RNA020-42G	FNB020-299MG
.585/(14.86)	.095/(2.41)	.680/(17.27)	RNA020-42G	RLNB020-49MG
.585/(14.86)	.120/(3.05)	.705/(17.91)	RNA020-42G	RLNB020-04MG
.585/(14.86)	.130/(3.30)	.715/(18.16)	RNA020-42G	RNB020-51MG
.585/(14.86)	.165/(4.19)	.750/(19.05)	RNA020-42G	RLNB020-01MG
.679/(17.25)	.083/(2.11)	.762/(19.36)	RNA020-398G	FNB020-299MG
.679/(17.25)	.095/(2.41)	.774/(19.66)	RNA020-398G	RLNB020-49MG
.679/(17.25)	.120/(3.05)	.799/(20.30)	RNA020-398G	RLNB020-04MG
.679/(17.25)	.130/(3.30)	.809/(20.55)	RNA020-398G	RNB020-51MG
.750/(19.06)	.083/(2.11)	.833/(21.17)	RNA020-403G	FNB020-299MG
.679/(17.25)	.165/(4.19)	.844/(21.44)	RNA020-398G	RNB020-01MG
.750/(19.06)	.095/(2.41)	.845/(21.47)	RNA020-403G	RLNB020-49MG
.750/(19.06)	.120/(3.05)	.870/(22.11)	RNA020-403G	RLNB020-04MG
.750/(19.06)	.130/(3.30)	.880/(22.36)	RNA020-403G	RNB020-51MG
.750/(19.06)	.165/(4.19)	.915/(23.25)	RNA020-403G	RNB020-01MG
.835/(21.21)	.083/(2.11)	.918/(23.32)	RNA020-71G	FNB020-299MG
.835/(21.21)	.095/(2.41)	.930/(23.62)	RNA020-71G	RLNB020-49MG
.835/(21.21)	.120/(3.05)	.955/(24.26)	RNA020-71G	RLNB020-04MG
.835/(21.21)	.130/(3.30)	.965/(24.51)	RNA020-71G	RNB020-51MG
.835/(21.21)	.165/(4.19)	1.000/(25.40)	RNA020-71G	RLNB020-01MG

20 position single row part numbers shown. See How To Order section for ordering information.

If required "A" dimension is not shown, consult factory.

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Catalog 16A

inch/(mm)

Dimensional Information

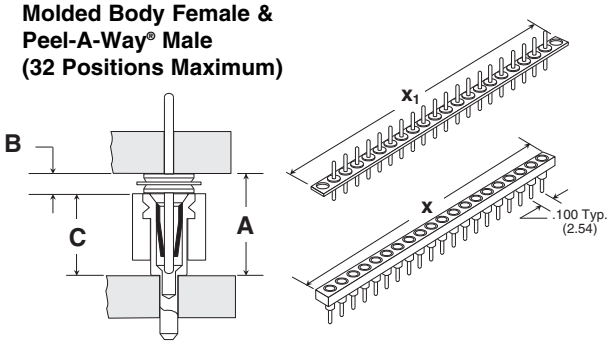
Order one each Male & Female to get the required "A" dim.

B	C	A	Male Part #	Female Part #	Fig.
.030/(.76)	.015/(.38)	.045/(1.14)	KSA020-79G	KSS020-210MG	3
.030/(.76)	.030/(.76)	.060/(1.52)	KSA020-79G	KSS020-85MG	3
.070/(1.78)	.015/(.38)	.085/(2.16)	KSA020-80G	KSS020-210MG	3
.085/(2.16)	.015/(.38)	.100/(2.54)	KSA020-81G	KSS020-210MG	3
.070/(1.78)	.030/(.76)	.100/(2.54)	KSA020-80G	KSS020-85MG	3
.030/(.76)	.083/(2.11)	.113/(2.87)	KSA020-79G	FNB020-299MG	1
.085/(2.16)	.030/(.76)	.115/(2.92)	KSA020-81G	KSS020-85MG	3
.030/(.76)	.095/(2.41)	.125/(3.18)	KSA020-79G	KSS020-49MG	3
.030/(.76)	.120/(3.05)	.150/(3.81)	KSA020-79G	KSS020-04MG	3
.070/(1.78)	.083/(2.11)	.153/(3.89)	KSA020-80G	FNB020-299MG	1
.030/(.76)	.130/(3.30)	.160/(4.06)	KSA020-79G	KSS020-51MG	3
.070/(1.78)	.095/(2.41)	.165/(4.19)	KSA020-80G	KSS020-49MG	3
.085/(2.16)	.083/(2.11)	.168/(4.27)	KSA020-81G	FNB020-299MG	1
.155/(3.94)	.015/(.38)	.170/(4.32)	RNA020-444G	KSS020-210MG	2
.085/(2.16)	.095/(2.41)	.180/(4.57)	KSA020-81G	KSS020-49MG	3
.155/(3.94)	.031/(.79)	.186/(4.72)	RNA020-444G	KSS020-85MG	2
.070/(1.78)	.120/(3.05)	.190/(4.83)	KSA020-80G	KSS020-04MG	3
.030/(.76)	.165/(4.19)	.195/(4.95)	KSA020-79G	KSS020-33MG	3
.070/(1.78)	.130/(3.30)	.200/(5.08)	KSA020-80G	KSS020-51MG	3
.085/(2.16)	.120/(3.05)	.205/(5.21)	KSA020-81G	KSS020-04MG	3
.085/(2.16)	.130/(3.30)	.216/(5.47)	KSA020-81G	KSS020-51MG	3
.210/(5.33)	.015/(.38)	.225/(5.72)	RNA020-68G	KSS020-210MG	2
.070/(1.78)	.165/(4.19)	.235/(5.97)	KSA020-80G	KSS020-33MG	3
.210/(5.33)	.031/(.79)	.241/(6.12)	RNA020-68G	KSS020-85MG	2
.085/(2.16)	.165/(4.19)	.250/(6.35)	KSA020-81G	KSS020-33MG	3
.335/(8.51)	.015/(.38)	.350/(8.89)	RNA020-43G	KSS020-210MG	2
.379/(9.63)	.015/(.38)	.364/(9.25)	RNA020-399G	KSS020-210MG	2
.335/(8.51)	.031/(.79)	.366/(9.30)	RNA020-43G	KSS020-85MG	2
.379/(9.63)	.031/(.79)	.410/(10.42)	RNA020-399G	KSS020-85MG	2
.500/(12.70)	.015/(.38)	.515/(13.08)	RNA020-185G	KSS020-210MG	2
.500/(12.70)	.031/(.79)	.531/(13.79)	RNA020-185G	KSS020-85MG	2
.585/(14.86)	.015/(.38)	.600/(15.24)	RNA020-42G	KSS020-210MG	2
.585/(14.86)	.031/(.79)	.616/(15.65)	RNA020-42G	KSS020-85MG	2
.679/(17.25)	.015/(.38)	.694/(17.63)	RNA020-398G	KSS020-210MG	2
.679/(17.25)	.031/(.79)	.710/(18.04)	RNA020-398G	KSS020-85MG	2
.750/(19.06)	.015/(.38)	.765/(19.44)	RNA020-403G	KSS020-210MG	2
.750/(19.06)	.031/.79)	.781/(19.85)	RNA020-403G	KSS020-85MG	2
.835/(21.21)	.015/(.38)	.850/(21.59)	RNA020-71G	KSS020-210MG	2
.835/(21.21)	.031/(.79)	.866/(22.00)	RNA020-71G	KSS020-85MG	2

20 position single row part numbers shown. See How To Order section for ordering information.

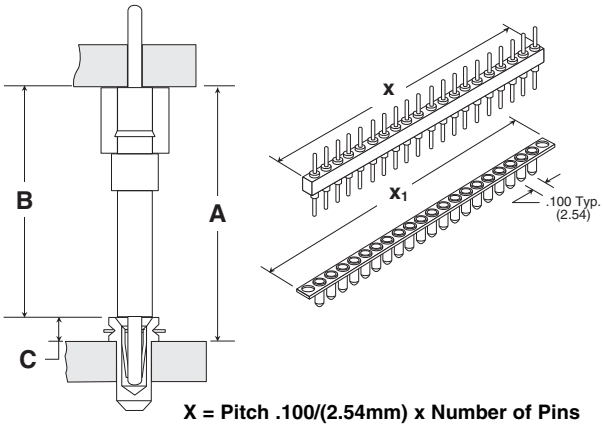
If required "A" dimension is not shown, consult factory.

Figure 1
Molded Body Female & Peel-A-Way® Male (32 Positions Maximum)



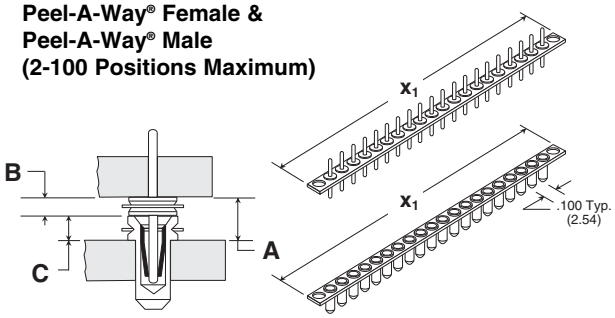
X = Pitch .100/(2.54mm) x Number of Pins
X_1 = [Pitch .100/(2.54mm) x Number of Pins] + .200/(5.08mm)

Figure 2
Peel-A-Way® Female & Molded Body Male (32 Positions Maximum)



X = Pitch .100/(2.54mm) x Number of Pins
X_1 = [Pitch .100/(2.54mm) x Number of Pins] + .200/(5.08mm)

Figure 3
Peel-A-Way® Female & Peel-A-Way® Male (2-100 Positions Maximum)



X_1 = [Pitch .100/(2.54mm) x Number of Pins] + .200/(5.08mm)

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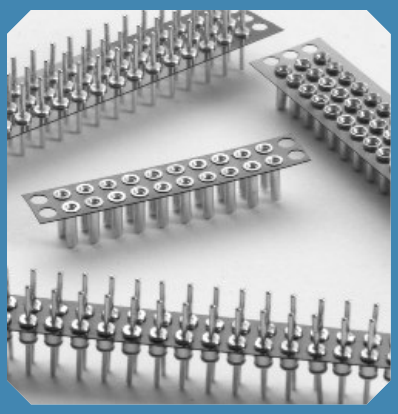
Catalog 16A

inch/(mm)

Board to Board Connectors



Features:

- Supplied in high temperature Peel-A-Way® removable terminal carrier.
- Male and female connectors are designed in mating pairs.
- .079/(2.00mm) row to row pitch.
- High reliability screw-machined terminals with closed-end construction for 100% anti-wicking of solder.
- For surface mount board to board options consult factory.
- Reliable mechanical support.
- Custom configurations available.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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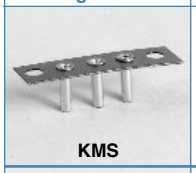
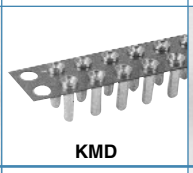
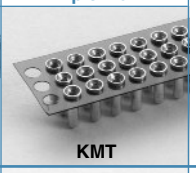
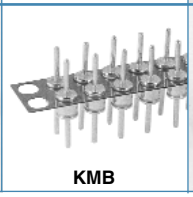
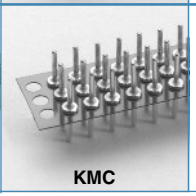
Catalog 16A

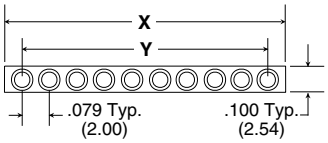
.079/(2.00mm) Pitch Board to Board Connectors
Peel-A-Way® Insulators

Table of Models

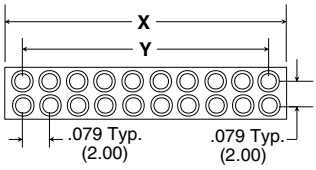
	Single Row	Dual Row	Triple Row	
Female	 KMS	 KMD	 KMT	Description: Peel-A-Way® (KMS, KMD, KMT) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)
Male	 KMA	 KMB	 KMC	Description: Peel-A-Way® (KMA, KMB, KMC) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)

Dimensional Information

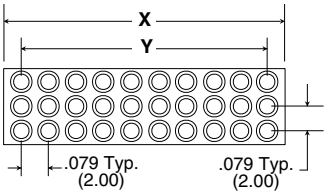
Single Row



Dual Row



Triple Row



Total # of Pins per Connector			# of Pins Per Row	X in. (mm)	Y in. (mm)
Single	Dual	Triple			
010	020	030	10	.866/(22.00)	.709/(18.00)
020	040	060	20	1.654/(42.00)	1.496/(38.00)
030	060	090	30	2.441/(62.00)	2.283/(58.00)
040	080	120	40	3.228/(82.00)	3.071/(78.00)
050	100	150	50	4.016/(102.00)	3.858/(98.00)

Multiply number of rows by number of pins per row for total pin count in part number.

How To Order

RoHS Compliant Pb Free

Female

KMT 090 - 85 M G

Body Type
RoHS Compliant Insulators:
KMS - Single Row
KMD - Dual Row
KMT - Triple Row

Total Number of Pins
(no. of pins per row x no. of rows)
Std. pins per row = 10, 20, 30, 40 & 50

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Male

KMC 090 - 165 M

Body Type
RoHS Compliant Insulators:
KMA - Single Row
KMB - Dual Row
KMC - Triple Row

Total Number of Pins
(no. of pins per row x no. of rows)
Std. pins per row = 10, 20, 30, 40 & 50

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

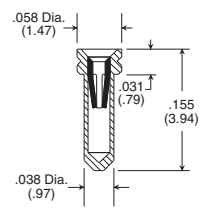
inch/(mm)

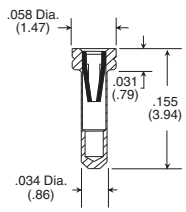
.079/(2.00mm) Pitch Board to Board Connectors
Peel-A-Way® Insulators

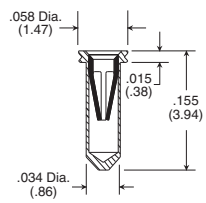
Standard Female Terminals

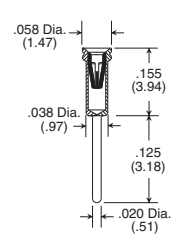
Additional standard and custom terminals available. See Terminals section or consult factory.

Type -85	Type -176	Type -210	Type -95
Peel-A-Way® only	Peel-A-Way® only	Peel-A-Way® only	Peel-A-Way® only



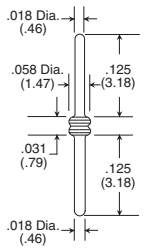


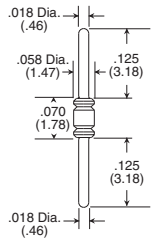


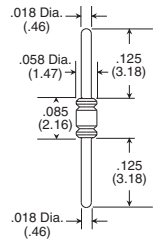


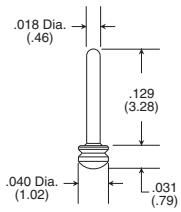
Standard Male Terminals

Type -165	Type -339	Type -340	Type -525
Peel-A-Way® only	Peel-A-Way® only	Peel-A-Way® only	Peel-A-Way® only









Dimensional Information

Figure 1
Thru-Hole

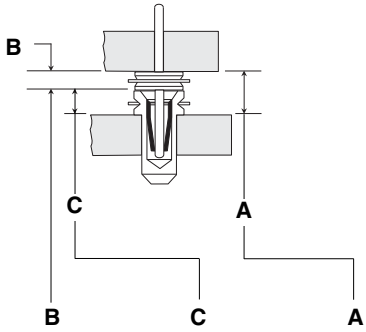
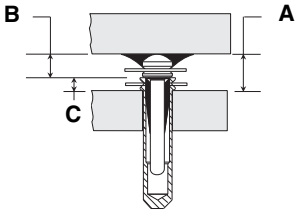


Figure 2
Surface Mount



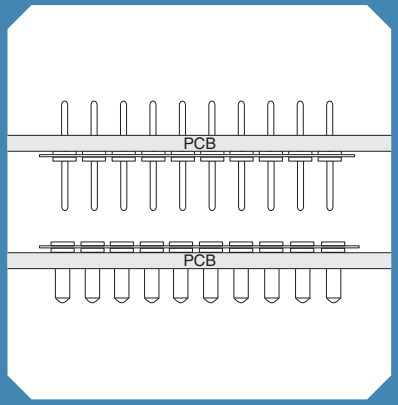
Order one each Male & Female to get the required "A" dim.

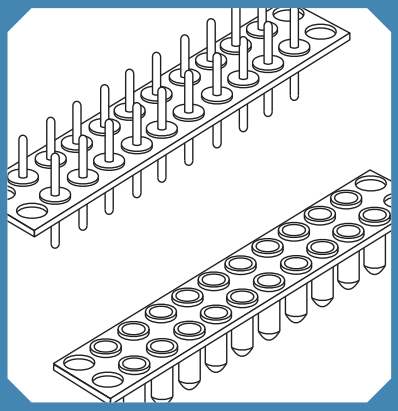
B in./(mm)	C in./(mm)	A in./(mm)	Male Part #	Female Part #	Fig. #
.031/(.79)	.015/(.38)	.046/(1.17)	KMB020-165G	KMD020-210MG	1
.031/(.79)	.015/(.38)	.046/(1.17)	KMB020-525G	KMD020-210MG	2
.031/(.79)	.031/(.79)	.062/(1.57)	KMB020-165G	KMD020-85MG	1
.031/(.79)	.031/(.79)	.062/(1.57)	KMB020-525G	KMD020-85MG	2
.031/(.79)	.031/(.79)	.062/(1.57)	KMB020-165G	KMD020-176MG	1
.031/(.79)	.031/(.79)	.062/(1.57)	KMB020-525G	KMD020-176MG	2
.070/(1.78)	.015/(.38)	.085/(2.16)	KMB020-321G	KMD020-210MG	1
.085/(2.16)	.015/(.38)	.100/(2.54)	KMB020-322G	KMD020-210MG	1
.070/(1.78)	.031/(.79)	.101/(2.57)	KMB020-321G	KMD020-85MG	1
.070/(1.78)	.031/(.79)	.101/(2.57)	KMB020-321G	KMD020-176MG	1
.085/(2.16)	.031/(.79)	.116/(2.95)	KMB020-322G	KMD020-85MG	1
.085/(2.16)	.031/(.79)	.116/(2.95)	KMB020-322G	KMD020-176MG	1
.031/(.79)	.155/(3.94)	.186/(4.72)	KMB020-165G	KMD020-95MG	1
.031/(.79)	.155/(3.94)	.186/(4.72)	KMB020-525G	KMD020-95MG	2
.070/(1.78)	.155/(3.94)	.225/(5.72)	KMB020-321G	KMD020-95MG	1
.085/(2.16)	.155/(3.94)	.240/(6.10)	KMB020-322G	KMD020-95MG	1

20 position dual row part numbers shown. See How To Order section for ordering information.

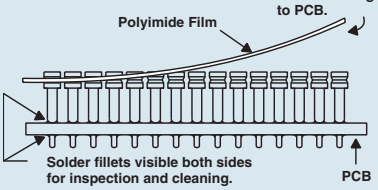
If required "A" dimension is not shown, consult factory.

inch/(mm)





Peel-A-Way® Removable Carriers



1. Place socket on PC board.
2. Send PC board and socket through soldering operation.
3. Peel away polyimide film carrier for complete solder joint visibility or leave in place for added stability.

Available Online:

- RoHS Qualification Test Report

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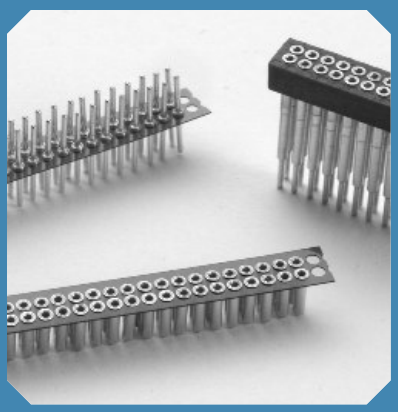
Catalog 16A

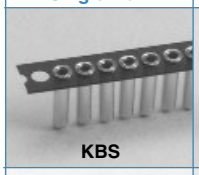
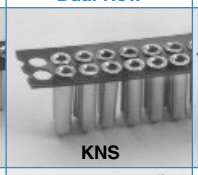
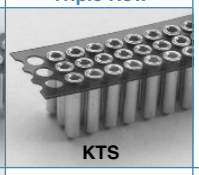
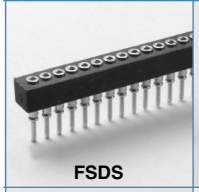
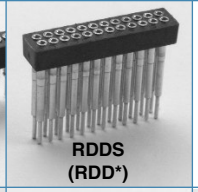
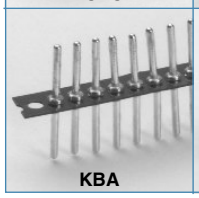
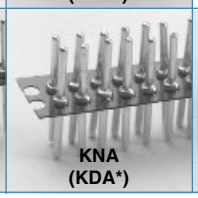
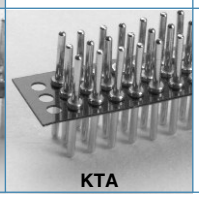
.050/(1.27mm) Pitch Board to Board Connectors
Molded and Peel-A-Way® Insulators



Features:

- Male and female connectors are designed in mating pairs.
- .050/(1.27mm) row to row pitch.
- High reliability screw-machined terminals with closed-end construction for 100% anti-wicking of solder.
- For surface mount options, consult factory.
- Reliable mechanical support.
- Custom configurations available.

Table of Models

	Single Row	Dual Row	Triple Row	
Female	 KBS	 KNS	 KTS	Description: Peel-A-Way® (KBS, KNS, KTS) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)
Female	 FSDS	 RDDS (RDD*)		Description: FR-4 (FSDS) Mat'l: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F) Description: Molded (RDDS, RDD) Mat'l: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)
Male	 KBA	 KNA (KDA*)	 KTA	Description: Peel-A-Way® (KBA, KNA, KDA, KTA) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)

* RDD and KDA have .100/(2.54mm) pitch between rows.
Note: FSDS replaces SDS, HSDS, and RSDS.
RDDS replaces DDS and HDDS.
RDD replaces DD.

How To Order

RoHS Compliant Pb Free

Female

KTS 090 - 227 M G

Body Type
RoHS Compliant Insulators:
KBS - Single Row Peel-A-Way®
FSDS** - Single Row FR-4
KNS - Dual Row Peel-A-Way®
RDDS - Dual Row Molded
RDD*- Dual Row Molded
KTS - Triple Row Peel-A-Way®
** .100/(2.54) pitch between rows*
***FSDS is available with Gold plating only (GG)*

Total Number of Pins
(no. of pins per row x no. of rows)
Std. pins per row = 10, 20, 30, 40 & 50

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Male

KTA 090 - 131 M

Body Type
RoHS Compliant Insulators:
KBA - Single Row Peel-A-Way®
KNA - Dual Row Peel-A-Way®
KDA*- Dual Row Peel-A-Way®
KTA - Triple Row Peel-A-Way®
** .100/(2.54) pitch between rows*

Total Number of Pins
(no. of pins per row x no. of rows)
Std. pins per row = 10, 20, 30, 40 & 50

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

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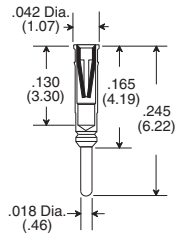
inch/(mm)

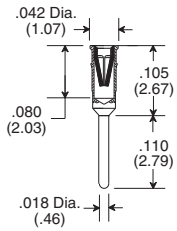
.050/(1.27mm) Pitch Board to Board Connectors
Molded and Peel-A-Way® Insulators

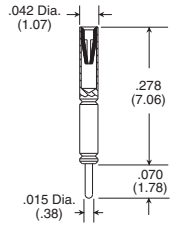
Additional standard and custom terminals available. See Terminals section or consult factory.

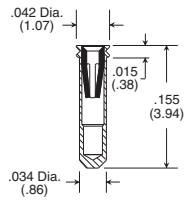
Standard Female Terminals

Type -168	Type -347	Type -205	Type -227
Molded or FR-4 only	Molded or FR-4 only	Molded or FR-4 only	Peel-A-Way® only



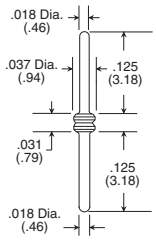


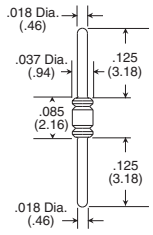


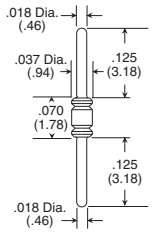


Standard Male Terminals - Thru-Hole

Type -131	Type -322	Type -321
Peel-A-Way® only	Peel-A-Way® only	Peel-A-Way® only

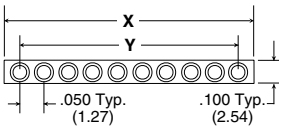




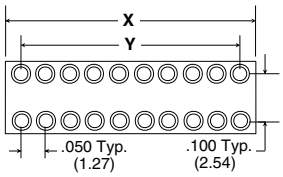


Dimensional Information

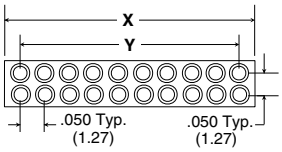
Single Row



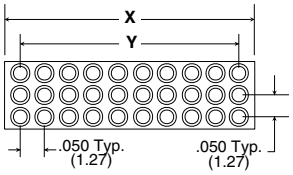
Dual Row (RDD & RDA)



Dual Row



Triple Row



Molded or FR-4

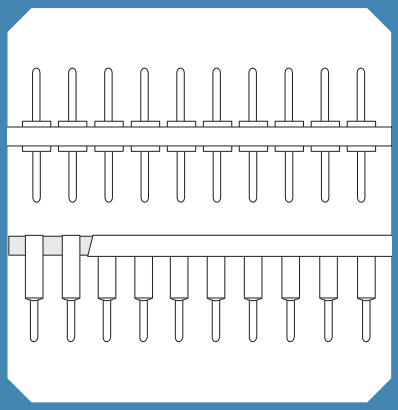
Total # of Pins per Connector			# of Pins Per Row	X in. (mm)	Y in. (mm)
Single	Dual	Triple			
010	020	030	10	.550 (13.97)	.450 (11.43)
020	040	060	20	1.050 (26.67)	.950 (24.13)
030	060	090	30	1.550 (39.37)	1.450 (36.83)
040	080	120	40	2.050 (52.07)	1.950 (49.53)
050	100	150	50	2.550 (64.77)	2.450 (62.23)

Peel-A-Way®

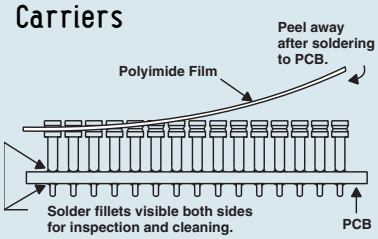
Total # of Pins per Connector			# of Pins Per Row	X in. (mm)	Y in. (mm)
Single	Dual	Triple			
010	020	030	10	.650 (16.51)	.450 (11.43)
020	040	060	20	1.150 (29.21)	.950 (24.13)
030	060	090	30	1.650 (41.91)	1.450 (36.83)
040	080	120	40	2.150 (54.61)	1.950 (49.53)
050	100	150	50	2.650 (67.31)	2.450 (62.23)

Multiply number of rows by number of pins per row for total pin count in part number.

inch/(mm)



Peel-A-Way® Removable Carriers



1. Place socket on PC board.
2. Send PC board and socket through soldering operation.
3. Peel away polyimide film carrier for complete solder joint visibility or leave in place for added stability.

Available Online:

- RoHS Qualification Test Report

See following pages for typical board to board spacing configuration and additional dimensional information.

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Dimensional Information

Thru-Hole Female & Male

Figure 1
Peel-A-Way® Female & Peel-A-Way® Male

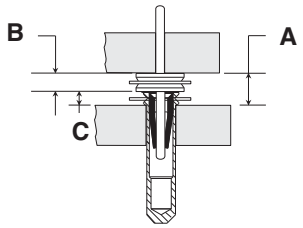
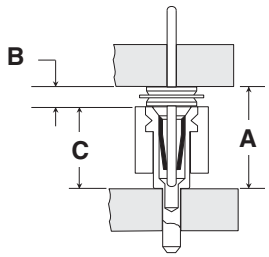
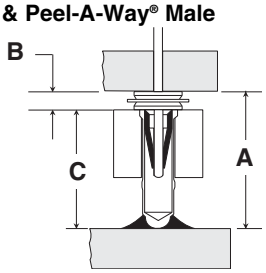


Figure 2
Molded or FR-4 Female & Peel-A-Way® Male



Surface Mount Female & Thru-Hole Male

Figure 3
Molded or FR-4 Female & Peel-A-Way® Male



Order one each Male & Female to get the required "A" dim.

B	C	A	Male Part #	Female Part #	Fig.
.031/(.79)	.015/(.38)	.046/(1.17)	KBA020-131G	KBS020-227MG	1
.070/(1.78)	.015/(.38)	.085/(2.16)	KBA020-321G	KBS020-227MG	1
.085/(2.16)	.015/(.38)	.100/(2.54)	KBA020-322G	KBS020-227MG	1
.031/(.79)	.118/(3.00)	.190/(4.83)	KBA020-131G	FSDS020-551GG	3
.070/(1.78)	.118/(3.00)	.188/(4.78)	KBA020-321G	FSDS020-551GG	3
.030/(.76)	.161/(4.09)	.192/(4.88)	KBA020-131G	FSDS020-553GG	3
.031/(.79)	.165/(4.19)	.196/(4.98)	KBA020-131G	FSDS020-168GG	2
.085/(2.16)	.118/(3.00)	.203/(5.16)	KBA020-322G	FSDS020-551GG	3
.070/(1.78)	.161/(4.09)	.231/(5.87)	KBA020-321G	FSDS020-553GG	3
.070/(1.78)	.165/(4.19)	.235/(5.97)	KBA020-321G	FSDS020-168GG	2
.085/(2.16)	.165/(4.19)	.250/(6.35)	KBA020-322G	FSDS020-168GG	2
.085/(2.16)	.161/(4.09)	.246/(6.25)	KBA020-322G	FSDS020-553GG	3
.031/(.79)	.278/(7.06)	.309/(7.85)	KBA020-131G	FSDS020-205GG	2
.070/(1.78)	.278/(7.06)	.348/(8.84)	KBA020-321G	FSDS020-205GG	2
.085/(2.16)	.278/(7.06)	.363/(9.22)	KBA020-322G	FSDS020-205GG	2

20 position single row part numbers shown.
See How To Order section for ordering information.

If required "A" dimension is not shown, consult factory.

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Catalog 16A

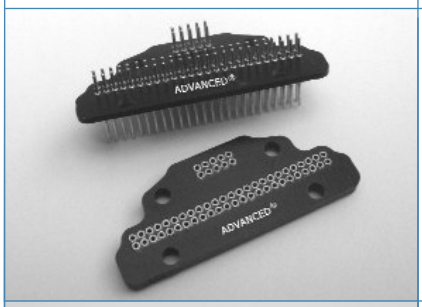
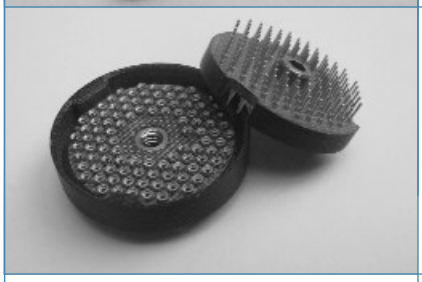
inch/(mm)

Custom Interconnect Solutions
Custom Board to Board and Cable to Board Connectors

With in-house technology from precision drilling and routing to CNC screw machining, combined with 25+ years of interconnect engineering, Advanced can quickly design a customized solution for your next connector application.

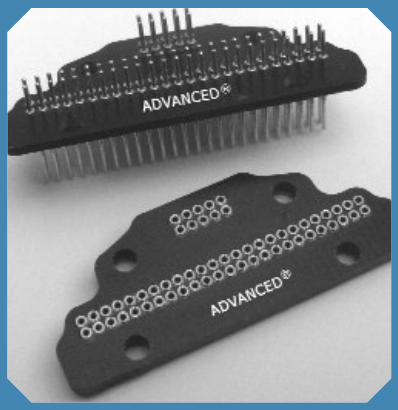
- Unique shapes to maximize board space
- Board to Board and Cable to Board solutions
- Customized screw-machined pins
- Multi-finger contacts for reliability
- Innovative designs can reduce overall connector count and associated assembly costs
- Easily transition to molded designs as volumes ramp-up
- Military, medical, industrial . . . anywhere that high reliability is needed
- Options such as pick-up covers, keying/polarization, integrated signal and power, special plating, etc.
- We specialize in solutions for blind mating, harsh environments, and tight board space restrictions

Custom Solutions

	Product: SMT Perimeter Connector Description: To reduce space when connecting two circular PC boards, we designed a unique semi-circle insulator using existing 1.0mm pitch BGA Socket Adapter terminals. The prototype SMT connector was created in less than 5 days from FR-4 on our in-house precision driller/routing machine and features lead-free solder ball terminals on both the male header and the mating female connector (socket). The semi-circle design maximizes space when stacking circular printed circuit boards.
	Product: Application-specific Connector System Description: This military application required a robust solution to replace a stamped-and-formed connector while reducing overall costs. By reviewing the whole application, we reduced the overall connector count from 6 to 3 using a unique FR-4 insulator with high reliability screw-machined terminals (pins) that met stringent G-force requirements while providing a more robust, screw-machined solution at a lower total cost.
	Product: Connector for Blind Mating Description: This keyed and polarized, cylindrical connector is designed to mate up to 5 PC boards in a harsh environment military application. FR-4 was selected to reduce tooling costs and provide fast prototypes. The shroud protects the pins and facilitates mating. This unique design reduced assembly time and increased the overall system reliability and performance.
	Product: Custom B2B® SMT Connector Description: Our line of B2B® SMT Connectors can be easily customized to provide robust SMT board to board mating in a variety of applications. This example is an 80 position connector made from FR-4 with a mated height of only 6.0mm. The surface mount design reduces the required PC board layers. Available in leaded or lead-free designs.

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.



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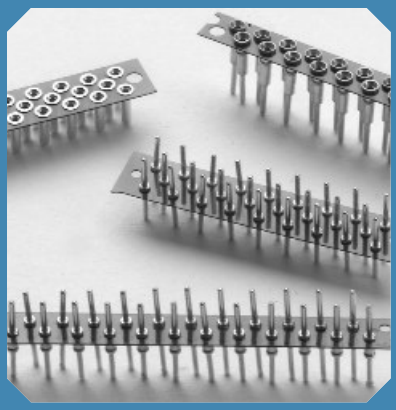
Board to Board Connectors



Features:

- Supplied in high temperature Peel-A-Way® removable terminal carrier.
- Female and male connectors are designed in mating pairs.
- .050/(1.27mm) row to row pitch.
- High reliability screw-machined terminals with closed-end construction for 100% anti-wicking of solder.
- Custom configurations available.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

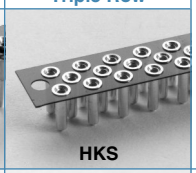
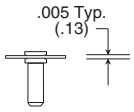
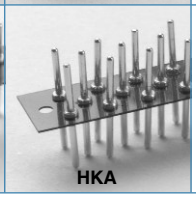
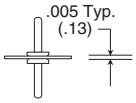
Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

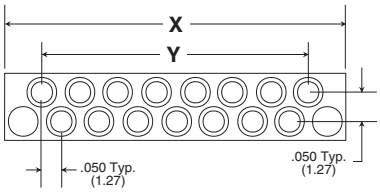
Staggered .050/(1.27mm) Pitch Board to Board Connectors
Peel-A-Way® Insulators

Table of Models

	Dual Row	Triple Row		
Female	 KES	 HKS	Description: Peel-A-Way® (KES, HKS) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)	
Male	 KEA	 HKA	Description: Peel-A-Way® (KEA, HKA) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)	

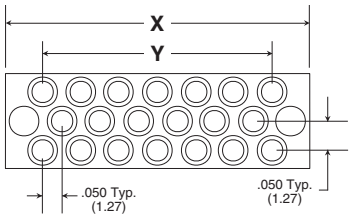
Dimensional Information

Dual Row (ex. KES015-)



# of Pins Total	X in. (mm)	Y in. (mm)
5	.400 (10.16)	.200 (5.08)
9	.600 (15.24)	.400 (10.16)
15	.900 (22.86)	.700 (17.78)
19	1.100 (27.94)	.900 (22.86)
25	1.400 (35.56)	2.450 (30.48)

Triple Row (ex. HKS020-)



# of Pins Total	X in. (mm)	Y in. (mm)
8	.400 (10.16)	.200 (5.08)
14	.600 (15.24)	.400 (10.16)
20	.800 (20.32)	.600 (15.24)
26	1.000 (25.40)	.800 (20.32)
35	1.300 (33.02)	1.100 (27.94)

How To Order

RoHS Compliant Pb Free

Female

KES 015 -85 M G

Body Type
RoHS Compliant Insulators:
KES - Dual Row
HKS - Triple Row

Total Number of Pins
5 - 25 Positions Dual Row
8 - 35 Positions Triple Row
(See Tables above for standard pin counts)

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
RoHS Compliant:
G - Gold
T - Tin/Lead

Male

KEA 015 -131 M

Body Type
RoHS Compliant Insulators:
KEA - Dual Row
HKA - Triple Row

Total Number of Pins
5 - 25 Positions Dual Row
8 - 35 Positions Triple Row

Terminal Type
See options

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

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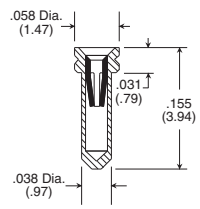
Staggered .050/(1.27mm) Pitch Board to Board Connectors
Peel-A-Way® Insulators

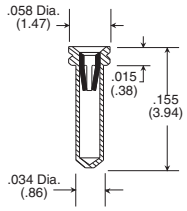
Additional standard and custom terminals available.
See Terminals section or consult factory.

Standard Female Terminals

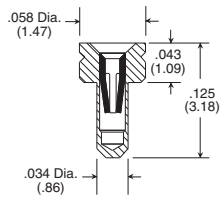
Type -85



Type -210

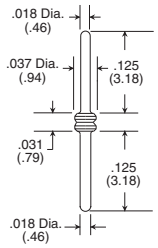


Type -246
(mates with -526 only)

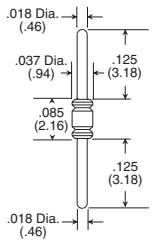


Standard Male Terminals

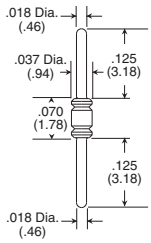
Type -131



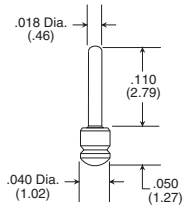
Type -322



Type -321



Type -526



Dimensional Information

Figure 1
Thru-Hole

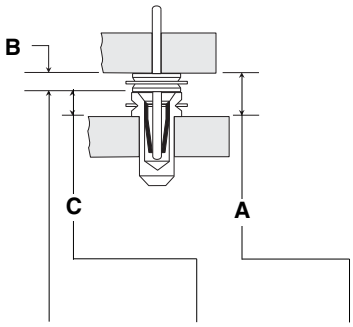
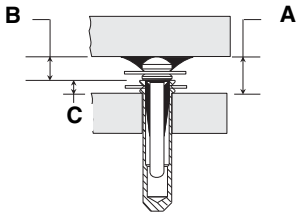


Figure 2
Surface Mount



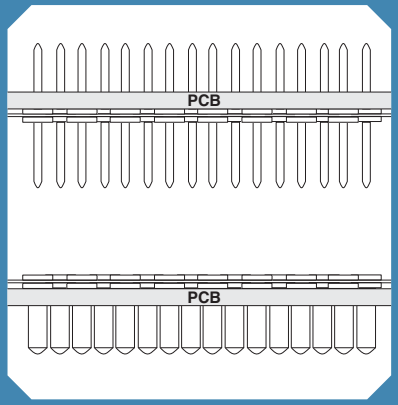
Order one each Male & Female
to get the required "A" dim.

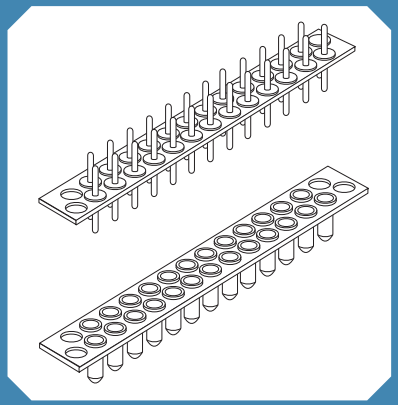
B	C	A	Male Part #	Female Part #	Fig. #
.031/(.79)	.015/(.38)	.046/(1.17)	KEA015-131G	KES015-210MG	1
.031/(.79)	.015/(.38)	.046/(1.17)	KEA015-525G	KES015-210MG	2
.031/(.79)	.031/(.79)	.062/(1.57)	KEA015-131G	KES015-85MG	1
.031/(.79)	.031/(.79)	.062/(1.57)	KEA015-525G	KES015-85MG	2
.050/(1.27)	.015/(.38)	.065/(1.65)	KEA015-526G	KES015-210MG	2
.050/(1.27)	.031/(.79)	.081/(2.06)	KEA015-526G	KES015-85MG	2
.070/(1.78)	.015/(.38)	.085/(2.16)	KEA015-321G	KES015-210MG	1
.050/(1.27)	.043/(1.09)	.093/(2.36)	KEA015-526G	KES015-246MG	2
.085/(2.16)	.015/(.38)	.100/(2.54)	KEA015-322G	KES015-210MG	1
.070/(1.78)	.031/(.79)	.101/(2.57)	KEA015-321G	KES015-85MG	1
.085/(2.16)	.031/(.79)	.116/(2.95)	KEA015-322G	KES015-85MG	1

15 position dual row part numbers shown.
See How To Order section for ordering information.

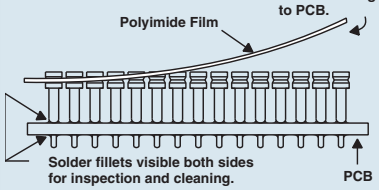
If required "A" dimension is not shown, consult factory.

inch/(mm)





Peel-A-Way® Removable Carriers



1. Place socket on PC board.
2. Send PC board and socket through soldering operation.
3. Peel away polyimide film carrier for complete solder joint visibility or leave in place for added stability.

Available Online:

- RoHS Qualification Test Report

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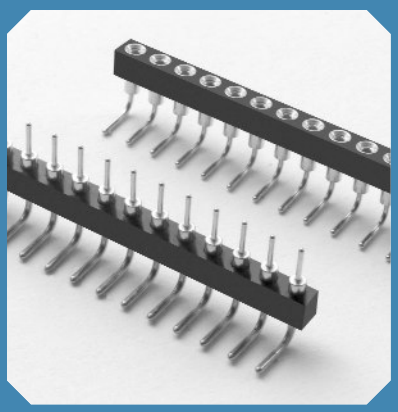
Catalog 16A

Single Row Right Angle Board to Board Connectors
.100/(2.54mm) Pitch • Molded Insulators



Features:

- High reliability method of interconnecting PCB to PCB.
- .018/(.46mm) diameter male pins.
- Screw-machined terminals with multi-finger contacts.

Specifications:

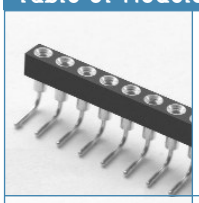
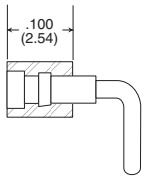
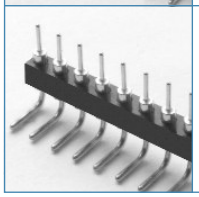
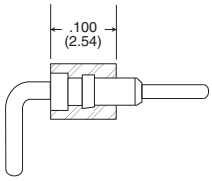
Terminals:
Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:
Beryllium Copper
(C17200) ASTM-B-194

Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models

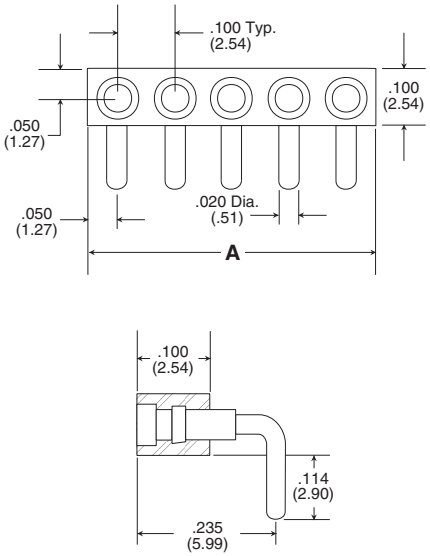
Female		Description: FR-4 Single Row (FLSS) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F)	
Male		Description: FR-4 Single Row (FLSA) Material: FR-4 Fiberglass Epoxy Board Index: -40°C to 140°C (-40°F to 284°F)	

FLSS replaces RLSS and FLSA replaces RLSA.

Dimensional Information

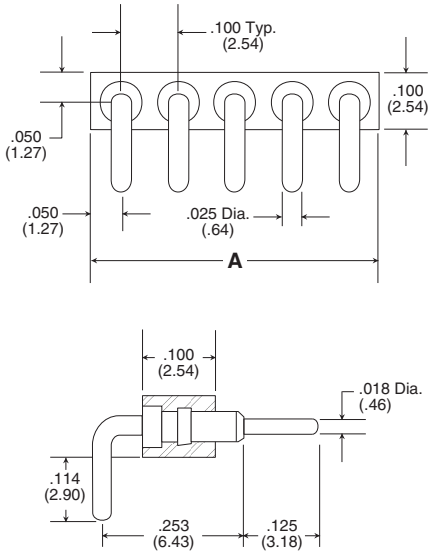
Female

FLSSXXX-160XX



Male

FLSAXXX-159X



A = Pitch .100/(2.54mm) x Number of Terminals in Row

How To Order

RoHS Compliant Pb Free

FLSS 032 - 160 M G

Body Type
RoHS Compliant
FLSS - Single Row Female
FLSA - Single Row Male

Number of Pins
002 to 032

Terminal Type
-160 Female
-159 Male

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Contact Plating
(female only)
RoHS Compliant:
G - Gold
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

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inch/(mm)

Dual Row Right Angle Board to Board Connectors
.100/(2.54mm) Pitch • Molded Insulators

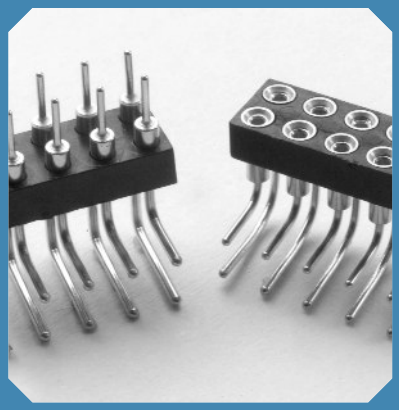
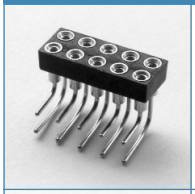
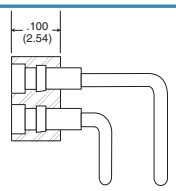
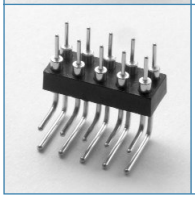
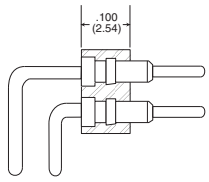


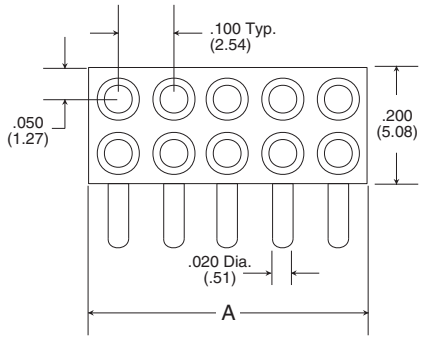
Table of Models

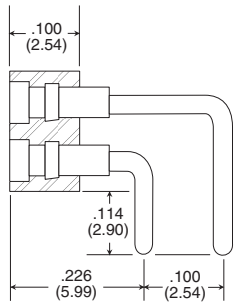
Female		Description: Molded Dual Row (RLSS) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	
Male		Description: Molded Dual Row (RLSA) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	

Dimensional Information

Female

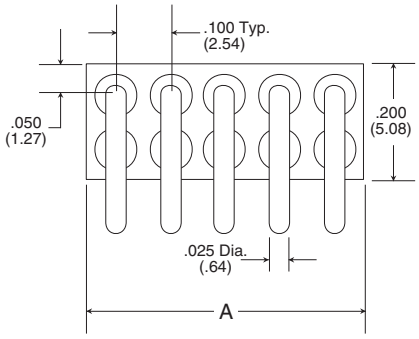
RLSSXXX-162XX

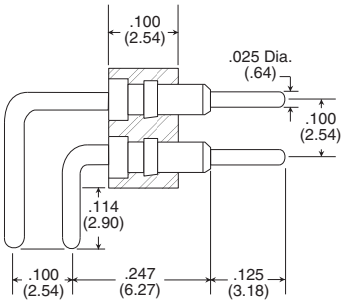




Male

RLSAXXX-161X





A = Pitch .100/(2.54mm) x Number of Terminals in Row

Features:

- High reliability method of interconnecting PCB to PCB.
- .025/(.64mm) diameter male pins.
- .100/(2.54mm) row to row pitch.
- Screw-machined terminals with multi-finger contacts.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

How To Order

RoHS Compliant Pb Free

RLSS 070 - 162 M G

Body Type
RoHS Compliant
RLSS - Dual Row Female
RLSA - Dual Row Male

Number of Pins
004 to 070

Terminal Type
-162 Female
-161 Male

Contact Plating
(female only)
RoHS Compliant:
G - Gold
T - Tin/Lead

Terminal Plating
RoHS Compliant:
G - Gold
M - Matte Tin
T - Tin/Lead

Note: Terminals plated with Matte Tin are available only with Gold plated contacts.

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

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Fax: 401.823.8723
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Board to Board Connectors

Features:

- Robust, shrouded design with screw-machined terminals and multi-finger contacts can withstand the rigorous demands of blind mating and mating/unmating cycles.
- At 3 amps per pin, more contacts can be assigned to data/signal transfer (fewer pins needed to handle power and ground).
- High density - over 400 contacts per square inch.
- Industry standard footprints in four mated heights.
- Precision molded with integral polarization keying features.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Solder Ball:

Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Plating:

G - Gold over Nickel

Gold per ASTM-B-488
Nickel per QQ-N-290

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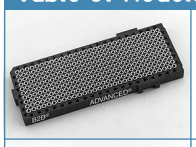
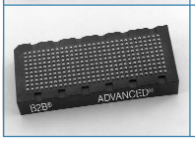
Catalog 16A

B2B® High Density SMT Connectors
.050/(1.27mm) Pitch

Table of Models

Female		Description: Molded B2B® Connector (BB) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)
Male		Description: Molded B2B® Connector (BA) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)

Performance

Mated Height	Differential Insertion Loss	Differential Return Loss
6.00mm	-.20dB @ 1.70 GHz -.50dB @ 3.30 GHz	-10dB @ 3.30 GHz -15dB @ 1.70 GHz
8.00mm	-.15dB @ 1.30 GHz -.50dB @ 2.50 GHz	-10dB @ 2.50 GHz -15dB @ 1.30 GHz
12.70mm	-.20dB @ 1.70 GHz -.51dB @ 3.40 GHz	-10dB @ 3.40 GHz -15dB @ 1.70 GHz
19.05mm	-.60dB @ 2.20 GHz -.20dB @ 1.40 GHz	-10dB @ 2.20 GHz -15dB @ 1.40 GHz

Insertion Force (6.00mm, 300 position):
50g average (per pin)

Extraction Force (6.00mm, 300 position):
45g average (per pin)

Durability (mated cycles):
500 cycles (<10mΩ change in resistance)

Additional performance and test data available online.

How To Order

RoHS Compliant Pb Free

Female

BB XXX - XXX G G -TR

Body Type
RoHS Compliant Insulator:
BB = Female

Number of Positions
240, 300, 400, 500* standard
(Consult factory for custom)

SMT Terminal Type
For mated height of .236/(6.00):
Sn/Pb Solder Ball: **-783** Lead-free Solder Ball: **-794**
For mated height of .315/(8.00), .500/(12.70), or .750/(19.05):
Sn/Pb Solder Ball: **-739** Lead-free Solder Ball: **-793**

Terminal Plating
RoHS Compliant:
G - Gold

Contact Plating
RoHS Compliant:
G - Gold

Packaging Options**
TR - Tape and Reel
(includes pick-up dot)

*500 pos. available in 6mm mated height only.
**If no packaging code is indicated, female connectors are supplied with pick-up dots in standard trays.

Male

BA XXX - XXX G -TR

Body Type
RoHS Compliant Insulator:
BA = Male

Number of Positions
240, 300, 400, 500* standard
(Consult factory for custom)

SMT Terminal Type

Connector Mated Height	Sn/Pb Solder Ball	Lead-free Solder Ball
.236/(6.00)	**-741**	**-795**
.315/(8.00)	**-742**	**-796**
.500/(12.70)	**-743**	**-797**
.750/(19.05)	**-748**	**-798**

Terminal Plating
RoHS Compliant:
G - Gold

Packaging Option**
TR - Tape and Reel
(includes pick-up cap)

*500 pos. available in 6mm mated height only.
**If no packaging code is indicated, male connectors are supplied with pick-up caps in standard trays.

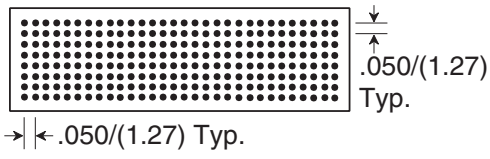
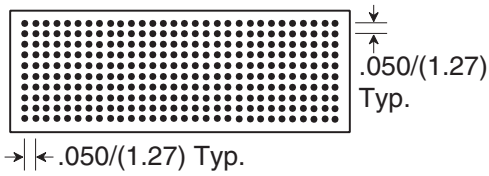
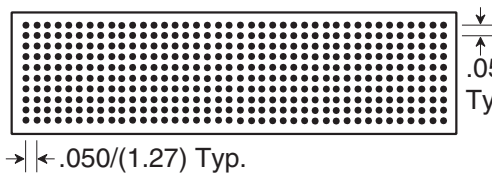
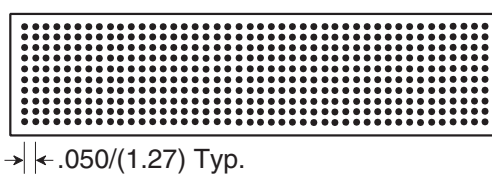
Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

B2B® High Density SMT Connectors
.050/(1.27mm) Pitch

1.27mm Pitch

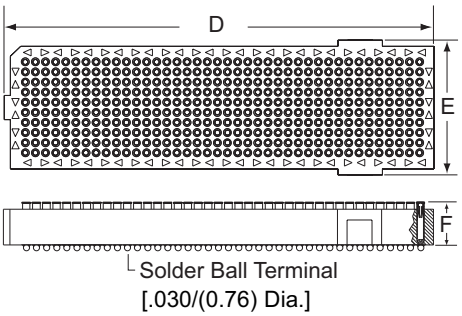
Standard Footprints

	• 240 Positions • 30x8 Rows
	• 300 Positions • 30x10 Rows
	• 400 Positions • 40x10 Rows
	• 500 Positions • 50x10 Rows

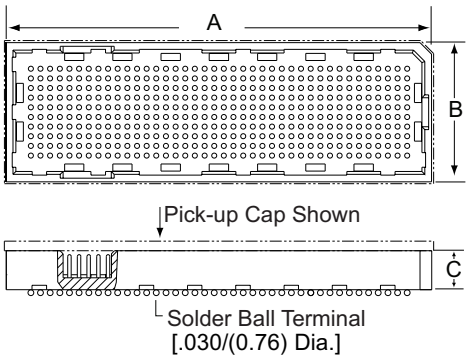
Consult factory for custom sizes.

Dimensional Information

Female



Male



Mated Board to Board Height*	A in./(mm)	B in./(mm)	C^ in./(mm)	D^ in./(mm)	E^ in./(mm)	F^ in./(mm)
.236/(6.00)	1.704/(43.28)	.622/(15.80)	.202/(5.13)	1.626/(41.30)	.567/(14.40)	.136/(3.45)
.315/(8.00)	1.704/(43.28)	.622/(15.80)	.273/(6.93)	1.626/(41.30)	.567/(14.40)	.211/(5.36)
.500/(12.70)	1.704/(43.28)	.622/(15.80)	.462/(11.73)	1.626/(41.30)	.567/(14.40)	.211/(5.36)
.750/(19.05)	1.704/(43.28)	.622/(15.80)	.712/(18.09)	1.626/(41.30)	.567/(14.40)	.211/(5.36)
.236/(6.00)	1.704/(43.28)	.722/(18.34)	.202/(5.13)	1.626/(41.30)	.667/(16.94)	.136/(3.45)
.315/(8.00)	1.704/(43.28)	.722/(18.34)	.273/(6.93)	1.626/(41.30)	.667/(16.94)	.211/(5.36)
.500/(12.70)	1.704/(43.28)	.722/(18.34)	.462/(11.73)	1.626/(41.30)	.667/(16.94)	.211/(5.36)
.750/(19.05)	1.704/(43.28)	.722/(18.34)	.712/(18.09)	1.626/(41.30)	.667/(16.94)	.211/(5.36)
.236/(6.00)	2.204/(55.98)	.722/(18.34)	.202/(5.13)	2.126/(54.00)	.667/(16.94)	.136/(3.45)
.315/(8.00)	2.204/(55.98)	.722/(18.34)	.273/(6.93)	2.126/(54.00)	.667/(16.94)	.211/(5.36)
.500/(12.70)	2.204/(55.98)	.722/(18.34)	.462/(11.73)	2.126/(54.00)	.667/(16.94)	.211/(5.36)
.750/(19.05)	2.204/(55.98)	.722/(18.34)	.712/(18.09)	2.126/(54.00)	.667/(16.94)	.211/(5.36)
.236/(6.00)	2.704/(68.68)	.722/(18.34)	.202/(5.13)	2.626/(66.70)	.667/(16.94)	.136/(3.45)

240 Positions
300 Positions
400 Positions
500 Pos.

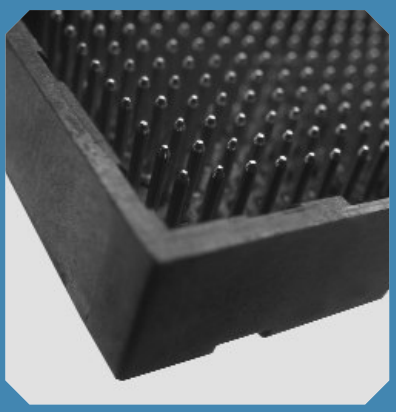
Additional mated heights coming soon. Consult factory.

*Approximate dimension after soldering. ^Dimensions do not include solder ball height.

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

Board to Board Connectors



Packaging & Options:

Male connectors - supplied with a pick-up cap to protect male pins and facilitate automated pick-and-place. Pick-up cap remains in place during reflow.

Female connectors - supplied with a polyimide dot to facilitate automated pick-and-place.

Tape and Reel - Add -TR to end of part number for Tape and Reel packaging.

Standard Trays - If no packaging code is indicated, connectors are shipped in standard trays (Note: Trays are not suitable for automated pick-and-place processes.)

Available Online:

- RoHS Qualification Test Report
- Product Specification
- Test data
- Signal Integrity Data
- CAD Drawings

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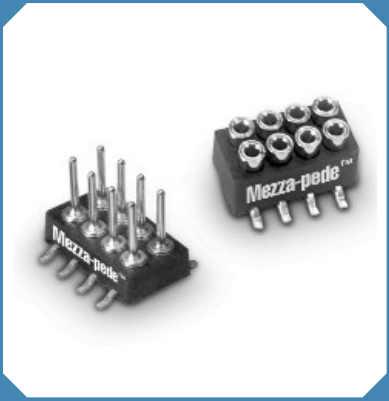
Board to Board Connectors



Features:

- Low profile connector system for 1.00mm pitch cable to board or board to board applications - only .100/(2.54mm) tall on female (socket) side.
- Robust design features screw-machined terminals and multi-finger contacts rated at 3 amps.
- Fits within existing board layouts.
- Over-molded lead frame seals surface mount pins to prevent solder wicking.
- SMT and thru-hole designs available.
- Passed 20-Day MFG test.

Specifications:

Terminals:

Brass - Copper Alloy
(C36000) ASTM-B-16

Contacts:

Beryllium Copper
(C17200) ASTM-B-194

Lead Frame:

Beryllium Copper
(CA 172)

Plating:

G - Gold over Nickel
GH - Heavy Gold over Nickel
M - Matte Tin over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Nickel per QQ-N-290

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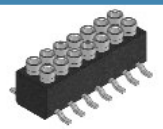
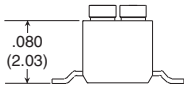
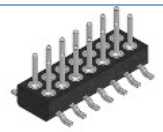
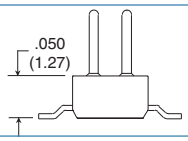
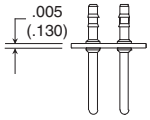
Catalog 16A

Mezza-pede® Low Profile SMT Connectors

.039/(1.00mm) Pitch • For Cable to Board or Board to Board Applications

Table of Models

Female		Description: Molded SMT Socket (DHS) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	
Male		Description: Molded SMT Header (DHAM) Material: High Temp. Liquid Crystal Polymer (LCP) Index: -40°C to 260°C (-40°F to 500°F)	
		Description: Flexible Thru-hole Header (DHA) Material: Polyimide Film Index: -269°C to 400°C (-452°F to 752°F)	

How To Order

RoHS Compliant Pb Free

Female

DHS 2 XX - 844 G G - M

- **Body Type** — DHS - Molded SMT
- **Row Count** — 2-Dual Row
- **Total Number of Pins** — Consult factory or web site.
- **Terminal Type**
- **Terminal Plating** — RoHS Compliant: G - Gold
- **Contact Plating** — RoHS Compliant: G - Gold
- **Lead Frame Plating** — RoHS Compliant: M - Matte Tin

Packaging: DHS is supplied in tape and reel packaging.

Male

DHAM 2 XX - 846 G - M

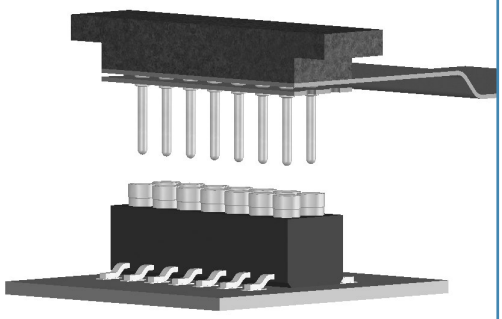
- **Body Type** — DHAM - Molded SMT; DHA - Flexible Thru-hole
- **Row Count** — 2-Dual Row
- **Total Number of Pins** — Consult factory or web site.
- **Terminal Type** — - 846 (DHAM); - 845 (DHA)
- **Terminal Plating** — RoHS Compliant: G - Gold; GH - Heavy Gold
- **Lead Frame Plating** (DHAM only) — RoHS Compliant: M - Matte Tin

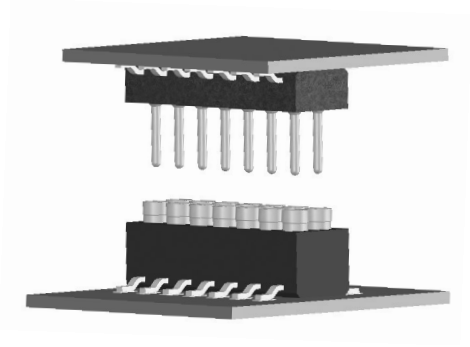
Packaging: DHAM is supplied with pick-and-place cover in tape and reel packaging.
DHA is supplied in standard trays. (Trays are not suitable for automated pick-and-place processes).

inch/(mm)

Mezza-pede® Low Profile SMT Connectors
.039/(1.00mm) Pitch • For Cable to Board or Board to Board Applications

How It Works





Thru-hole Flex Cable Application

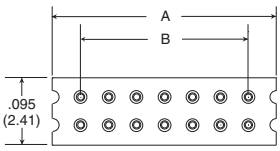
1. The male terminals are supplied in a polyimide film carrier to facilitate handling.
2. A stiffener with a recommended thickness of .020 inches should be used between the terminal pins and the flex circuit. (Stiffener not supplied)
3. The recommended maximum hole in the stiffener is .018 diameter.
4. The flex circuit should have a minimum diameter plated through hole of .016. Standard practices for flex circuit thru-hole and annular rings should apply.
5. An FR-4 cover can be used to protect the top solder joints if required. (not supplied)

SMT Board to Board Application

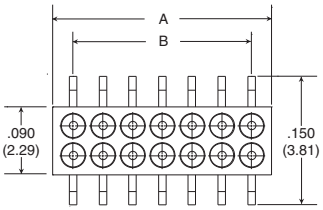
1. In an SMT application, the SMT socket (DHS) or either header (DHA, DHAM) can be used on PC boards, rigid flex or flex circuits.
2. SMT pad size should meet IPC standards for surface mount components.
3. See lead dimension and foot size on applicable CAD drawing for reference.
4. Tape and reel packaging is provided for SMT assembly.

Dimensional Information

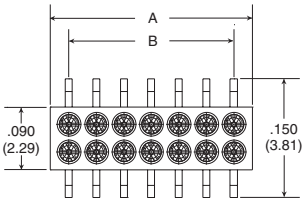
DHA

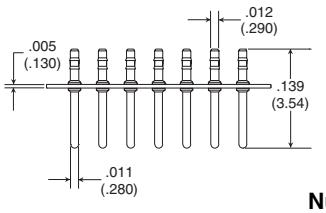


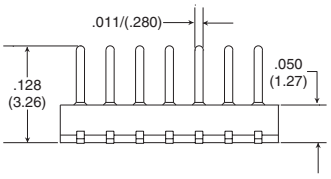
DHAM

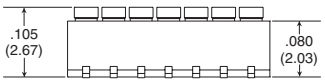


DHS





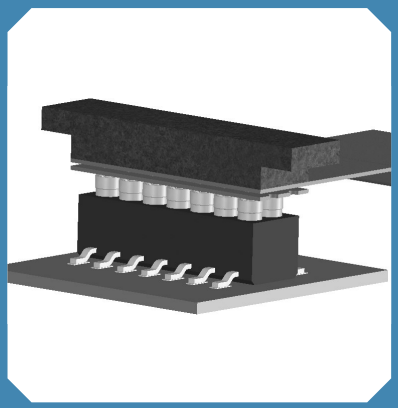




Part Number	Number of Pins	Row Count Configuration	A	B
DHS/DHAM	8	2 x 4	.171/(4.34)	.118/(3.00)
DHS/DHAM	14	2 x 7	.290/(7.36)	.236/(6.00)
DHS/DHAM	36	2 x 18	.722/(18.34)	.669/(17.00)
DHA	8	2 x 4	.197/(5.00)	.118/(3.00)
DHA	14	2 x 7	.315/(8.00)	.236/(6.00)
DHA	36	2 x 18	.748/(19.00)	.669/(17.00)

Note: Pin to pin spacing is.039/(1.00). Lead frame width is .010/(0.25).

inch/(mm)



Typical Applications

- Tunable Laser power connector (flex cable to board)
- Tunable Laser connector (board to board)
- Signal connector (flex cable to board)
- Low profile board to board connector

Test Data:

High Reliability Contact System Passes:

- Passes 20-Day Mixed Flowing Gas (MFG)
- Thermal cycle: 100 cycles 125°C to -40°C.

Available Online:

- Additional test data and reports
- CAD Drawings

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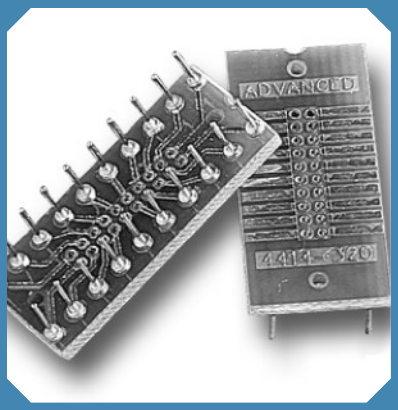
SOIC Adapters
Rectangular Type & Mating



Features:

- Adapter allows present Gull Wing devices to be solderable or socketable in a thru-hole application.
- Pin spacing allows space for conductor runs on PCB.
- Saves space (X, Y & Z) when used with Advanced sockets.
- Radius ends of adapter pins to improve socketing.
- Allows testing with standard test clips.
- RoHS Compliant designs available.
- Device attach service available.

Specifications:

Body Material:
Copper Clad FR-4
U.L. Rated 94V-0

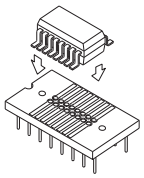
Pad Plating:
Standard: Tin/Lead Solder
Lead-free: Immersion Gold

Terminals:
Brass - Copper Alloy
(C36000) ASTM-B-16

Terminal Plating:
Standard: Tin/Lead over Nickel
Lead-free: Gold over Nickel

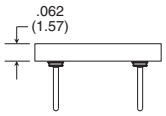
Gold per ASTM-B-488
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Table of Models

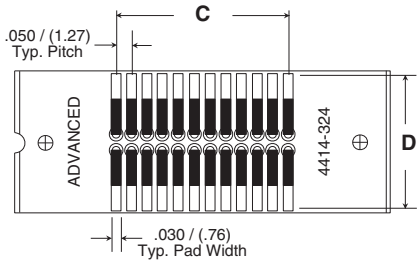


Description: SOIC to DIP Adapter (4414)
Material: Copper Clad FR-4
Index: -40°C to 140°C (-40°F to 284°F)

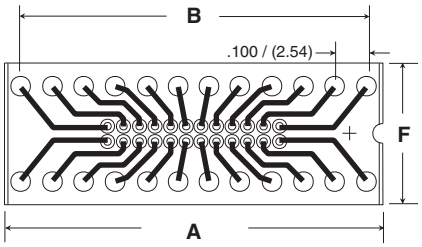
Device attach service available.



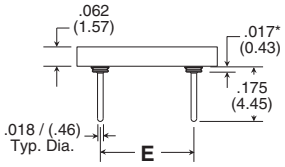
Dimensional Information



Top View



Bottom View



Side View

* .050/(1.27) on LF models

RoHS Compliant Pb Free

Standard Part Numbers	Lead-free Part Numbers	# of Pins	Pkg.[1] Qty.	A	B	C	D	E	F
4414-308	4414-308LF	8	70	.400 (10.16)	.300 (7.62)	.150 (3.81)	.429 (10.90)	.300 (7.62)	.450 (11.43)
4414-314	4414-314LF	14	42	.700 (17.78)	.600 (15.24)	.300 (7.62)	.429 (10.90)	.300 (7.62)	.450 (11.43)
4414-316	4414-316LF	16	35	.800 (20.32)	.700 (17.78)	.350 (8.89)	.429 (10.90)	.300 (7.62)	.450 (11.43)
4414-320	4414-320LF	20	28	1.000 (25.40)	.900 (22.86)	.450 (11.43)	.429 (10.90)	.300 (7.62)	.450 (11.43)
4414-324	4414-324LF	24	21	1.200 (30.48)	1.100 (27.94)	.550 (13.97)	.429 (10.90)	.300 (7.62)	.450 (11.43)
4414-328	4414-328LF*	28	21	1.390 (35.31)	1.300 (33.02)	.650 (16.51)	.429 (10.90)	.300 (7.62)	.450 (11.43)
4414-628*	4414-628LF*	28	18	1.400 (35.56)	1.300 (33.02)	.650 (16.51)	.650 (16.51)	.600 (15.24)	.750 (19.05)
4414-632*	4414-632LF*	32	10	1.600 (40.64)	1.500 (38.10)	.750 (19.05)	.650 (16.51)	.600 (15.24)	.750 (19.05)

* Consult factory for availability.
[1] Please order in multiples of stated package quantity.

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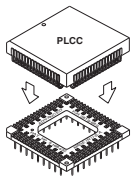
inch/(mm)

PLCC Adapters with Murphy Circuits®

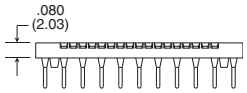
Adapters for JEDEC .050/(1.27mm) Pitch PLCCs (Leaded Type A)

Table of Models



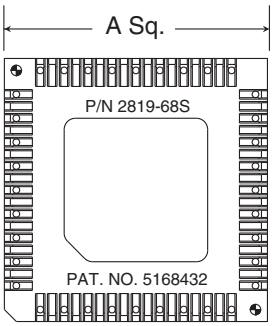
Description: PLCC to PGA Adapter (2819)
Material: High Temp. Glass Filled Thermoplastic*
Index: -60°C to 220°C (-76°F to 428°F)

Device attach service available.

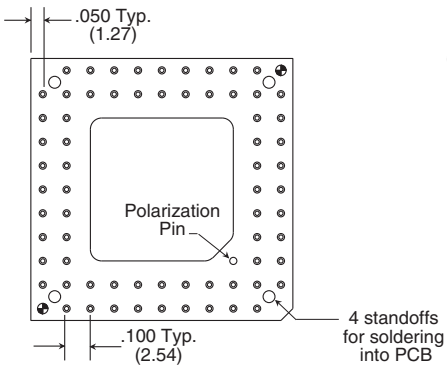


*Note: This product is not RoHS Compliant.

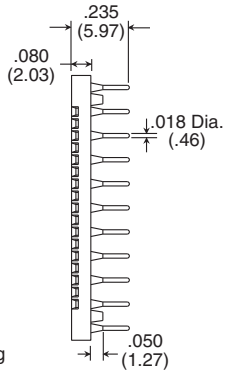
Dimensional Information



Top View of Adapter
(68 Pin Shown)



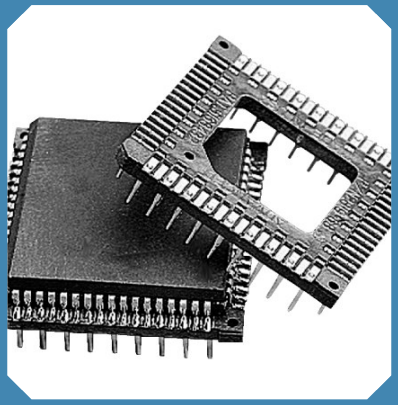
Bottom View of Adapter
(68 Pin Shown)



Part Numbers

With Standoffs	With Polarization Pin & Standoffs	No. of Positions	A
2819-28S	2819-28SP	28	.500 (12.70)
2819-44S	2819-44SP	44	.800 (20.32)
2819-52S	2819-52SP	52	.900 (22.86)
2819-68S	2819-68SP	68	1.100 (27.94)
2819-84S	2819-84SP	84	1.300 (33.02)
2819-100S	2819-100SP	100	1.500 (38.10)
2819-124S	2819-124SP	124	1.800 (45.72)

Also available without standoff - consult factory.
Consult factory for RoHS Compliant options.



Features:

- Adapter allows PLCC devices to be solderable or socketable in a thru-hole application.
- Molded locating ribs aid in device placement.
- Ribs between "J" leads eliminate shorting.
- Adapts JEDEC PLCC packages to standard PGA footprints.
- .100/(2.54mm) pin to pin spacing allows more space for conductor runs on PCB.
- Polarization pin option available.
- Saves space (X, Y, and Z) when used with Advanced PGA (LIF) sockets.
- Allows testing with standard test clips.
- Standoffs aid soldering operation.
- Device attach services available.

Specifications:

Terminals:
Brass - Copper Alloy (C36000) ASTM-B-16

Plating:
Tin/Lead over Nickel

Circuit:
Copper Circuit, Tin/Lead Plated

Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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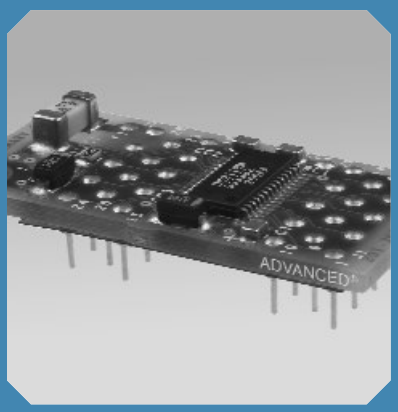
inch/(mm)

Custom Interconnect Solutions
Custom Adapters, Connectors, Test Fixture Boards, etc.



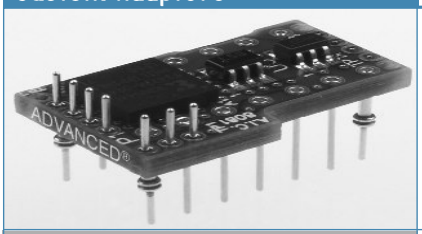
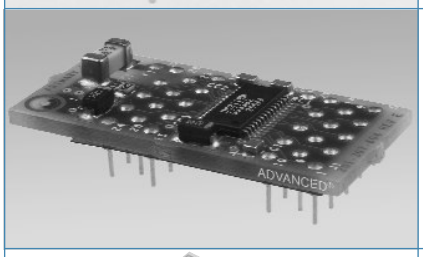
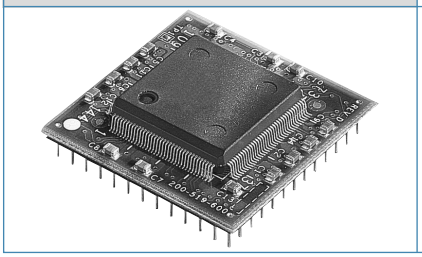
Features:

- Designed and produced to meet your specific mechanical and electrical requirements.
- Inclusion of passive components improves electrical performance ans saves valuable PC board space.
- Enhanced sockets and adapters can be manufactured with single, double, and multi-layer circuitry.
- Standard and custom screw-machined terminals with several plating options.
- RoHS Compliant designs available.

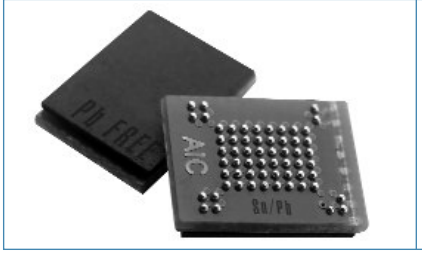
Advanced Interconnections Corp. has been providing custom interconnect solutions for 25 years. We specialize in IC package conversion, custom adapter cards with device correction or enhancements, test fixture boards, and other application-specific solutions. Our experienced application engineers and in-house vertical integration allow for an economical custom solution that often lowers total system design costs by eliminating the need to redesign or scrap existing boards while adding functionality to the end product.

- State-of-the-art in-house Surface Mount Technology (SMT) factory
- Device-attach services available
- In-house tape-and-reel capability
- Automated optical inspection
- Accurate device placement with vision-equipped pick and place equipment
- Testing, packaging, and all other services available
- JIT and ship-to-stock programs available
- Contact customer service for custom design assistance and application support

Custom Adapters

	Product: Enhanced Hybrid Adapter Description: Adapter features custom pin design with stand-offs, passive and active components, and 0.50mm pitch BGA package device attach.
	Product: Enhanced Hybrid Adapter Description: Custom adapter used to terminate lines going from a board to a back panel. Design includes both active and passive components including a custom semiconductor, resistors, and capacitors.
	Product: IC Package Conversion Adapter Description: PQFP device to PGA footprint adapter designed with resistors and capacitors to add functionality.

Interposer

	Product: Lead-free to Tin/Lead BGA Interposer Description: Maintain existing board profiles in RoHS Exempt applications when BGA devices change to lead-free packages. Custom interposer features eutectic Tin/Lead solder ball terminals which match existing board layout and solder profiles. See page 14 for more information.

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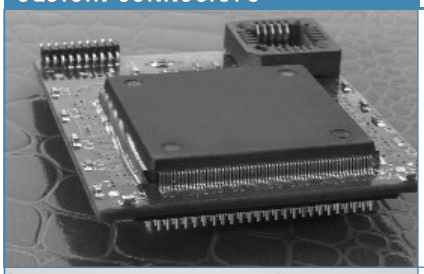
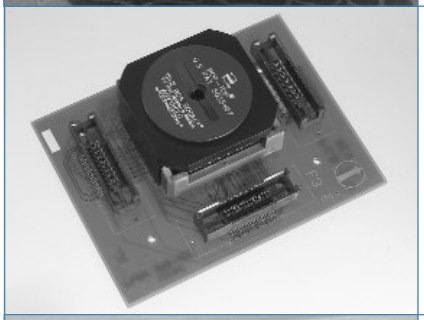
Catalog 16A

inch/(mm)

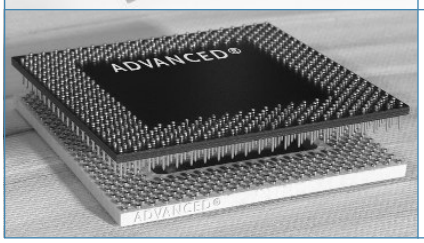
Custom Connectors



Product: Custom Adapter Board
Description: This adapter board (daughter card) design includes a controller chip and cable assembly, without modifications to the signal integrity of the original chip. These enhancements allowed existing boards to be modified easily and cost-effectively, both for their original purpose and for new applications, adding options for customers in new target markets.

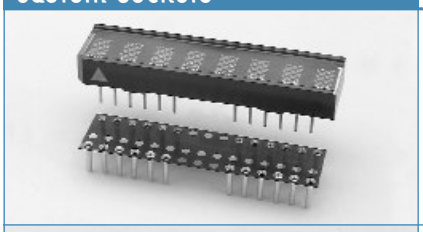


Product: Test Fixture Board
Description: To enable faster testing of chips without having to solder them to adapters, Advanced developed an application-specific multilayer FR-4 test fixture board, incorporating a combination of three cable-to-board connectors to interface with the test system and an adaptation of our True BGA Socket™ into which the chip packages are inserted for testing.



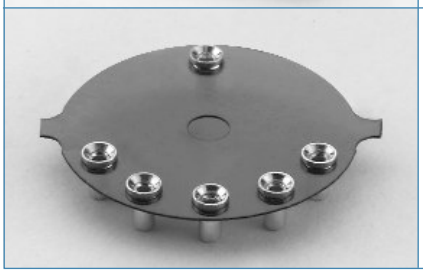
Product: Surface Mount PGA Connector
Description: This surface mount, interstitial pin grid array (PGA) connector enables boards to be produced with fewer layers due to SMT design, eliminates the need for plated through holes, provides a corporate test board solution, and allows for more efficient, cost-effective production.

Custom Sockets



Product: Custom LED Socket
Description: Allows LED to be plugged in after board is processed in a lead-free profile.

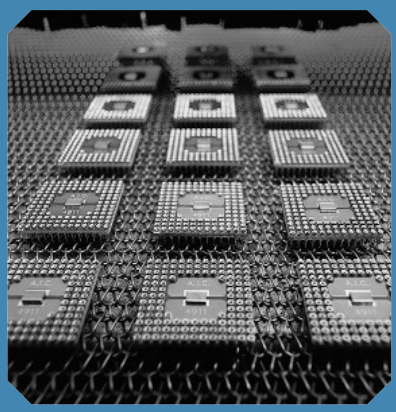
Protects device from damage caused by high temperature processing.



Product: Custom 6 Position Peel-A-Way® Socket
Description: This custom flex circuit socket features solder preform terminals in our patented Peel-A-Way® Removable Terminal Carrier. The design eliminated the need for hand loading terminals and wave soldering while meeting a low-profile specification and allowing complete solder joint visibility.

Custom Terminals

Product: Custom Test Point Pins
Description: To reduce assembly time and injuries to employees who sometimes pierced their fingers on sharp test pins (square, pointed stick type) during hand loading and subsequent board handling, a leading OEM asked Advanced to design a safer, more cost-effective solution. A custom, screw-machined test point pin featuring a cylindrical design with rounded head and solder preform was supplied in tape and reel packaging.



State-of-the-Art Design and Manufacturing Capabilities

- Excellon Drilling/Routing Machines
- Star Micronics CNC Swiss Type Screw Machine
- Nissei Precision Injection Molding Machines
- Matsui Dehumidifying Dryer
- Custom Automated Optical Inspection Vision System
- X-Ray Capability
- GenRad Tester

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Terminals

Features:

- High quality, screw-machined terminals with multi-finger contacts for superior reliability.
- Standard and custom designs available for SMT and thru-hole applications.
- EXPRESS delivery available on select terminals.
- Plating options available for RoHS compliant and exempt applications.
- Patented solder preform terminals eliminate the need for wave soldering in mixed technology applications.
- Complete line of EMC® insulated and non-insulated terminals and test jacks – data sheets available online only.

Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

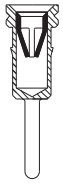
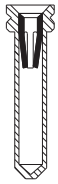
Contact Plating:

G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:

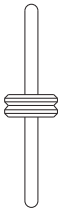
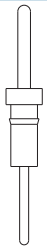
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Advanced® Terminals

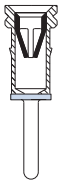
Socket (Female) Terminals

- Screw-machined terminals with multi-finger contacts
- Designed for use in molded, FR-4 or Peel-A-Way® Removable Terminal Carrier insulators
- Consult factory for availability of loose terminals
- Custom designs available
- See pages 63-73

Adapter (Male) Terminals

- Screw-machined terminals
- Designed for use in molded, FR-4 or Peel-A-Way® Removable Terminal Carrier insulators
- Consult factory for availability of loose terminals
- Custom designs available
- See pages 74-79




Solder Preform Terminals

- Patented solder preform terminals eliminate the need for wave soldering in mixed technology applications
- Designed for use in molded, FR-4 or Peel-A-Way® Removable Terminal Carrier insulators
- Available with either standard Tin/Lead preforms or new lead-free Tin/Silver/Copper preforms
- Custom designs available
- See page 80

EMC® Terminals and Test Jacks

Available Online

Insulated and Non-Insulated Terminals and Test Jacks

EMC Product Nurl-Loc® Design
EMC Product Nurl-Loc® Insertion Tools

Non-Insulated Terminals

MIL-T-55155 (EMC Product NIT Series)
Nurl-Loc® Design (EMC Product NIT Series)

Test Jacks

Non-Insulated Test Jacks (EMC Product NIJ Series)
.040" and .080" Military & Commercial Test Jacks (EMC MTJ Series)
Molded Banana and .080" Test Jacks (EMC Product BTJ Series)

Standoffs

Single Turret Standoff Terminals (EMC Product STS Series)
Double Turret Standoff Terminals (EMC Product DTS Series)
Straight Pin Standoff Terminals (EMC Product SPS Series)
Bifurcated Pin Standoff Terminals (EMC Product BPS Series)
Threaded & Tapped Hole Standoff Terminals (EMC Product TTS Series)
MIL-T-55155 Standoff Terminals (EMC Product MST Series)

Feed-Thrus

Single Turret Feed-Thru Terminals (EMC Product STF Series)
Double Turret Feed-Thru Terminals (EMC Product DTF Series)
Bifurcated, Threaded and Tapped Hole Feed-Thru Terminals (EMC Product FT Series)
Straight Pin and Threaded Body Feed-Thru Terminals (EMC Product FT Series)

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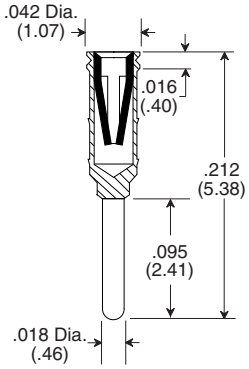
inch/(mm)

Socket (Female) Terminals

Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

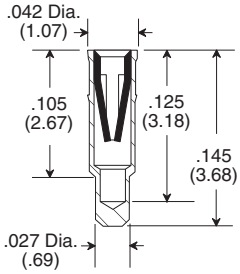
Type -674

Part Number: 5456
Contact Group: A



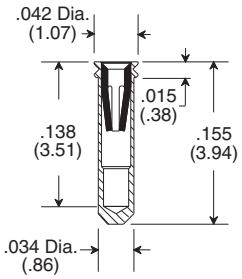
Type -529

Part Number: 4573
Contact Group: A



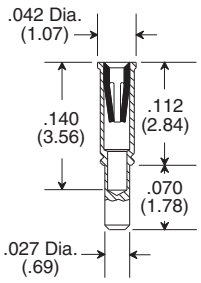
Type -227

Part Number: 2647
Contact Group: A



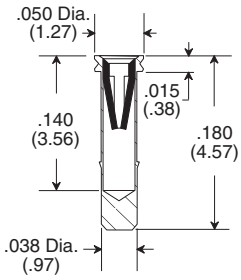
Type -281

Part Number: 3523
Contact Group: A



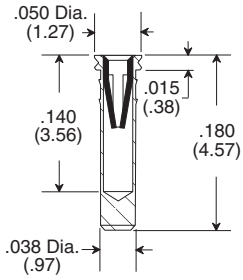
Type -533

Part Number: 4592-2
Contact Group: A



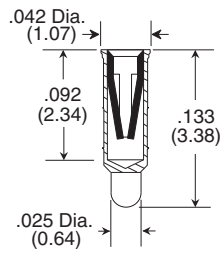
Type -497

Part Number: 4463
Contact Group: A



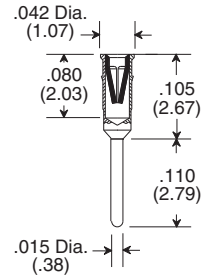
Type -551

Part Number: 4662
Contact Group: A



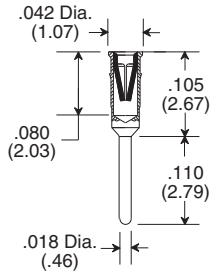
Type -385

Part Number: 4178
Contact Group: A



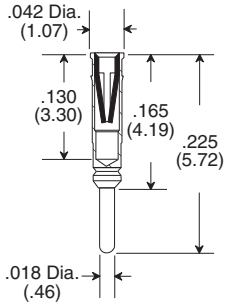
Type -347

Part Number: 4040-1
Contact Group: A



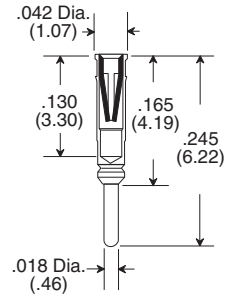
Type -586

Part Number: 4793
Contact Group: A



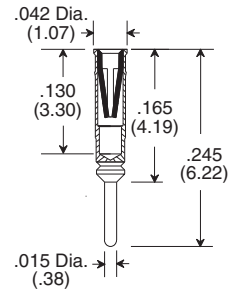
Type -168

Part Number: 3655
Contact Group: A



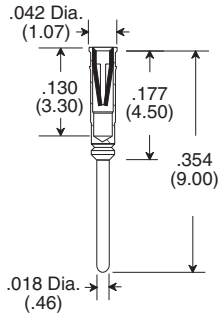
Type -386

Part Number: 4179
Contact Group: A



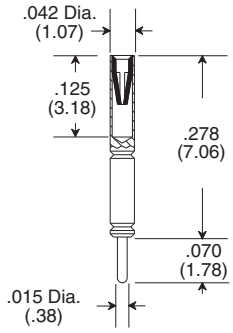
Type -595

Part Number: 4858
Contact Group: A



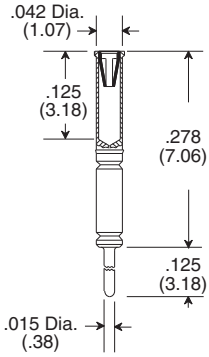
Type -205

Part Number: 2403
Contact Group: A



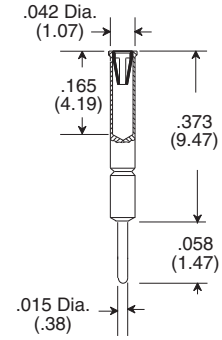
Type -474

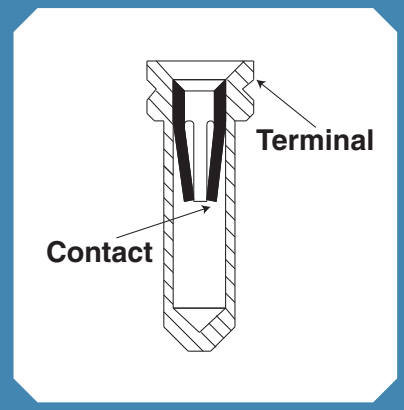
Part Number: 4038
Contact Group: A



Type -425

Part Number: 3503-2
Contact Group: A





Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

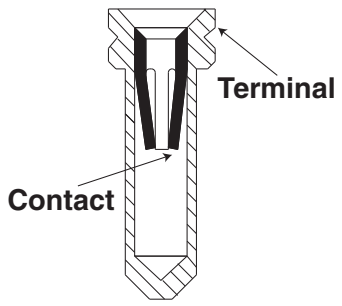
Terminals not drawn to scale.

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

ADVANCED INTERCONNECTIONS®
5 Energy Way, West Warwick, RI 02893 USA
Tel: 800.424.9850 | 401.823.5200
Fax: 401.823.8723
info@advanced.com | www.advanced.com
Catalog 16A

inch/(mm)



Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

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G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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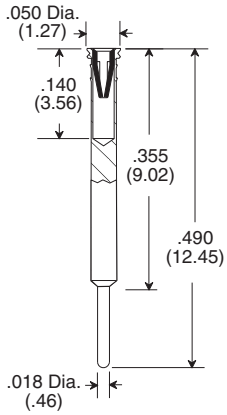
info@advanced.com | www.advanced.com
Catalog 16A

Socket (Female) Terminals

Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

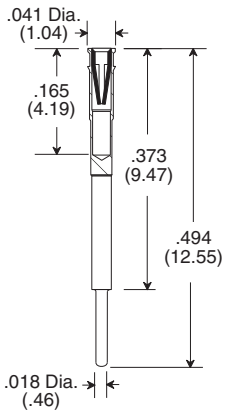
Type -496

Part Number: 4462
Contact Group: A



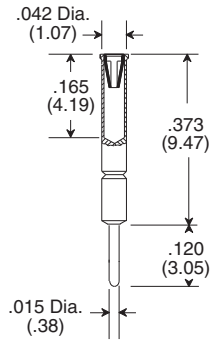
Type -505

Part Number: 4511
Contact Group: A



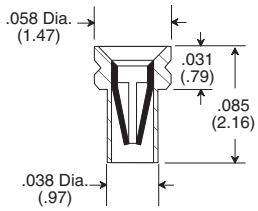
Type -269

Part Number: 3503-1
Contact Group: A



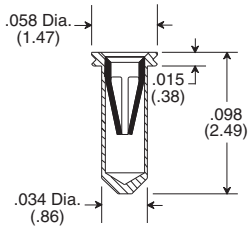
Type -550

Part Number: 4659
Contact Group: A



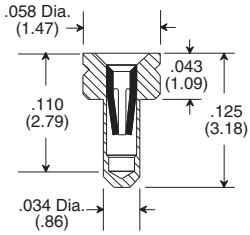
Type -491

Part Number: 4427
Contact Group: A



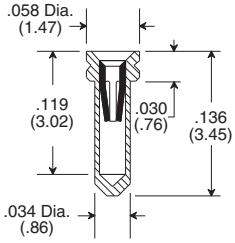
Type -246

Part Number: 3257
Contact Group: A



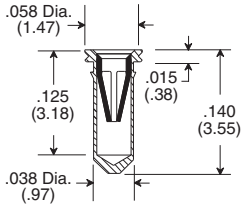
Type -294

Part Number: 3784
Contact Group: A



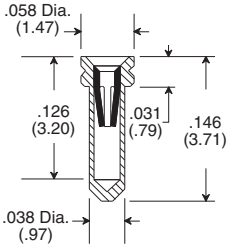
Type -517

Part Number: 4520
Contact Group: A



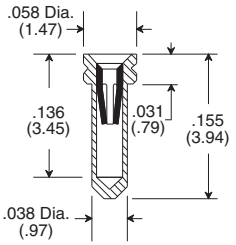
Type -290

Part Number: 3708
Contact Group: A



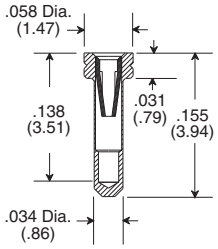
Type -85

Part Number: 1371
Contact Group: A



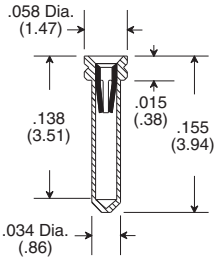
Type -176

Part Number: 2239
Contact Group: A



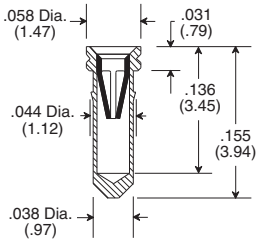
Type -210

Part Number: 2887
Contact Group: A



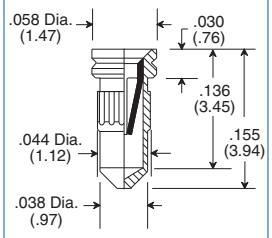
Type -350

Part Number: 4041
Contact Group: A



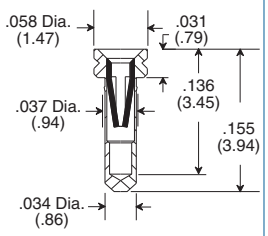
Type -69

Part Number: 1401
Contact Group: A



Type -428

Part Number: 4316
Contact Group: A



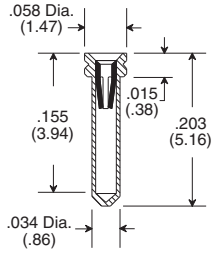
Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

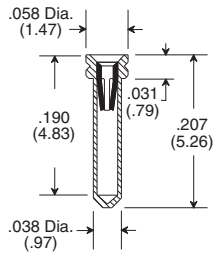
Socket (Female) Terminals

Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

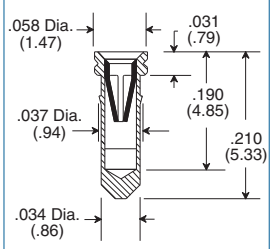
Type -324
Part Number: 3208
Contact Group: A



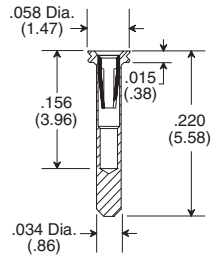
Type -190
Part Number: 2383
Contact Group: A



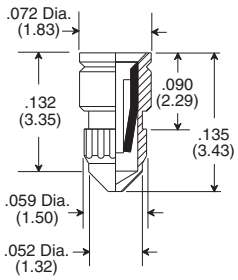
Type -259
Part Number: 3354
Contact Group: A



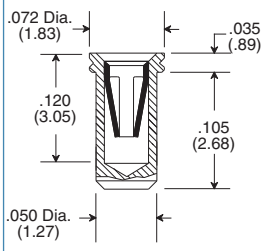
Type -842
Part Number: 6832
Contact Group: A



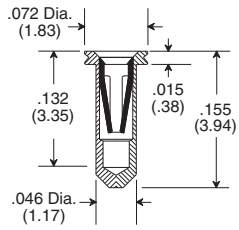
Type -60
Part Number: 1408
Contact Group: C



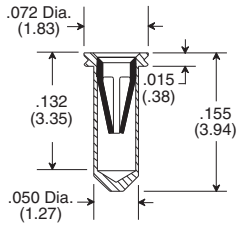
Type -335
Part Number: 3984
Contact Group: B



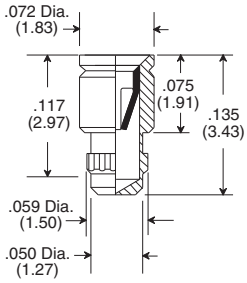
Type -359
Part Number: 4076
Contact Group: C



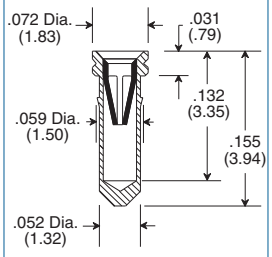
Type -282
Part Number: 3554
Contact Group: C



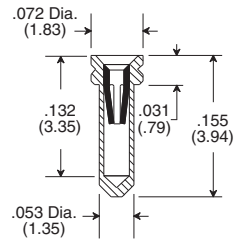
Type -70
Part Number: 1678
Contact Group: C



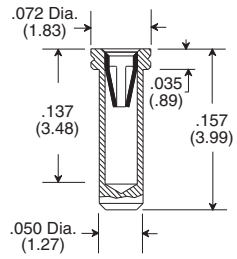
Type -237
Part Number: 3129
Contact Group: C



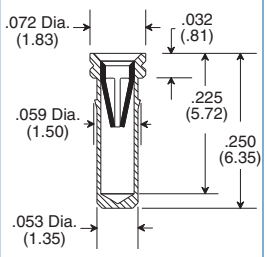
Type -50
Part Number: 1242
Contact Group: C



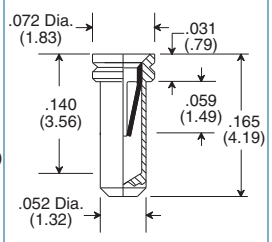
Type -353
Part Number: 4059
Contact Group: C



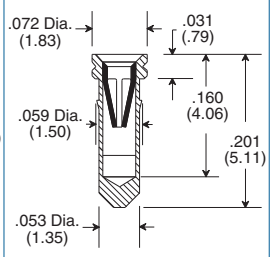
Type -651
Part Number: 5242
Contact Group: C



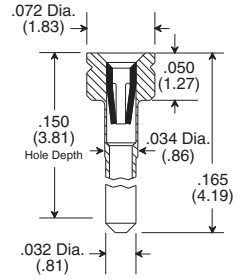
Type -84
Part Number: 1316
Contact Group: C

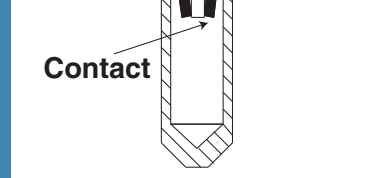


Type -25
Part Number: 1093
Contact Group: C



Type -73
Part Number: 1654
Contact Group: A





Specifications:

Material:
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:
G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

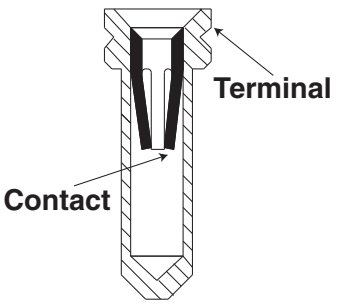
Terminals not drawn to scale.

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

ADVANCED INTERCONNECTIONS®
5 Energy Way, West Warwick, RI 02893 USA
Tel: 800.424.9850 | 401.823.5200
Fax: 401.823.8723
info@advanced.com | www.advanced.com
Catalog 16A

inch/(mm)



Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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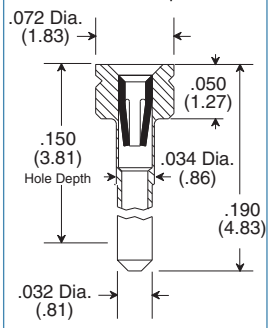
Catalog 16A

Socket (Female) Terminals

Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

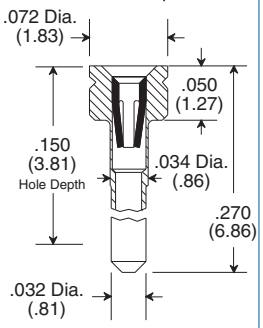
Type -86

Part Number: 1379
Contact Group: A



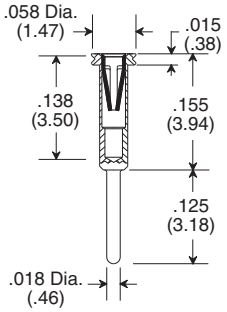
Type -39

Part Number: 1915
Contact Group: A



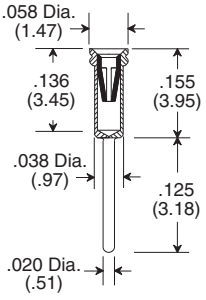
Type -400

Part Number: 4226
Contact Group: A



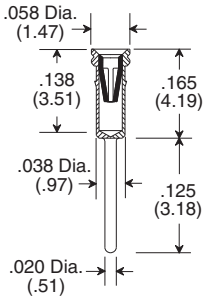
Type -95

Part Number: 1589
Contact Group: A



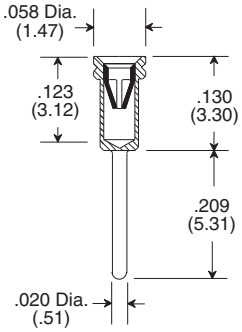
Type -166

Part Number: 2149
Contact Group: A



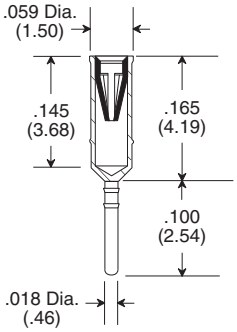
Type -392

Part Number: 4207
Contact Group: A



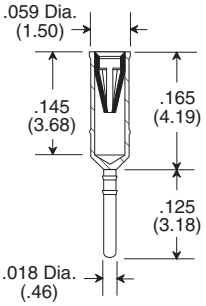
Type -320

Part Number: 3964
Contact Group: C



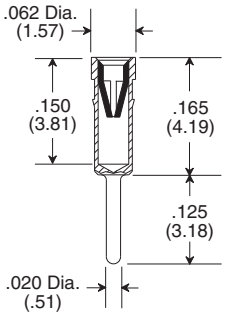
Type -82

Part Number: 4464-1
Contact Group: C



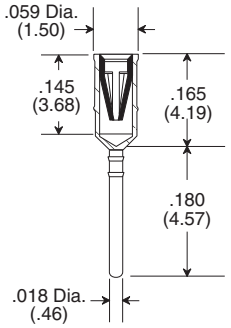
Type -217

Part Number: 2850
Contact Group: C



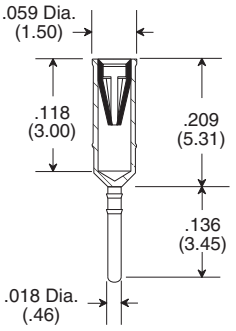
Type -234

Part Number: 4464-3
Contact Group: C



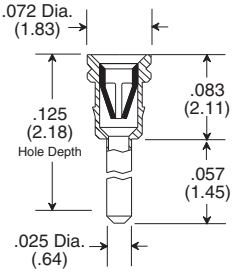
Type -235

Part Number: 4464-4
Contact Group: C



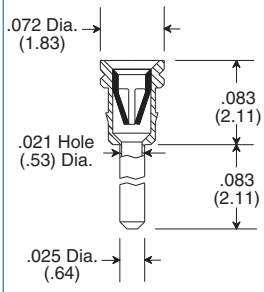
Type -581

Part Number: 4774
Contact Group: B



Type -299

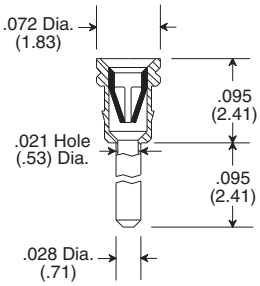
Part Number: 3805
Contact Group: B



150/(3.81) Hole Depth

Type -49

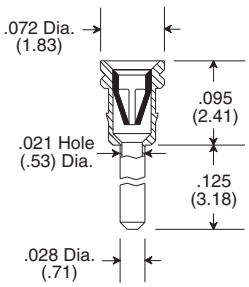
Part Number: 1249
Contact Group: B



.160/(4.06) Hole Depth

Type -208

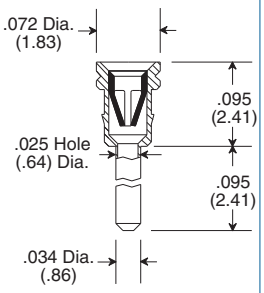
Part Number: 2595
Contact Group: B



.160/(4.06) Hole Depth

Type -67

Part Number: 1365
Contact Group: B



.160/(4.06) Hole Depth

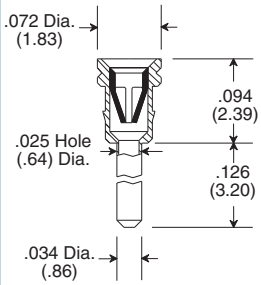
Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

Socket (Female) Terminals

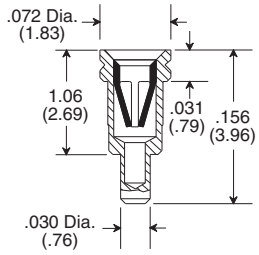
Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

Type -448
Part Number: 4417
Contact Group: B



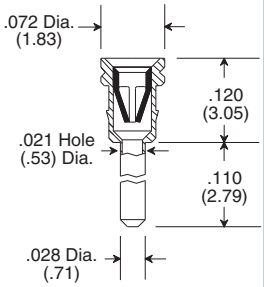
.160/(4.06) Hole Depth

Type -136
Part Number: 1828
Contact Group: B



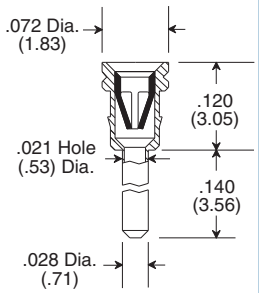
.135/(3.43) Hole Depth

Type -04
Part Number: 1124
Contact Group: C



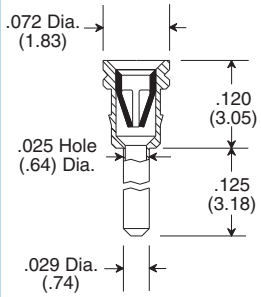
.157/(3.99) Hole Depth

Type -38
Part Number: 1104
Contact Group: C



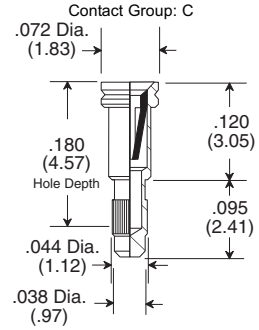
.175/(4.45) Hole Depth

Type -358
Part Number: 4071
Contact Group: C

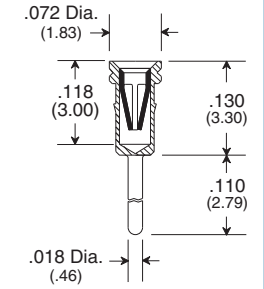


.107/(2.72) Hole Depth

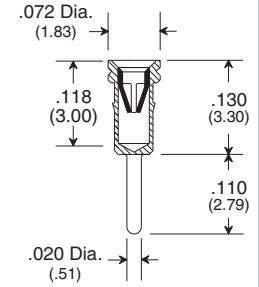
Type -500
Part Number: 4445
Contact Group: C



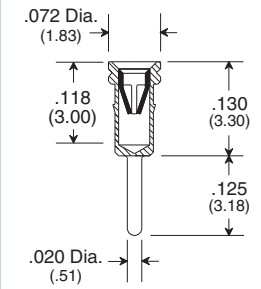
Type -148
Part Number: 1922
Contact Group: C



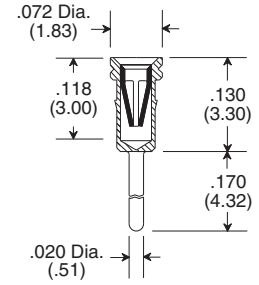
Type -51
Part Number: 1282
Contact Group: C



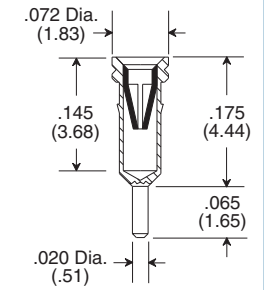
Type -364
Part Number: 4095
Contact Group: C



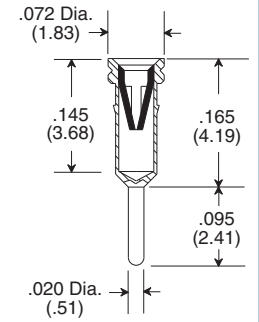
Type -285
Part Number: 3578
Contact Group: C



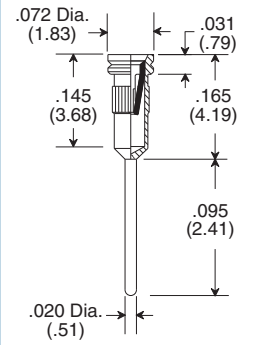
Type -218
Part Number: 3023
Contact Group: C



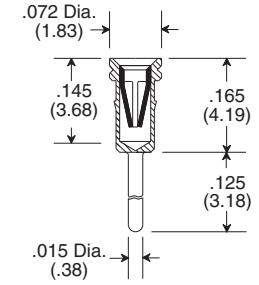
Type -243
Part Number: 3199
Contact Group: C



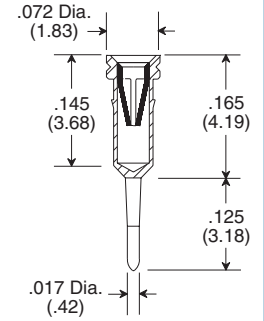
Type -537
Part Number: 4613
Contact Group: C



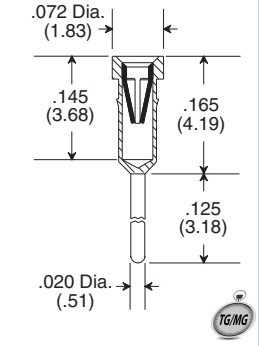
Type -384
Part Number: 4177
Contact Group: C



Type -242
Part Number: 3219
Contact Group: C



Type -01
Part Number: 1003
Contact Group: C



inch/(mm)

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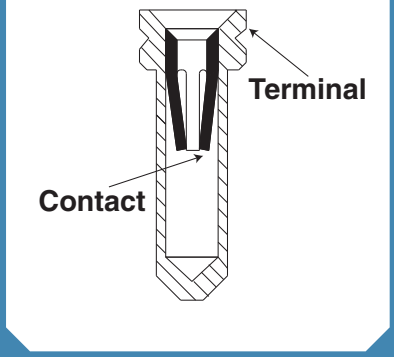

Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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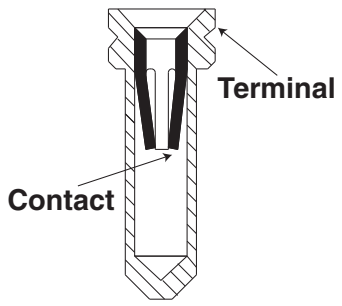

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Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

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Matte Tin per ASTM545-97
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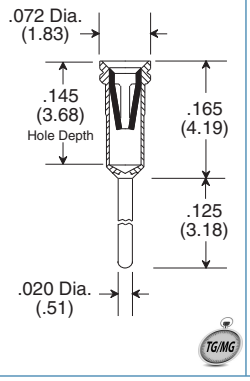
Socket (Female) Terminals

Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

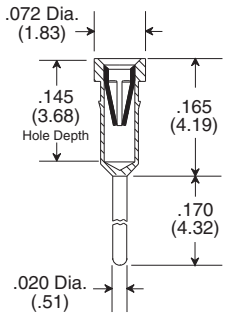
Type -33

Part Number: 1106
Contact Group: C



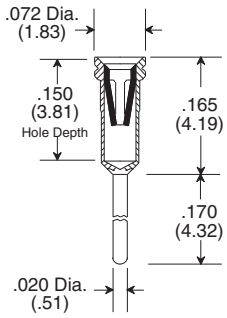
Type -29

Part Number: 1094
Contact Group: C



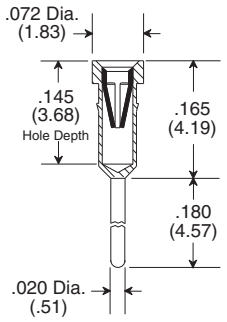
Type -87

Part Number: 1403
Contact Group: C



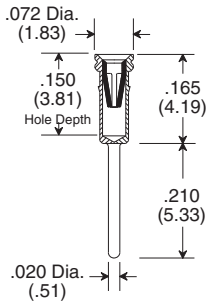
Type -45

Part Number: 1326
Contact Group: C



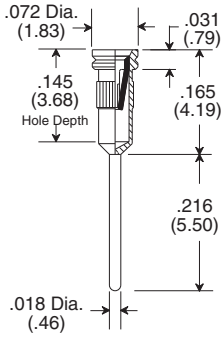
Type -178

Part Number: 2241
Contact Group: C



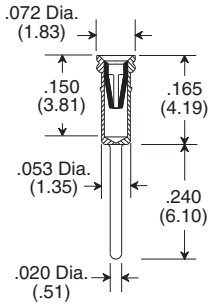
Type -383

Part Number: 4164
Contact Group: C



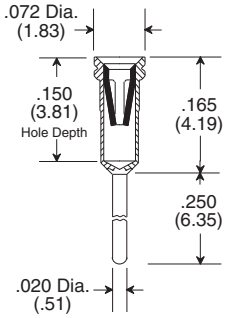
Type -487

Part Number: 4420
Contact Group: C



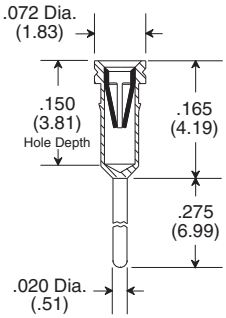
Type -56

Part Number: 1255
Contact Group: C



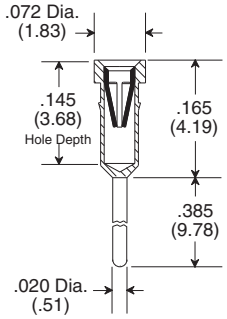
Type -30

Part Number: 1125
Contact Group: C



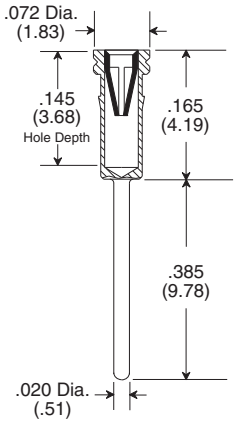
Type -48

Part Number: 1214
Contact Group: C



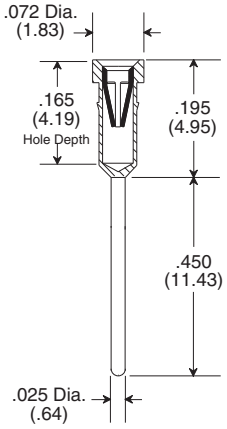
Type -223

Part Number: 2992
Contact Group: C



Type -333

Part Number: 3715
Contact Group: C



Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

inch/(mm)

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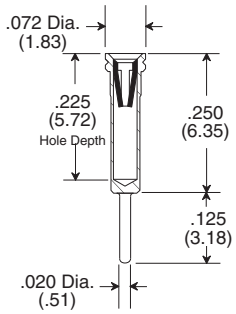
Socket (Female) Terminals

Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

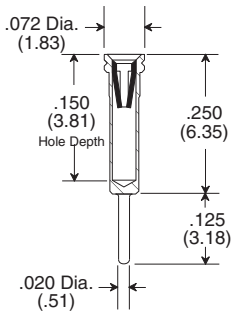
Type -488

Part Number: 4422
Contact Group: C



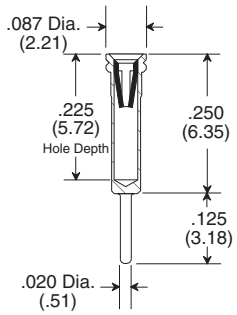
Type -90

Part Number: 1374
Contact Group: C



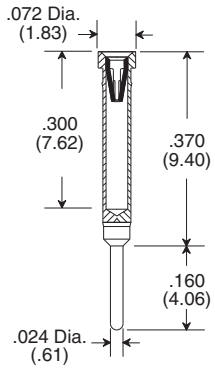
Type -577

Part Number: 4689-2
Contact Group: C



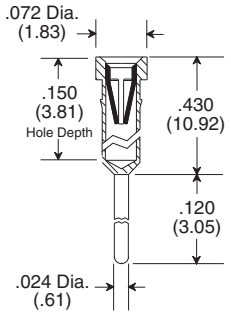
Type -346

Part Number: 4036
Contact Group: C



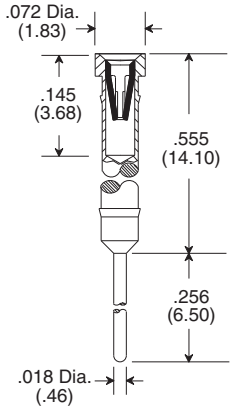
Type -141

Part Number: 1928
Contact Group: C



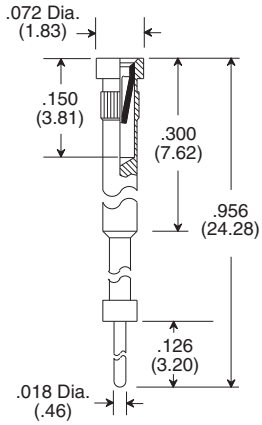
Type -373

Part Number: 4134
Contact Group: C



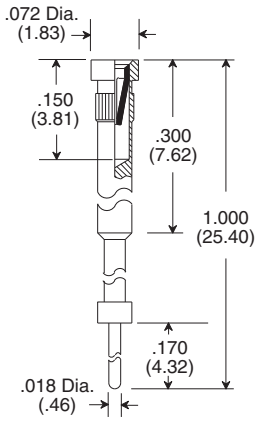
Type -382

Part Number: 4163
Contact Group: C



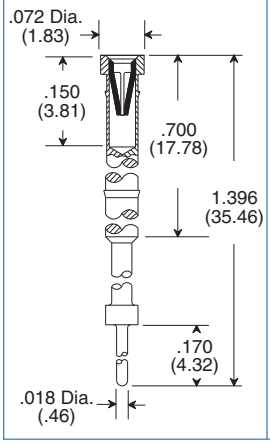
Type -72

Part Number: 1066
Contact Group: C



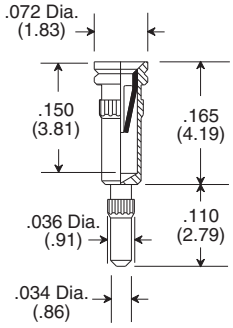
Type -372

Part Number: 4133
Contact Group: C



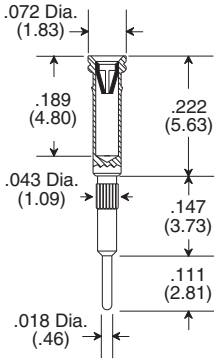
Type -05

Part Number: 1028
Contact Group: C



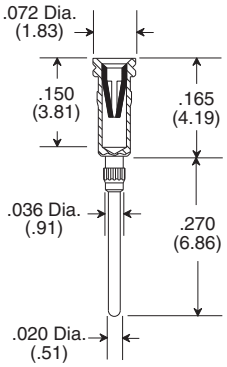
Type -240

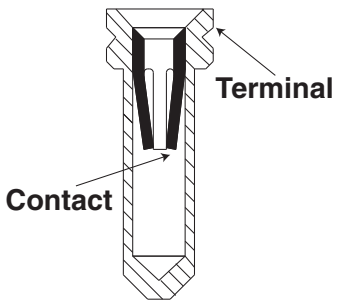
Part Number: 3151
Contact Group: C



Type -191

Part Number: 2390
Contact Group: C





Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

Terminals not drawn to scale.

EXPRESS Delivery

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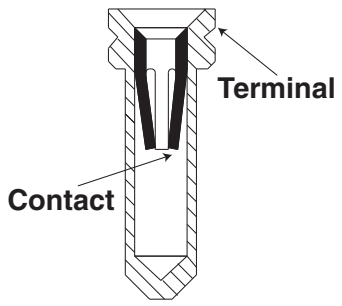
inch/(mm)



Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

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T - Tin/Lead over Nickel

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

Terminals not drawn to scale.

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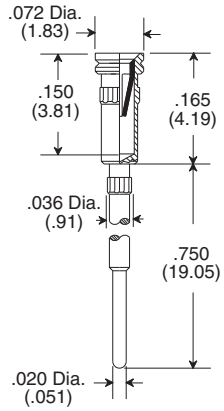
Socket (Female) Terminals

Contact Acceptance Range .016/(.41mm) - .022/(.56mm) Dia. or .010/(.25mm) x .018/(.46mm) Rectangular Lead

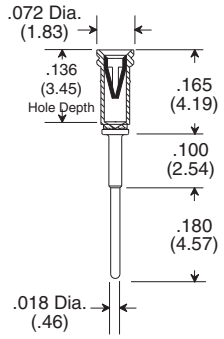
Type -343

Part Number: 4024
Contact Group: C



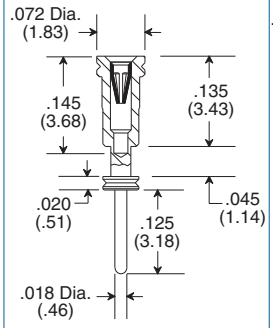
Type -275

Part Number: 3006
Contact Group: C



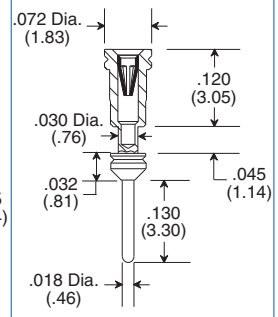
Type -135

Part Number: 1830
Contact Group: C



Type -74

Part Number: 1129
Contact Group: C



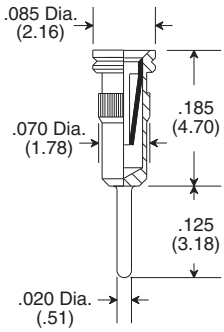
.150/(3.81) Hole Depth

Socket (Female) Terminals

Contact Acceptance Range .022/(.56mm) - .032/(.81mm) Dia.

Type -28

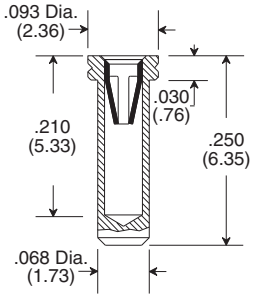
Part Number: 1019
Contact Group: D



.160/(4.06) Hole Depth

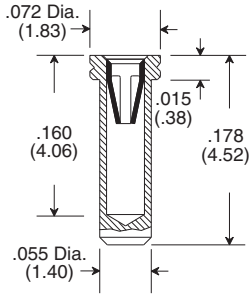
Type -102

Part Number: 1721
Contact Group: D



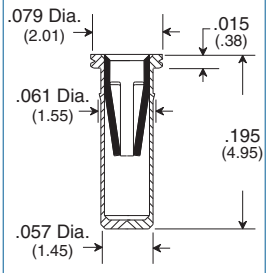
Type -301

Part Number: 3818
Contact Group: D



Type -405

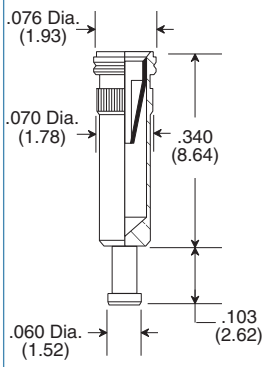
Part Number: 4251
Contact Group: D



.185/(4.70) Hole Depth

Type -563

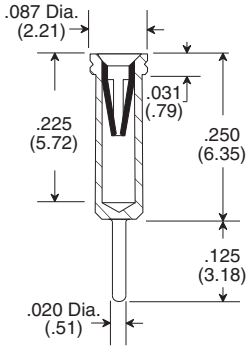
Part Number: 4634-4
Contact Group: D



.290/(7.37) Hole Depth

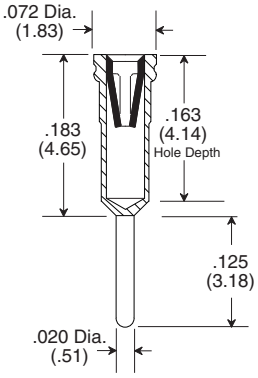
Type -570

Part Number: 4689
Contact Group: D



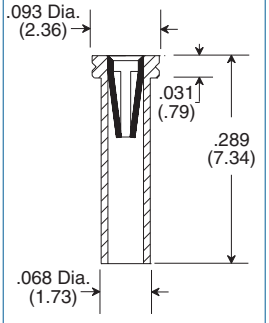
Type -770

Part Number: 5902
Contact Group: D1



Type -843

Part Number: 8031
Contact Group: D



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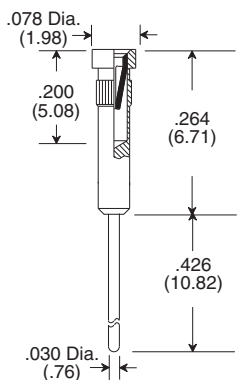
inch/(mm)

Socket (Female) Terminals

Contact Acceptance Range .025/(.64mm) - .037/(.94mm) Dia. or .025/(.64mm) Square Lead

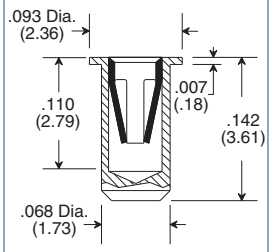
Type -284

Part Number: 3501
Contact Group: D1



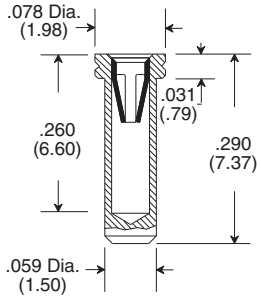
Type -328

Part Number: 3409
Contact Group: D1



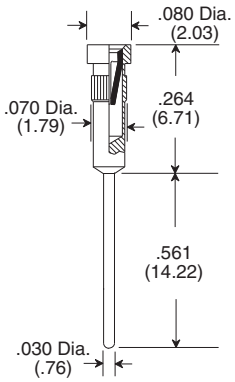
Type -332

Part Number: 3844
Contact Group: D1



Type -351

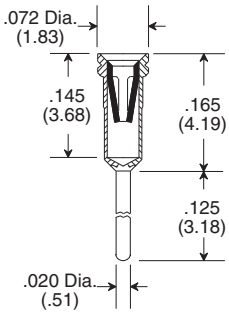
Part Number: 4074
Contact Group: D1



.225/(5.72) Hole Depth

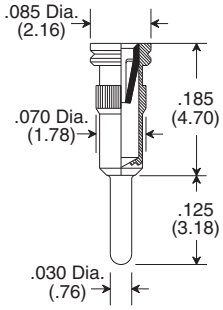
Type -483

Part Number: 4079-1
Contact Group: D1



Type -365

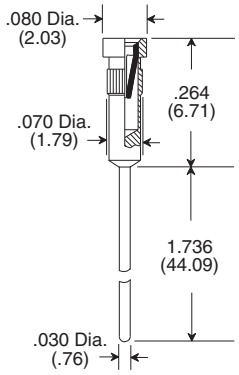
Part Number: 4097
Contact Group: D1



.160/(4.06) Hole Depth

Type -585

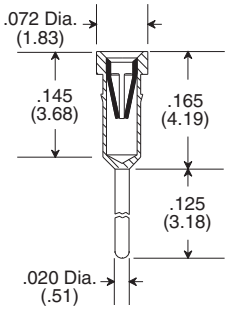
Part Number: 4789
Contact Group: D1

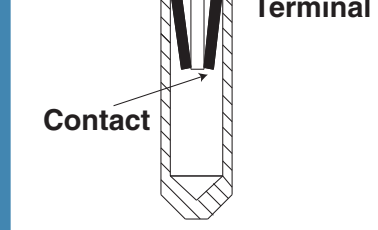


.225/(5.72) Hole Depth

Type -582

Part Number: 4775
Contact Group: D1





Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

Terminals not drawn to scale.

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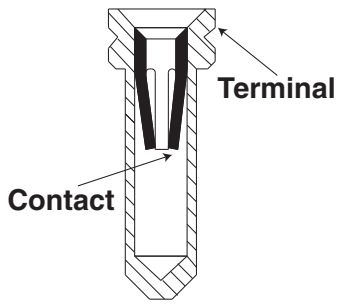
inch/(mm)



Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

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G - Gold over Nickel
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Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

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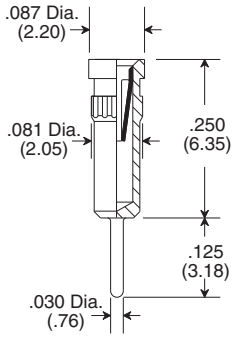
Socket (Female) Terminals

Contact Acceptance Range .032/(.81mm) - .047/(1.19mm) Dia.

Type -36

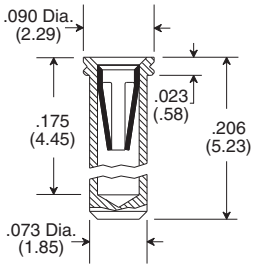
Part Number: 1087
Contact Group: E



.225/(5.72) Hole Depth

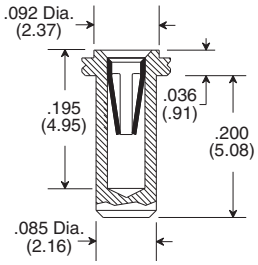
Type -106

Part Number: 1718
Contact Group: E



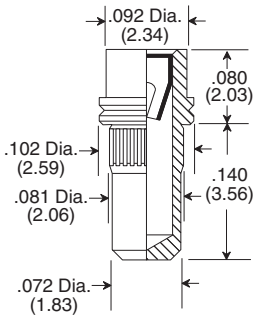
Type -107

Part Number: 1726
Contact Group: E



Type -109

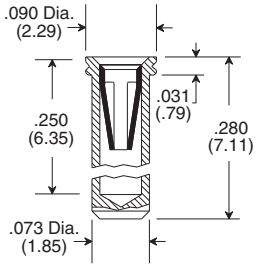
Part Number: 1728
Contact Group: E



.195/(4.95) Hole Depth

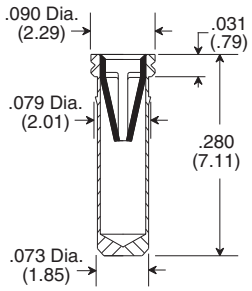
Type -144

Part Number: 1806
Contact Group: E



Type -427

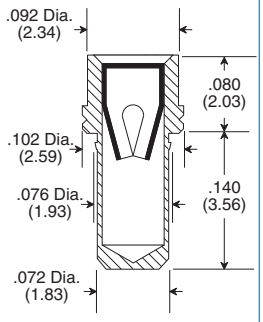
Part Number: 4309
Contact Group: E



.250/(6.35) Hole Depth

Type -776

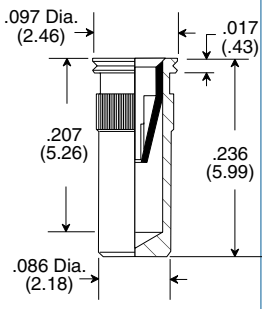
Part Number: 6521
Contact Group: E



.195/(4.95) Hole Depth

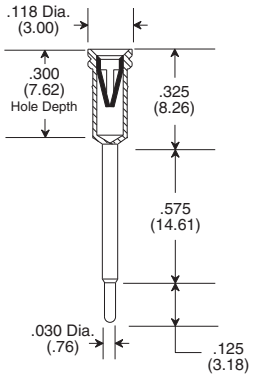
Type -499

Part Number: 4445-1
Contact Group: E



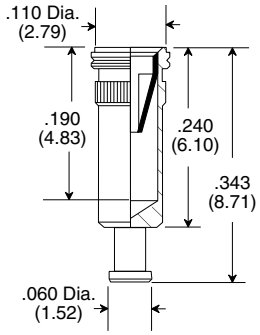
Type -594

Part Number: 4854
Contact Group: E



Type -560

Part Number: 4634-1
Contact Group: E



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inch/(mm)

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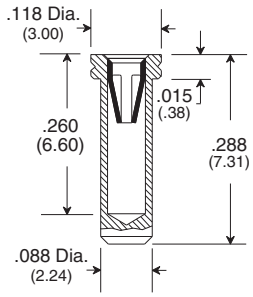
Socket (Female) Terminals

Contact Acceptance Range .040/(1.02mm) - .060/(1.52mm) Dia.

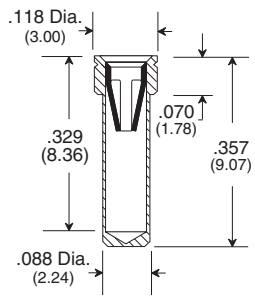
Type -302

Part Number: 3819
Contact Group: E2



Type -718

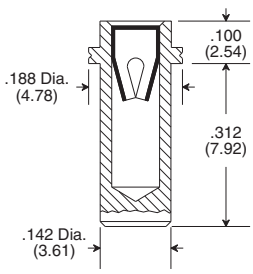
Part Number: 5748
Contact Group: E2



Contact Acceptance Range .065/(1.65mm) - .082/(2.08mm) Dia.

Type -104

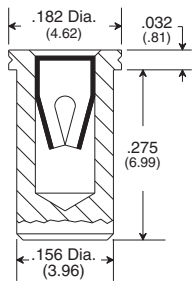
Part Number: 1723
Contact Group: F



.333/(8.46) Hole Depth

Type -105

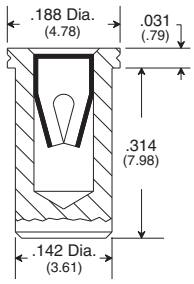
Part Number: 1724
Contact Group: F



.2606/(6.60) Hole Depth

Type -323

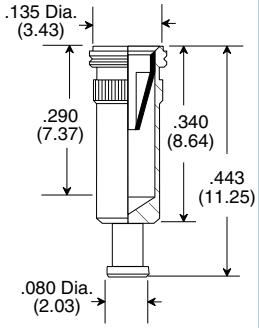
Part Number: 3967
Contact Group: F



.298/(7.57) Hole Depth

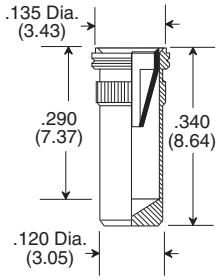
Type -561

Part Number: 4634-2
Contact Group: F



Type -775

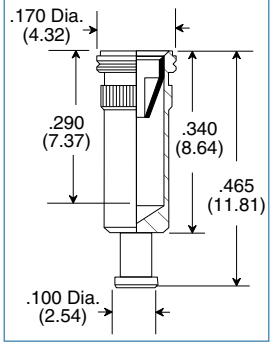
Part Number: 6477
Contact Group: F

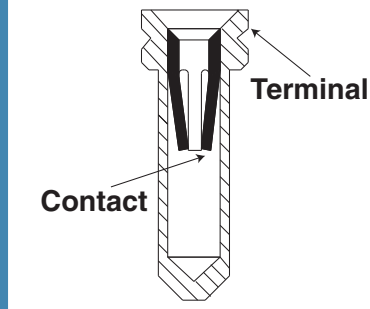


Contact Acceptance Range .084/(2.135mm) - .102/(2.59mm) Dia.

Type -562

Part Number: 4634-3
Contact Group: G





Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Contact: Beryllium Copper - Copper Alloy (C17200) ASTM-B-194

Contact Plating:

G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

Terminals not drawn to scale.

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

inch/(mm)

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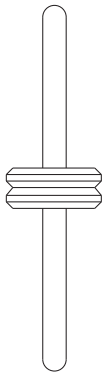


Specifications:

Material:

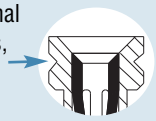
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.



Terminals not drawn to scale.

EXPRESS Delivery

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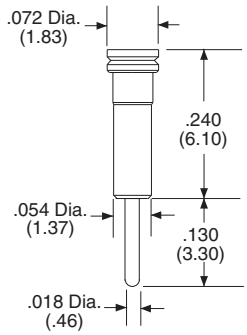
Adapter (Male) Terminals

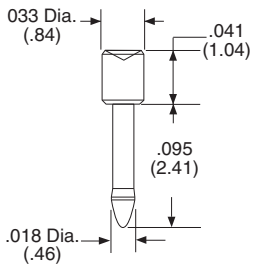
Type -147

Part Number: 1582



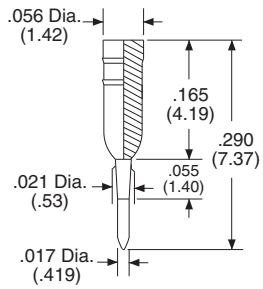
Type -608

Part Number: 4975



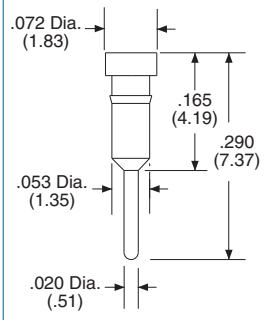
Type -409

Part Number: 4269



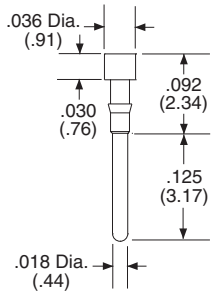
Type -394

Part Number: 4212



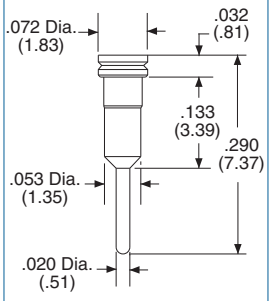
Type -841

Part Number: 8182



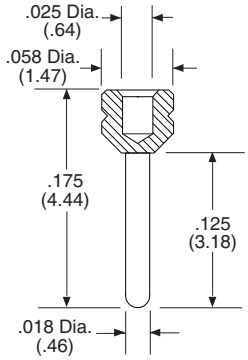
Type -376

Part Number: 4148



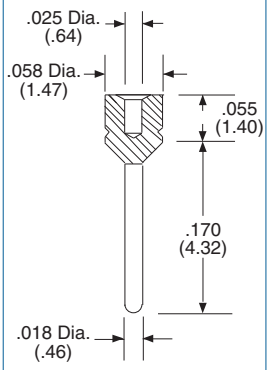
Type -772

Part Number: 6332



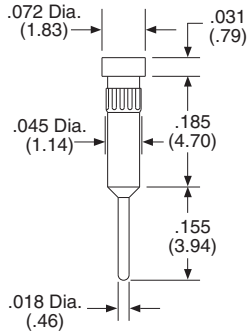
Type -291

Part Number: 3757



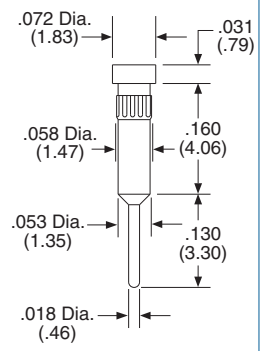
Type -65

Part Number: 1067-2



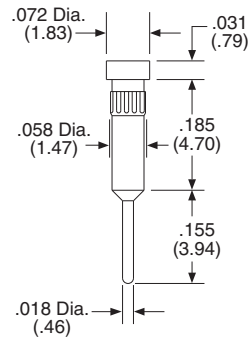
Type -140

Part Number: 1743



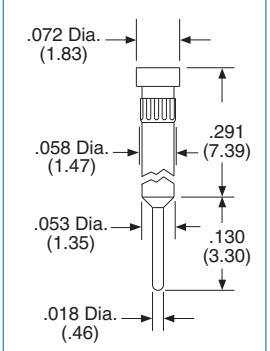
Type -44

Part Number: 1067-1



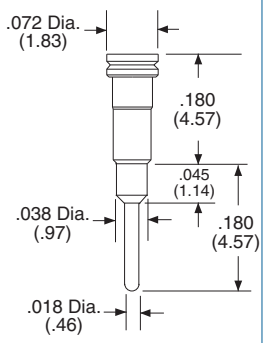
Type -99

Part Number: 1677



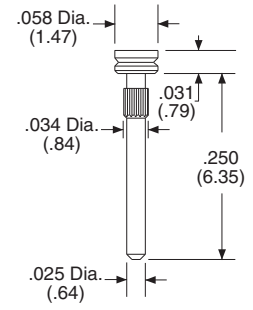
Type -145

Part Number: 1709



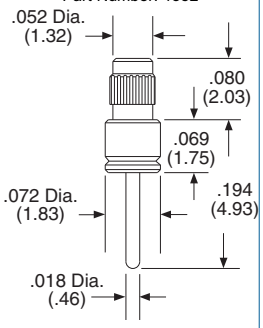
Type -101

Part Number: 1404



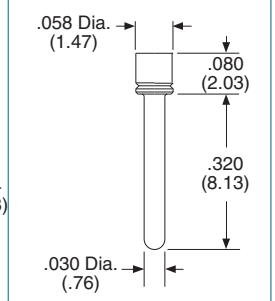
Type -100

Part Number: 1352



Type -146

Part Number: 1790



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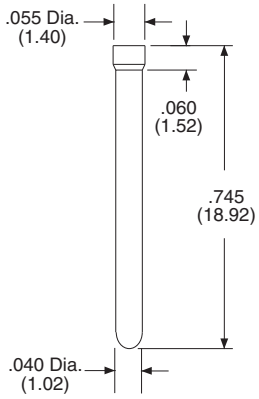
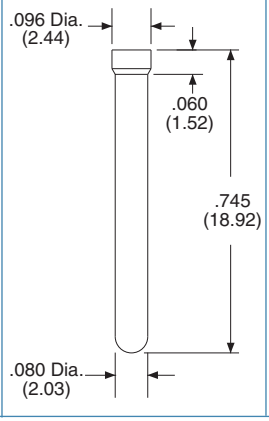
Adapter (Male) Terminals

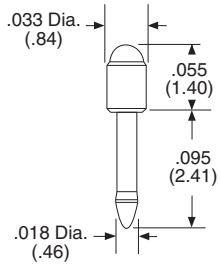
Type -337
Part Number: 3973



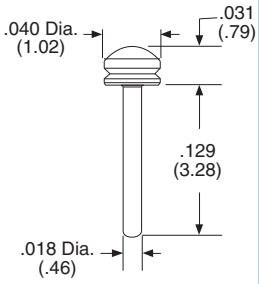
Type -336
Part Number: 3972



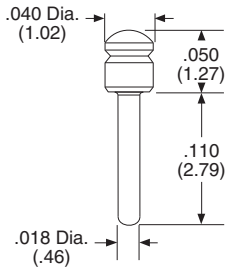
Type -603
Part Number: 4863



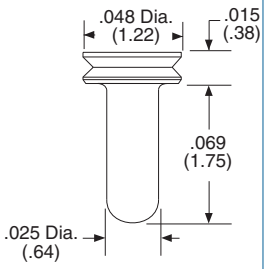
Type -525
Part Number: 4543-1



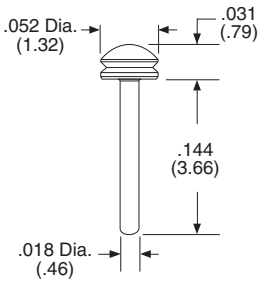
Type -526
Part Number: 4545-1



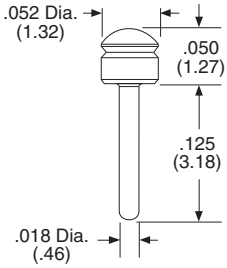
Type -583
Part Number: 4735-1



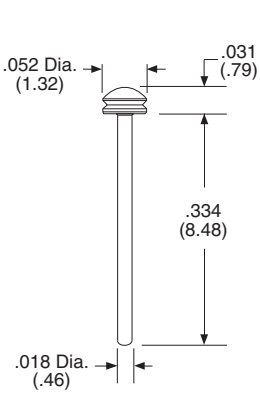
Type -574
Part Number: 4737-1



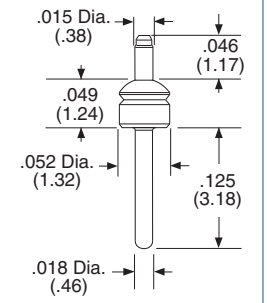
Type -575
Part Number: 4738-1



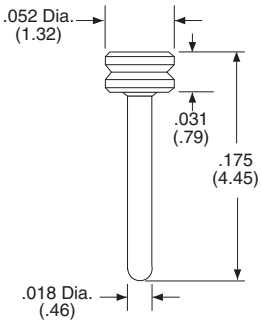
Type -593
Part Number: 4835



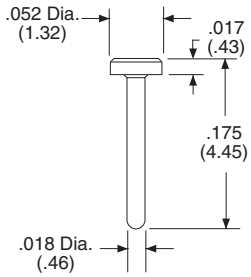
Type -576
Part Number: 4747-1



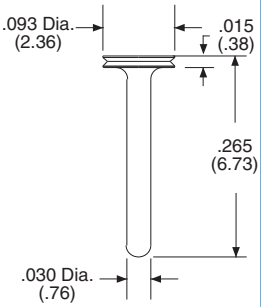
Type -558
Part Number: 4298-1



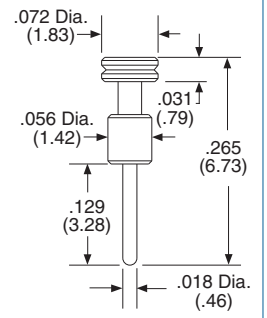
Type -786
Part Number: 7800



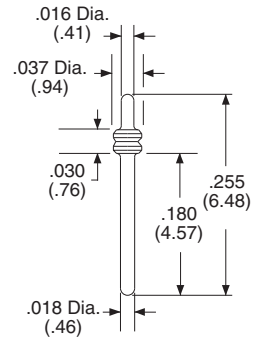
Type -349
Part Number: 4054



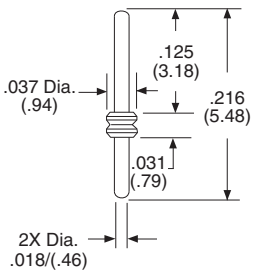
Type -137
Part Number: 1826



Type -355
Part Number: 4062



Type -571
Part Number: 4714



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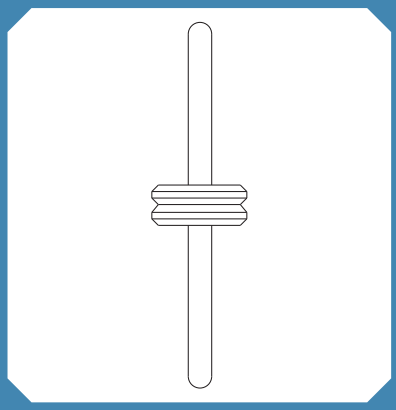


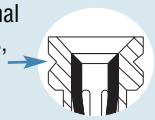
Specifications:

Material:
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Terminal Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.



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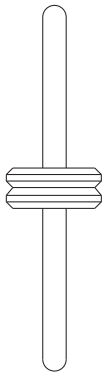


Specifications:

Material:

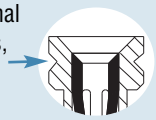
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Terminal Plating:

G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.



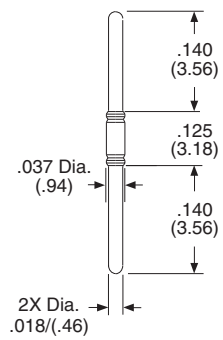
Terminals not drawn to scale.

EXPRESS Delivery

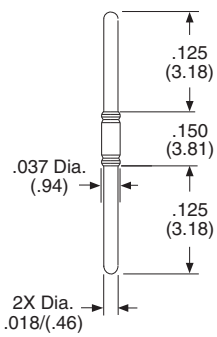
Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

Adapter (Male) Terminals

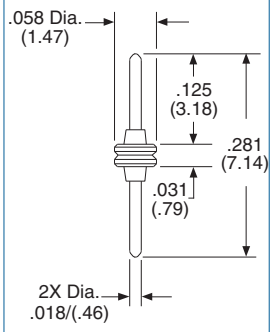
Type -260
Part Number: 3382



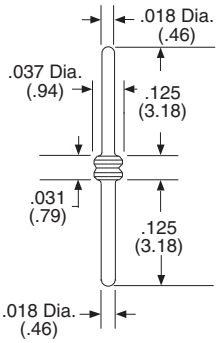
Type -167
Part Number: 2084



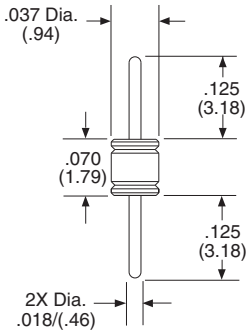
Type -238
Part Number: 3221



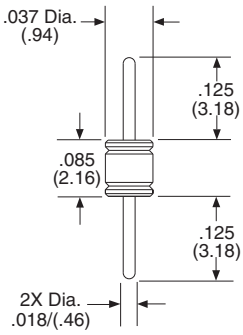
Type -131
Part Number: 2527-1



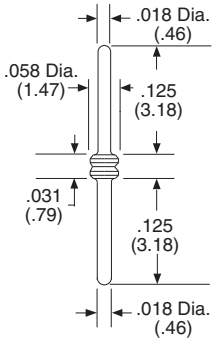
Type -321
Part Number: 2527-2



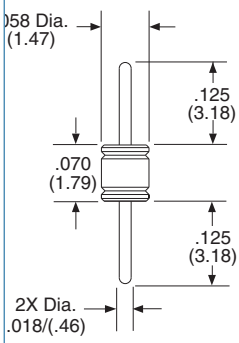
Type -322
Part Number: 2527-3



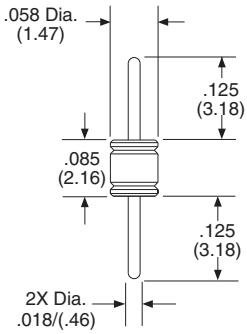
Type -165
Part Number: 2184



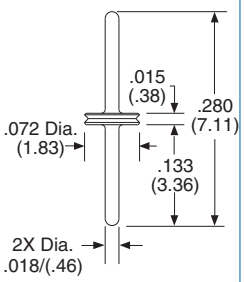
Type -339
Part Number: 2184-2



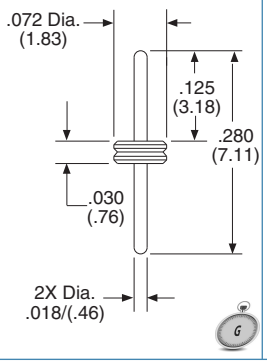
Type -340
Part Number: 2184-3



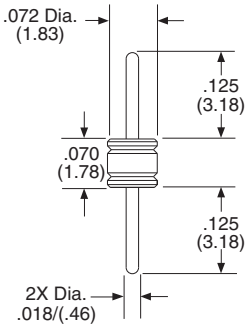
Type -378
Part Number: 1364-6



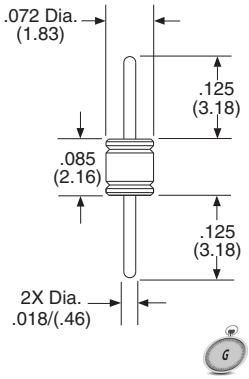
Type -79
Part Number: 1364-1



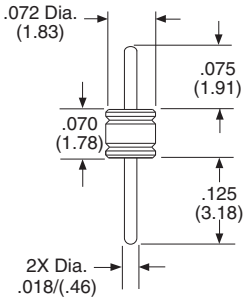
Type -80
Part Number: 1364-2



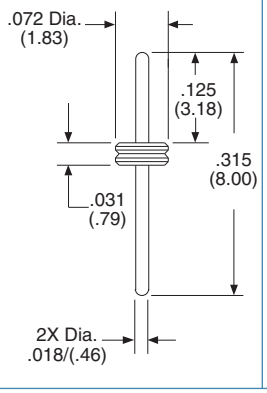
Type -81
Part Number: 1364-3



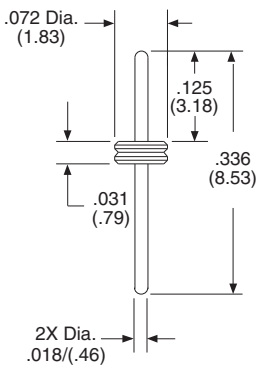
Type -186
Part Number: 1364-4



Type -393
Part Number: 4227-1



Type -338
Part Number: 3997



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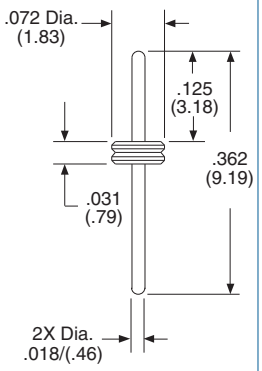
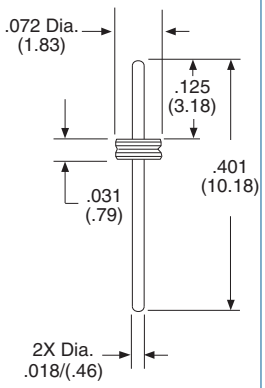
Adapter (Male) Terminals

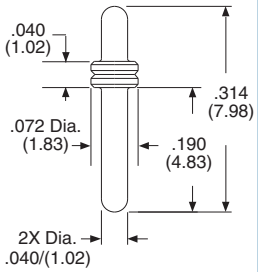
Type -341
Part Number: 4020



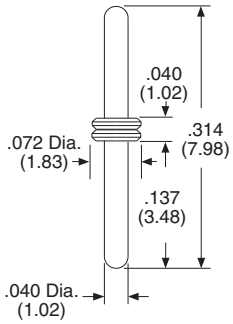
Type -606
Part Number: 4953



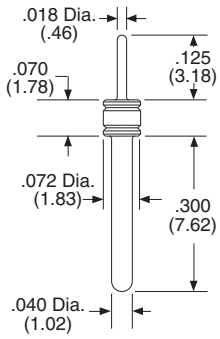
Type -413
Part Number: 4279



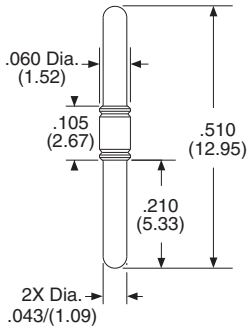
Type -169
Part Number: 2155



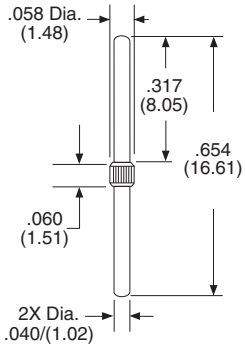
Type -295
Part Number: 3795



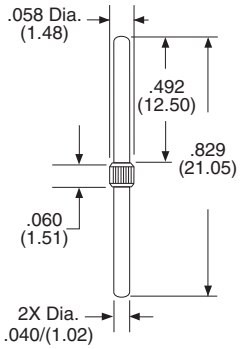
Type -377
Part Number: 4143



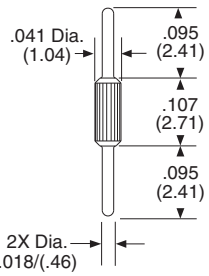
Type -484
Part Number: 4418-1



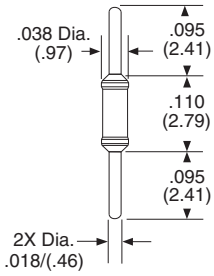
Type -485
Part Number: 4418-2



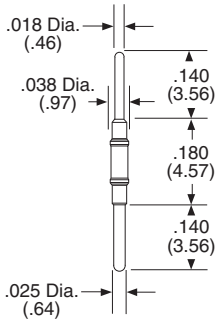
Type -233
Part Number: 3096-1



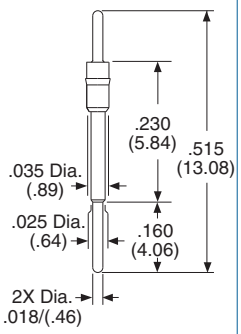
Type -559
Part Number: 4670



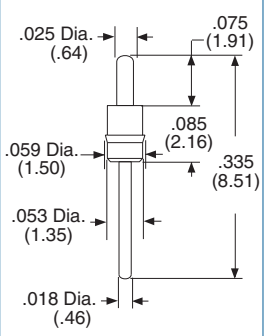
Type -711
Part Number: 5705



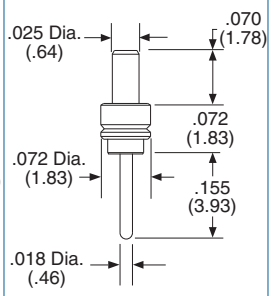
Type -423
Part Number: 4306



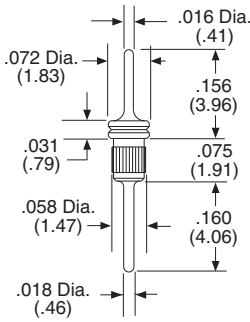
Type -490
Part Number: 4425



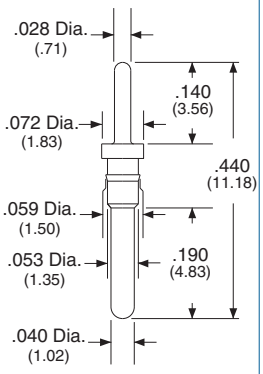
Type -138
Part Number: 1769

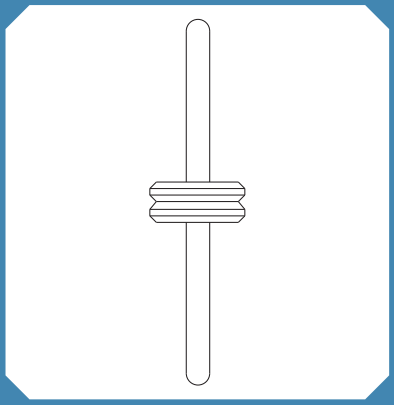


Type -202
Part Number: 2452



Type -426
Part Number: 4308





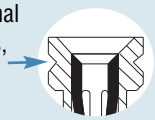
Specifications:

Material:
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Terminal Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.



Terminals not drawn to scale.

EXPRESS Delivery

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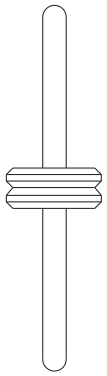

Specifications:

Material:

Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Terminal Plating:

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T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

Terminals not drawn to scale.

EXPRESS Delivery

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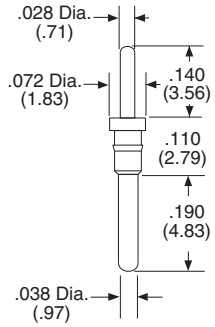
Adapter (Male) Terminals

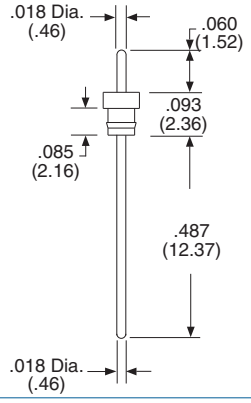
Type -569

Part Number: 4696



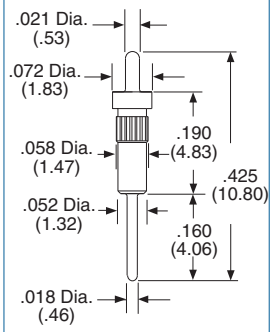
Type -319

Part Number: 3957



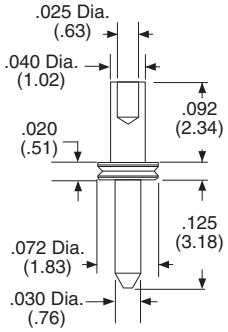
Type -142

Part Number: 1863



Type -544

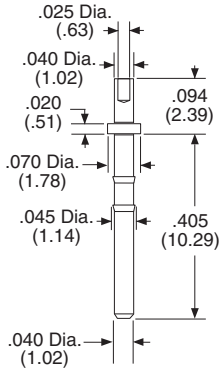
Part Number: 4616



Hole Depth .040/(1.01)

Type -599

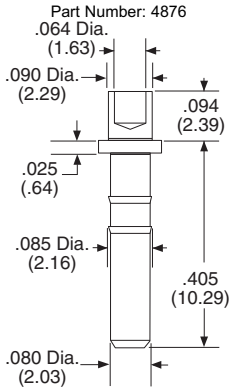
Part Number: 4875



Hole Depth .045/(1.14)

Type -600

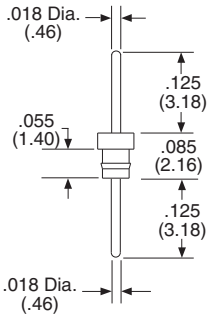
Part Number: 4876



Hole Depth .062/(1.57)

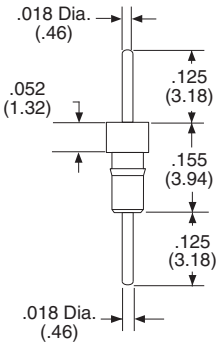
Type -188

Part Number: 2342



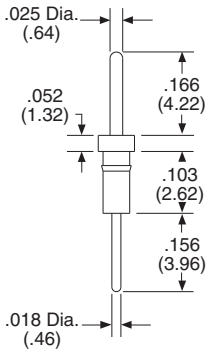
Type -444

Part Number: 4375



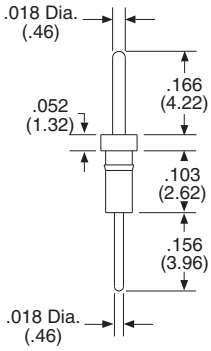
Type -08

Part Number: 1077



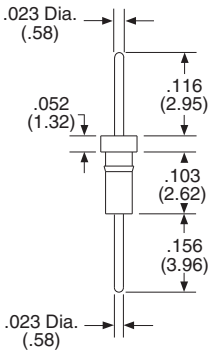
Type -09

Part Number: 1078



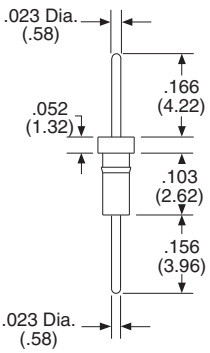
Type -286

Part Number: 3626



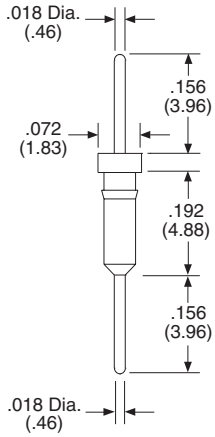
Type -277

Part Number: 3359



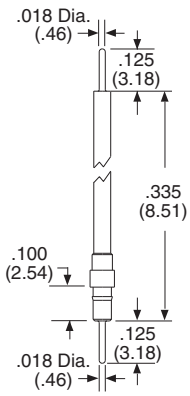
Type -804

Part Number: 8386



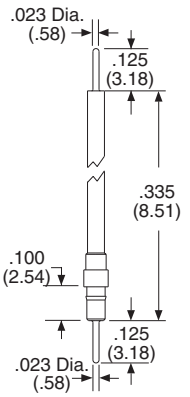
Type -43

Part Number: 1216-2



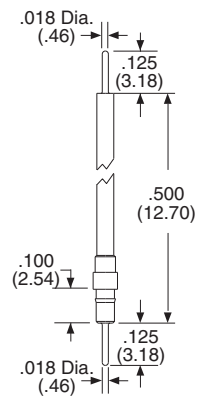
Type -278

Part Number: 3366



Type -185

Part Number: 1216-5



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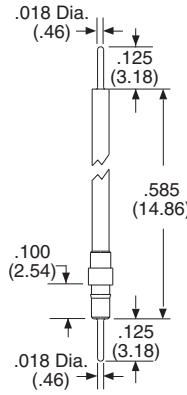
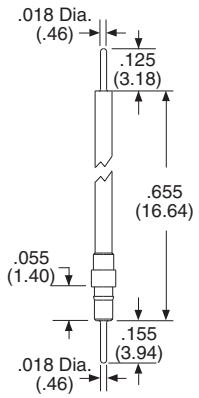
Adapter (Male) Terminals

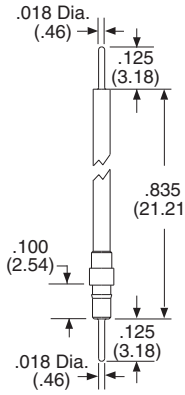
Type -42
Part Number: 1216-3



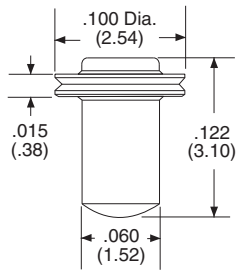
Type -360
Part Number: 1216-6



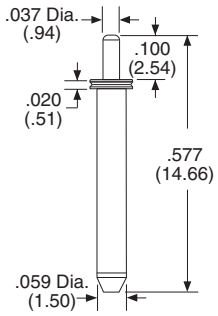
Type -71
Part Number: 1216-4



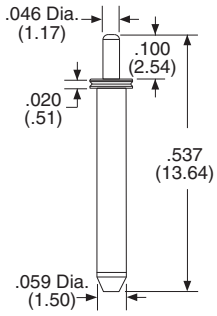
Type -506
Part Number: 4522



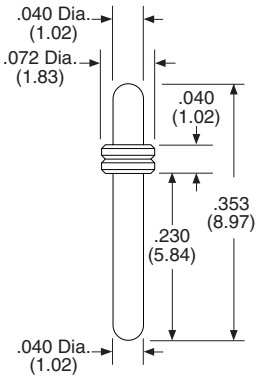
Type -539
Part Number: 4621



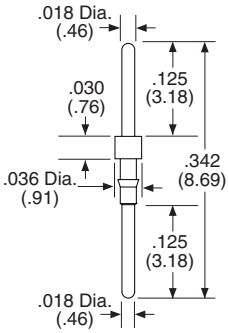
Type -540
Part Number: 4622



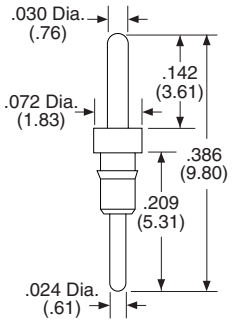
Type -771
Part Number: 6041



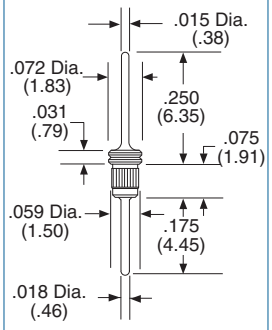
Type -721
Part Number: 5843-1



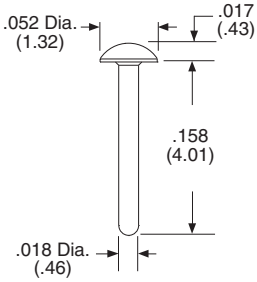
Type -727
Part Number: 5926



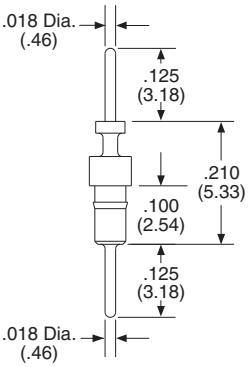
Type -626
Part Number: 5030

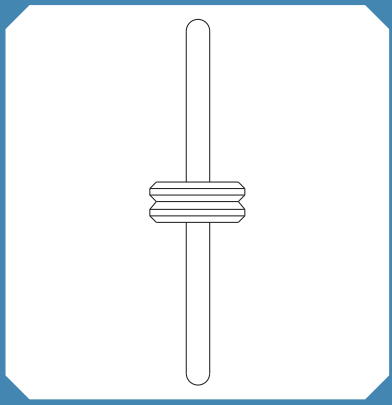


Type -420
Part Number: 4298



Type -68
Part Number: 1216-1





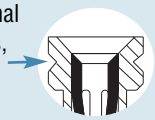
Specifications:

Material:
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Terminal Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.



Terminals not drawn to scale.

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

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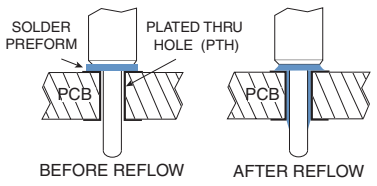
Catalog 16A

inch/(mm)



Specifications:

Material:
Terminal: Brass - Copper Alloy (C36000) ASTM-B-16

Solder Preform:
Standard: 63Sn/37Pb
Lead-free: 95.5Sn/4.0Ag/0.5Cu

Contact Plating:
G - Gold over Nickel
T - Tin/Lead over Nickel

Terminal Plating:
G - Gold over Nickel
M - Matte Tin over Nickel
T - Tin/Lead over Nickel

Gold per ASTM-B-488
Matte Tin per ASTM545-97
Tin/Lead per MIL-P-81728
Nickel per QQ-N-290

Note: For use in Peel-A-Way® Removable Terminal Carrier body types, select a terminal with a "V" groove.

Terminals not drawn to scale.

EXPRESS Delivery

Terminals shown with the new EXPRESS symbol are available in most insulator body types with fast lead time. Some quantity and plating restrictions apply. Search our Distributor inventory online at www.advanced.com, or check with customer service for availability.

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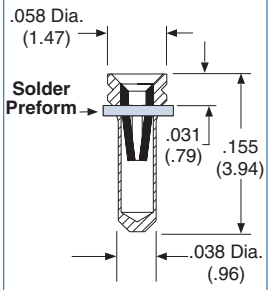
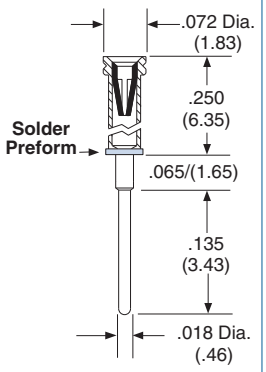
Solder Preform Terminals

Consult factory for additional lead-free terminal type numbers not shown.

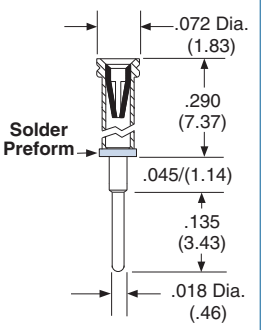
Tin/Lead: Type -432 / Lead-free: Type -815
Part Number: 4366
Contact Group: A



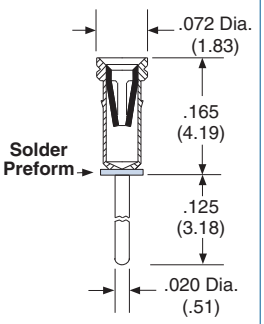
Type -143
Part Number: 1862
Contact Group: C



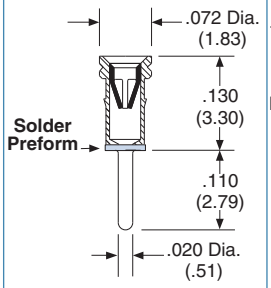
Type -97
Part Number: 1643
Contact Group: C



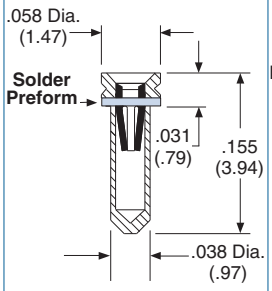
Tin/Lead: Type -150 / Lead-free: Type -811
Part Number: 2103
Contact Group: C



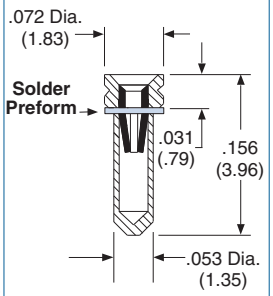
Tin/Lead: Type -151 / Lead-free: Type -812
Part Number: 2105
Contact Group: C



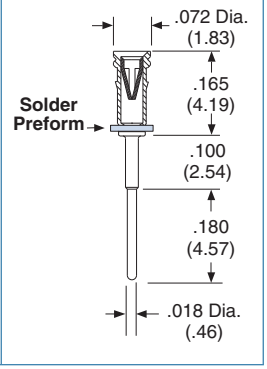
Tin/Lead: Type -111 / Lead-free: Type -810
Part Number: 1499
Contact Group: A



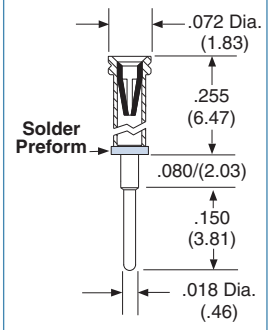
Type -154
Part Number: 2111
Contact Group: C



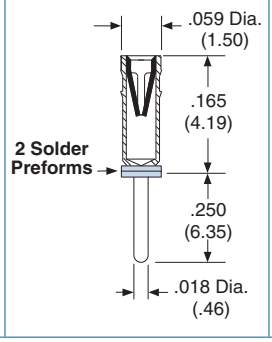
Type -230
Part Number: 3006
Contact Group: C



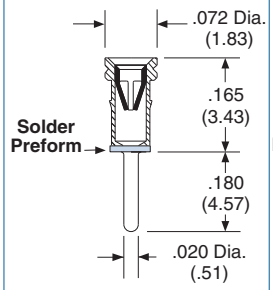
Type -133
Part Number: 1979
Contact Group: C



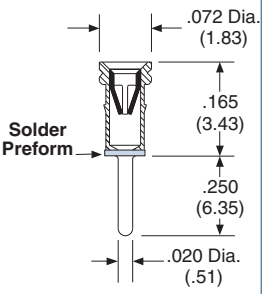
Tin/Lead: Type -313 / Lead-free: Type -814
Part Number: 4464-2
Contact Group: C



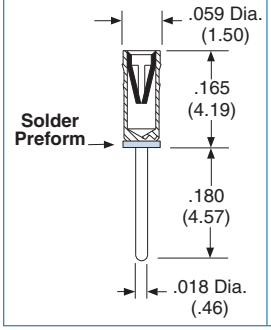
Type -316
Part Number: 3950
Contact Group: C



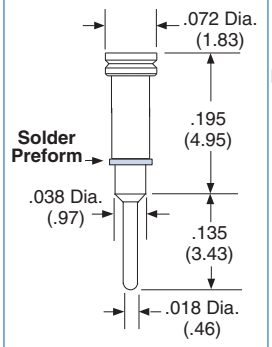
Type -404
Part Number: 4256
Contact Group: C



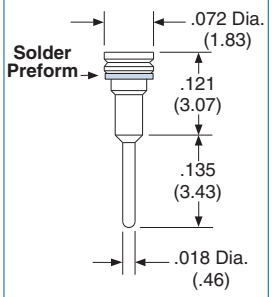
Tin/Lead: Type -311 / Lead-free: Type -813
Part Number: 4464-3
Contact Group: C



Type -134
Part Number: 1989



Type -139
Part Number: 1831



If not indicated, terminals are shown with our standard Tin/Lead solder preform. For additional Lead-free preform Terminal Type numbers, consult factory.

inch/(mm)

Design Your Own Terminal

Contact Information

Date: _____

Company Name: _____

Address: _____

City: _____ State: _____ ZIP: _____ Country: _____

Specifier: _____ Title: _____

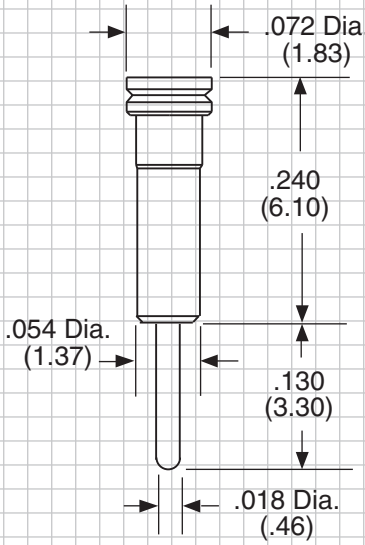
Phone: _____ Fax: _____

Email: _____

Terminal Information

1. **Similar Advanced Part #:** _____
2. **Terminal Material:**
   - ☐ Brass
3. **Terminal Plating:**
   - ☐ Tin/Lead over Nickel
   - ☐ Gold over Nickel
   - ☐ Matte Tin over Nickel
4. **Contact Material:**
   - ☐ Beryllium Copper
5. **Contact Plating:**
   - ☐ Tin/Lead over Nickel
   - ☐ Gold over Nickel
6. **Size of Mating Pin or Component Lead:** _____
7. **Length of Mating Pin/Lead:** _____
8. **Use Advanced Contact Part:** _____
   (See pages 82-83)
9. **Required Insertion/Extraction Force:**
   - ☐ Low
   - ☐ Medium
   - ☐ High
10. **Outline Sketch:**
    (Sketch terminal with all critical dimensions. See sample below.)

Sample Sketch



inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

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Contacts

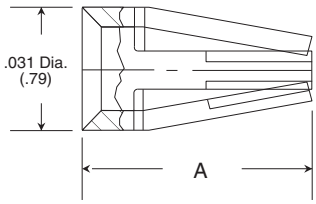
Group A

Lead Size Range

.016-.022 Dia. (.41-.56) ●

.010-.018 Rect. (.25-.46) ■

Contact Acceptance Range .016" - .022" Dia. or .010" x .018" Rectangular Lead
(.41mm - .56mm) (.25mm - .46mm)



Part Number	A	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
1427	.075/(1.91)	3	BeCu	75g	40g	3 amp
1907	.060/(1.52)	6	BeCu	175g	50g	3 amp
1427-1	.075/(1.91)	3	BeCu	45g	20g	3 amp

Forces determined with .018/(.46) diameter test pin.

All tests are performed with polished steel bullet nose pins.

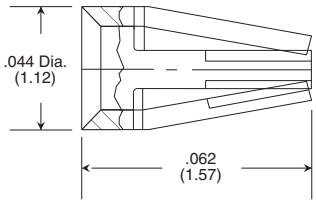
Group B

Lead Size Range

.016-.022 Dia. (.41-.56) ●

.010-.018 Rect. (.25-.46) ■

Contact Acceptance Range .016" - .022" Dia. or .010" x .018" Rectangular Lead
(.41mm - .56mm) (.25mm - .46mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
1418	4	BeCu	350g	150g	3 amp
1418-4	4	BeCu	100g	60g	3 amp
2832	6	BeCu	195g	140g	3 amp

Forces determined with .018/(.46) diameter test pin.

All tests are performed with polished steel bullet nose pins.

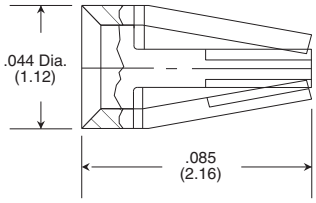
Group C

Lead Size Range

.016-.022 Dia. (.41-.56) ●

.010-.018 Rect. (.25-.46) ■

Contact Acceptance Range .016" - .022" Dia. or .010" x .018" Rectangular Lead
(.41mm - .56mm) (.25mm - .46mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
1002	4	BeCu	250g	75g	3 amp
1002-2	4	BeCu	55g	25g	3 amp
1465	6	BeCu	75g	45g	3 amp
1465-1	6	BeCu	35g	20g	3 amp

Forces determined with .018/(.46) diameter test pin.

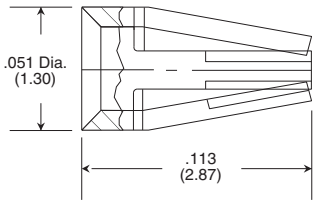
All tests are performed with polished steel bullet nose pins.

Group D

Lead Size Range

.022-.032 Dia. (.56-.81) ●

Contact Acceptance Range .022" - .032" Dia.
(.56mm - .81mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
1768	4	BeCu	300g	125g	4.5 amp

Forces determined with .025/(.64) diameter test pin.

All tests are performed with polished steel bullet nose pins.

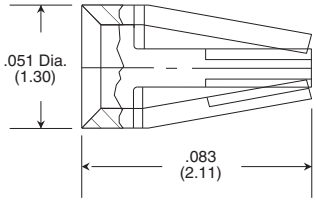
Group D1

Lead Size Range

.025-.037 Dia. (.64-.94) ●

.025 Sq. (.63) ■

Contact Acceptance Range .025" - .037" Dia. or .025" Square Lead
(.64mm - .94mm) (.64mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
3648	6	BeCu	125g	40g	4.5 amp
3003	6	BeCu	350g	110g	4.5 amp

Forces determined with .025/(.64) diameter test pin.

All tests are performed with polished steel bullet nose pins.

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Catalog 16A

inch/(mm)

Contacts

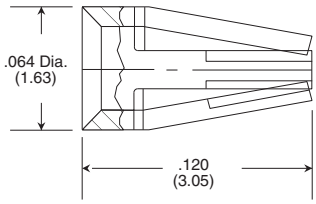
Group E

Lead Size Range

.032-.047 Dia. (.81-1.19)

●

Contact Acceptance Range .032" - .047" Dia.
(.81mm - 1.19mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
2147	4	BeCu	575g	225g	8 amp

Forces determined with .040/(1.02) diameter test pin.
All tests are performed with polished steel bullet nose pins.

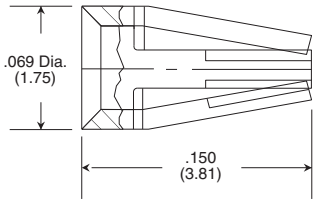
Group E1

Lead Size Range

.035-.045 Dia. (.89-1.14)

●

Contact Acceptance Range .035" - .045" Dia.
(.89mm - 1.14mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
3970	4	BeCu	300g	185g	8 amp

Forces determined with .040/(1.02) diameter test pin.
All tests are performed with polished steel bullet nose pins.

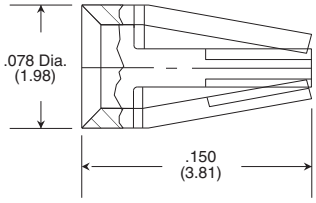
Group E2

Lead Size Range

.040-.060 Dia. (1.02-1.52)

●

Contact Acceptance Range .040" - .060" Dia.
(1.02mm - 1.52mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
2818	4	BeCu	260g	120g	11.2 amp

Forces determined with .050/(1.27) diameter test pin.
All tests are performed with polished steel bullet nose pins.

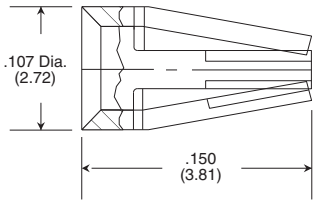
Group F

Lead Size Range

.065-.082 Dia. (1.65-2.08)

●

Contact Acceptance Range .065" - .082" Dia.
(1.65mm - 2.08mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
1767	4	BeCu	475g	460g	15 amp

Forces determined with .075/(1.91) diameter test pin.
All tests are performed with polished steel bullet nose pins.

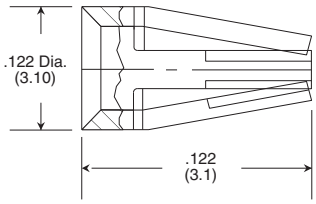
Group G

Lead Size Range

.084-.102 Dia. (2.13-2.59)

●

Contact Acceptance Range .084" - .102" Dia.
(2.13mm - 2.59mm)



Part Number	# of Fingers	Materials	Average Insertion Force	Average Withdrawal Force	Current Rating
4673	6	BeCu	500g	320g	18 amp

Forces determined with .092/(2.34) diameter test pin.
All tests are performed with polished steel bullet nose pins.

inch/(mm)

Products shown covered by patents issued and/or pending. Specifications subject to change without notice.

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Catalog 16A

Product Index
(Index by Part Number)

Part #	Description	Page
2819	PLCC to PGA Adapters	59
4414	SOIC to DIP Adapters	58
8125	BGA Extraction Tool	6-9
8794	BGA Extraction Tool	4-5
BA	B2B® SMT Connectors (Male 1.27mm pitch)	54-55
BB	B2B® SMT Connectors (Female 1.27mm pitch)	54-55
DHA	Flexible Thru-Hole Male Connector (1.00mm pitch)	56-57
DHAM	Molded SMT Male Connector (1.00mm pitch)	56-57
DHS	Molded SMT Female Connector (1.00mm pitch)	56-57
DKA	Board to Board Connector (Male Dual Row Peel-A-Way®)	40-43
DKS	Board to Board Connector (Female Dual Row Peel-A-Way®)	40-43
FAPC	Image Sensor Socket (Open Body 2.54mm pitch)	26-27
FAPF	Image Sensor Socket (Full Body 2.54mm pitch)	26-27
FBPC	Image Sensor Socket (Open Body 1.78mm pitch)	26-27
FBPF	Image Sensor Socket (Full Body 1.78mm pitch)	26-27
FCPC	Image Sensor Socket (Open Body 1.27mm pitch)	26-27
FCPF	Image Sensor Socket (Full Body 1.27mm pitch)	26-27
FGA	Standard BGA Adapter (1.27mm pitch)	6-7
FGAG	Guide Box BGA Adapter (1.27mm pitch)	10-11
FGAX	Extraction Slot BGA Adapter (1.27mm pitch)	6-7
FGSG	Guide Box BGA Socket (1.27mm pitch)	10-11
FHA	Standard BGA Adapter (1.00mm pitch)	6-7
FHAG	Guide Box BGA Adapter (1.00mm pitch)	10-11
FHAX	Extraction Slot BGA Adapter (1.00mm pitch)	6-7
FHSG	Guide Box BGA Socket (1.00mm pitch)	10-11
FIS	PGA Socket (FR-4 Insulator)	20-21
FJA	Standard BGA Adapter (0.80mm pitch)	6-7
FJAG	Guide Box BGA Adapter (0.80mm pitch)	10-11
FJS	Standard BGA Socket (0.80mm pitch)	8-9
FJSG	Guide Box BGA Socket (0.80mm pitch)	10-11
FLA	Fine Pitch BGA Adapter (0.65mm pitch)	4-5
FLS	Fine Pitch BGA Socket (0.65mm pitch)	4-5
FMA	Fine Pitch BGA Adapter (0.50mm pitch)	4-5
FMS	Fine Pitch BGA Socket (0.50mm pitch)	4-5
FRG	Flip-Top™ BGA Socket (1.27mm pitch)	12-13
FRH	Flip-Top™ BGA Socket (1.00mm pitch)	12-13

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inch/(mm)

Product Index
(Index by Part Number)

Part #	Description	Page
FSDS	Board to Board Connector (Female Single Row Molded)	46-49
HKA	Board to Board Connector (Male Triple Row Peel-A-Way®)	50-51
HKS	Board to Board Connector (Female Triple Row Peel-A-Way®)	50-51
KA	PGA Adapter (Peel-A-Way® Insulator)	19
KBA	Board to Board Connector (Male Single Row Peel-A-Way®)	46-49
KBS	Board to Board Connector (Female Single Row Peel-A-Way®)	46-49
KDA	Board to Board Connector (Male Dual Row Peel-A-Way®)	46-49
KEA	Board to Board Connector (Male Dual Row Peel-A-Way®)	50-51
KES	Board to Board Connector (Female Dual Row Peel-A-Way®)	50-51
KIS	PGA Socket (Peel-A-Way® Insulator)	20-21
KMA	Board to Board Connector (Male Single Row Peel-A-Way®)	44-45
KMB	Board to Board Connector (Male Dual Row Peel-A-Way®)	44-45
KMC	Board to Board Connector (Male Triple Row Peel-A-Way®)	44-45
KMD	Board to Board Connector (Female Dual Row Peel-A-Way®)	44-45
KMS	Board to Board Connector (Female Single Row Peel-A-Way®)	44-45
KMT	Board to Board Connector (Female Triple Row Peel-A-Way®)	44-45
KNA	Board to Board Connector (Male Dual Row Peel-A-Way®)	46-49
KNS	Board to Board Connector (Female Dual Row Peel-A-Way®)	46-49
KS	DIP Socket (Peel-A-Way® Insulator)	30-31
KSA	Board to Board Connector (Male Single Row Peel-A-Way®)	40-43
KSA	SIP Adapter (Peel-A-Way® Insulator)	38-39
KSS	Board to Board Connector (Female Single Row Peel-A-Way®)	40-43
KSS	SIP Socket (Peel-A-Way® Insulator)	36-37
KSX	PGA Socket (Peel-A-Way® Insulator)	22-23
KTA	Board to Board Connector (Male Triple Row Peel-A-Way®)	46-49
KTS	Board to Board Connector (Female Triple Row Peel-A-Way®)	46-49
MDC	Decoupling Capacitor DIP Socket with Murphy Circuits®	34
MGAG	Guide Box BGA Adapter (1.27mm pitch)	10-11
MGSG	Guide Box BGA Socket (1.27mm pitch)	10-11
MHAG	Guide Box BGA Adapter (1.00mm pitch)	10-11
MHS	Standard BGA Socket (1.00mm pitch)	8-9
MHSB	Extraction BGA Socket (1.00mm pitch)	8-9
MHSG	Guide Box BGA Socket (1.00mm pitch)	10-11
RCA	PGA Adapter (Molded Insulator)	19
RDA	DIP Adapter (Molded Insulator)	32-33
RDD	Board to Board Connector (Female Dual Row Molded)	46-49

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Product Index
(Index by Part Number)

Part #	Description	Page
RDL	Closed Frame LED Sockets	35
RDDS	Board to Board Connector (Female Dual Row Molded)	46-49
RDRA	Board to Board Connector (Male Dual Row Molded)	40-43
RDRS	Board to Board Connector (Female Dual Row Molded)	40-43
RDS	DIP Socket (Closed Frame Molded Insulator)	28-29
RGS	Standard BGA Socket (1.27mm pitch)	8-9
RGSB	Extraction BGA Socket (1.27mm pitch)	8-9
RIS	PGA Socket (Molded Insulator)	20-21
RLNB	Board to Board Connector (Female Single Row Molded)	40-43
RLNB	SIP Socket (Molded Solid Strip - Head Flush)	36-37
RLS	DIP Socket (Open Frame Molded Insulator)	28-29
RLSA	Right Angle Connector (Male Single Row Molded)	52
RLSA	Right Angle Connector (Male Dual Row Molded)	53
RLSS	Right Angle Connector (Female Single Row Molded)	52
RLSS	Right Angle Connector (Female Dual Row Molded)	53
RLSS	SIP Socket (Molded Snap Strip - Head Flush)	36-37
RNA	Board to Board Connector (Male Single Row Molded)	40-43
RNA	SIP Adapter (Molded Solid Strip)	38-39
RNB	Board to Board Connector (Female Single Row Molded)	40-43
RNB	SIP Socket (Molded Solid Strip - Head Above)	36-37
RSA	SIP Adapter (Molded Snap Strip)	38-39
RSS	SIP Socket (Molded Snap Strip - Head Above)	36-37
RSX	PGA Socket (Molded Insulator)	22-23

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Terminal Index
(Index by Part Number)

Part #	Type	Page	Part #	Type	Page	Part #	Type	Page
1003	-01	67	1499	-111	80	2342	-188	78
1019	-28	70	1499	-810	80	2383	-190	65
1028	-05	69	1582	-147	74	2390	-191	69
1066	-72	69	1589	-95	66	2403	-205	63
1067-1	-44	74	1643	-97	80	2452	-202	77
1067-2	-65	74	1654	-73	65	2527-1	-131	76
1077	-08	78	1677	-99	74	2527-2	-321	76
1078	-09	78	1678	-70	65	2527-3	-322	76
1087	-36	72	1709	-145	74	2595	-208	66
1093	-25	65	1718	-106	72	2647	-227	63
1094	-29	68	1721	-102	70	2850	-217	66
1104	-38	67	1723	-104	73	2887	-210	64
1106	-33	68	1724	-105	73	2992	-223	68
1124	-04	67	1726	-107	72	3006	-275	70
1125	-30	68	1728	-109	72	3006	-230	80
1129	-74	70	1743	-140	74	3023	-218	67
1214	-48	68	1769	-138	77	3096-1	-233	77
1216-1	-68	79	1790	-146	74	3129	-237	65
1216-2	-43	78	1806	-144	72	3151	-240	69
1216-3	-42	79	1826	-137	75	3199	-243	67
1216-4	-71	79	1828	-136	67	3208	-324	65
1216-5	-185	78	1830	-135	70	3219	-242	67
1216-6	-360	79	1831	-139	80	3221	-238	76
1242	-50	65	1862	-143	80	3257	-246	64
1249	-49	66	1863	-142	78	3354	-259	65
1255	-56	68	1915	-39	66	3359	-277	79
1282	-51	67	1922	-148	67	3366	-278	79
1316	-84	65	1928	-141	69	3382	-260	76
1326	-45	68	1979	-133	80	3409	-328	71
1352	-100	74	1989	-134	80	3501	-284	71
1364-1	-79	76	2084	-167	76	3503-1	-269	64
1364-2	-80	76	2103	-150	80	3503-2	-425	63
1364-3	-81	76	2103	-811	80	3523	-281	63
1364-4	-186	76	2105	-151	80	3554	-282	65
1364-6	-378	76	2105	-812	80	3578	-285	67
1365	-67	66	2111	-154	80	3626	-286	78
1371	-85	64	2149	-166	66	3655	-168	63
1374	-90	69	2155	-169	77	3708	-290	64
1379	-86	66	2184	-165	76	3715	-333	68
1401	-69	64	2184-2	-339	76	3757	-291	74
1403	-87	68	2184-3	-340	76	3784	-294	64
1404	-101	74	2239	-176	64	3795	-295	77
1408	-60	65	2241	-178	68	3805	-299	66

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Terminal Index
(Index by Part Number)

Part #	Type	Page	Part #	Type	Page	Part #	Type	Page
3818	-301	70	4279	-413	77	4634-4	-563	70
3819	-302	73	4298	-558	75	4659	-550	64
3844	-332	71	4298-1	-420	79	4662	-551	63
3950	-316	80	4306	-423	77	4670	-559	77
3957	-319	78	4308	-426	77	4689	-570	70
3964	-320	66	4309	-427	72	4689-2	-577	69
3967	-323	73	4316	-428	64	4696	-569	78
3972	-336	75	4366	-432	80	4714	-571	75
3973	-337	75	4366	-815	80	4735-1	-583	75
3984	-335	65	4375	-444	78	4737-1	-574	75
3997	-338	76	4417	-448	67	4738-1	-575	75
4020	-341	77	4418-1	-484	77	4747-1	-576	75
4024	-343	70	4418-2	-485	77	4774	-581	66
4036	-346	69	4420	-487	68	4775	-582	71
4038	-474	63	4422	-488	69	4789	-585	71
4040-1	-347	63	4425	-490	77	4793	-586	63
4041	-350	64	4427	-491	64	4835	-593	75
4054	-349	75	4445	-500	67	4854	-594	72
4059	-353	65	4445-1	-499	72	4858	-595	63
4062	-355	75	4462	-496	64	4863	-603	75
4071	-358	67	4463	-497	63	4875	-599	78
4074	-351	71	4464-1	-82	66	4876	-600	78
4076	-359	65	4464-2	-313	80	4953	-606	77
4079-1	-483	71	4464-2	-814	80	4975	-608	74
4095	-364	67	4464-3	-234	66	5030	-626	79
4097	-365	71	4464-3	-311	80	5242	-651	65
4133	-372	69	4464-3	-813	80	5456	-674	63
4134	-373	69	4464-4	-235	66	5705	-711	77
4143	-377	77	4511	-505	64	5748	-718	73
4148	-376	74	4520	-517	64	5843-1	-721	79
4163	-382	69	4522	-506	79	5902	-770	70
4164	-383	68	4543-1	-525	75	5926	-727	79
4177	-384	67	4545-1	-526	75	6041	-771	79
4178	-385	63	4573	-529	63	6332	-772	74
4179	-386	63	4592-2	-533	63	6477	-775	73
4207	-392	66	4613	-537	67	6521	-776	72
4212	-394	74	4616	-544	78	6832	-842	65
4226	-400	66	4621	-539	79	7800	-786	75
4227-1	-393	76	4622	-540	79	8031	-843	70
4251	-405	70	4634-1	-560	72	8182	-841	74
4256	-404	80	4634-2	-561	73	8386	-804	78
4269	-409	74	4634-3	-562	73	8599	-840	64

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Terminal Index
(Index by Type)

Type	Part #	Page	Type	Part #	Page	Type	Part #	Page
-01	1003	67	-95	1589	66	-178	2241	68
-04	1124	67	-97	1643	80	-185	1216-5	78
-05	1028	69	-99	1677	74	-186	1364-4	76
-08	1077	78	-100	1352	74	-188	2342	78
-09	1078	78	-101	1404	74	-190	2383	65
-25	1093	65	-102	1721	70	-191	2390	69
-28	1019	70	-104	1723	73	-202	2452	77
-29	1094	68	-105	1724	73	-205	2403	63
-30	1125	68	-106	1718	72	-208	2595	66
-31	-	35	-107	1726	72	-210	2887	64
-33	1106	68	-109	1728	72	-217	2850	66
-36	1087	72	-111	1499	80	-218	3023	67
-38	1104	67	-131	2527-1	76	-223	2992	68
-39	1915	66	-133	1979	80	-227	2647	63
-42	1216-3	79	-134	1989	80	-230	3006	80
-43	1216-2	78	-135	1830	70	-233	3096-1	77
-44	1067-1	74	-136	1828	67	-234	4464-3	66
-45	1326	68	-137	1826	75	-235	4464-4	66
-48	1214	68	-138	1769	77	-237	3129	65
-49	1249	66	-139	1831	80	-238	3221	76
-50	1242	65	-140	1743	74	-240	3151	69
-51	1282	67	-141	1928	69	-242	3219	67
-56	1255	68	-142	1863	78	-243	3199	67
-60	1408	65	-143	1862	80	-246	3257	64
-65	1067-2	74	-144	1806	72	-259	3354	65
-67	1365	66	-145	1709	74	-260	3382	76
-68	1216-1	79	-146	1790	74	-269	3503-1	64
-69	1401	64	-147	1582	74	-275	3006	70
-70	1678	65	-148	1922	67	-277	3359	78
-71	1216-4	79	-150	2103	80	-278	3366	78
-72	1066	69	-151	2105	80	-281	3523	63
-73	1654	65	-154	2111	80	-282	3554	65
-74	1129	70	-159	-	52	-284	3501	71
-79	1364-1	76	-160	-	52	-285	3578	67
-80	1364-2	76	-161	-	53	-286	3626	78
-81	1364-3	76	-162	-	53	-290	3708	64
-82	4464-1	66	-165	2184	76	-291	3757	74
-84	1316	65	-166	2149	66	-294	3784	64
-85	1371	64	-167	2084	76	-295	3795	77
-86	1379	66	-168	3655	63	-299	3805	66
-87	1403	68	-169	2155	77	-301	3818	70
-90	1374	69	-176	2239	64	-302	3819	73

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Terminal Index
(Index by Type)

Type	Part #	Page	Type	Part #	Page	Type	Part #	Page
-311	4464-3	80	-386	4179	63	-551	4662	63
-313	4464-2	80	-392	4207	66	-558	4298-1	75
-316	3950	80	-393	4227-1	76	-559	4670	77
-319	3957	78	-394	4212	74	-560	4634-1	72
-320	3964	66	-400	4226	66	-561	4634-2	73
-321	2527-2	76	-404	4256	80	-562	4634-3	73
-322	2527-3	76	-405	4251	70	-563	4634-4	70
-323	3967	73	-409	4269	74	-569	4696	78
-324	3208	65	-413	4279	77	-570	4689	70
-328	3409	71	-420	4298	79	-571	4714	75
-332	3844	71	-423	4306	77	-574	4737-1	75
-333	3715	68	-425	3503-2	63	-575	4738-1	75
-335	3984	65	-426	4308	77	-576	4747-1	75
-336	3972	75	-427	4309	72	-577	4689-2	69
-337	3973	75	-428	4316	64	-581	4774	66
-338	3997	76	-432	4366	80	-582	4775	71
-339	2184-2	76	-444	4375	78	-583	4735-1	75
-340	2184-3	76	-448	4417	67	-585	4789	71
-341	4020	77	-474	4038	63	-586	4793	63
-343	4024	70	-483	4079-1	71	-593	4835	75
-346	4036	69	-484	4418-1	77	-594	4854	72
-347	4040-1	63	-485	4418-2	77	-595	4858	63
-349	4054	75	-487	4420	68	-599	4875	78
-350	4041	64	-488	4422	69	-600	4876	78
-351	4074	71	-490	4425	77	-603	4863	75
-353	4059	65	-491	4427	64	-606	4953	77
-355	4062	75	-496	4462	64	-608	4975	74
-358	4071	67	-497	4463	63	-626	5030	79
-359	4076	65	-499	4445-1	72	-636	-	9, 11
-360	1216-6	79	-500	4445	67	-638	-	7, 11
-364	4095	67	-505	4511	64	-651	5242	65
-365	4097	71	-506	4522	79	-657	-	13
-370	-	35	-517	4520	64	-659	-	13
-372	4133	69	-525	4543-1	75	-673	-	9, 11
-373	4134	69	-526	4545-1	75	-674	5456	63
-376	4148	74	-529	4573	63	-690	-	13
-377	4143	77	-533	4592-2	63	-700	-	7, 11
-378	1364-6	76	-537	4613	67	-702	-	9, 11
-382	4163	69	-539	4621	79	-708	-	13
-383	4164	68	-540	4622	79	-711	5705	77
-384	4177	67	-544	4616	78	-712	-	13
-385	4178	63	-550	4659	64	-713	-	13

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Terminal Index
(Index by Type)

Type	Part #	Page	Type	Part #	Page
-715	-	7, 11	-814	4464-2	80
-718	5748	73	-815	4366	80
-720	-	7	-819	-	9, 11
-721	5843-1	79	-820	-	13
-721	-	7	-821	-	13
-727	5926	79	-822	-	13
-731	-	9, 11	-823	-	7
-732	-	7	-824	-	7
-735	-	7	-828	-	9, 11
-736	-	7	-829	-	7
-737	-	7	-830	-	9
-739	-	54	-832	-	5
-741	-	54	-833	-	5
-742	-	54	-834	-	5
-743	-	54	-837	-	13
-748	-	54	-838	-	13
-752	-	13	-840	8599	64
-754	-	13	-841	8182	74
-758	-	9	-842	6832	65
-762	-	13	-843	8031	70
-763	-	13	-844	-	56
-770	5902	70	-845	-	56
-771	6041	79			
-772	6332	74			
-775	6477	73			
-776	6521	72			
-783	-	54			
-786	7800	75			
-788	-	9, 11			
-789	-	9, 11			
-790	-	9, 11			
-793	-	54			
-794	-	54			
-795	-	54			
-796	-	54			
-797	-	54			
-798	-	54			
-804	8386	78			
-810	1499	80			
-811	2103	80			
-812	2105	80			
-813	4464-3	80			

inch/(mm)

ADVANCED INTERCONNECTIONS®
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Material Specifications

Material Specifications

Note: All materials listed, with the exception of Tin/Lead plating and PPS insulators are RoHS Compliant and compatible with high temperature processing.

Insulators:

LCP Liquid Crystal Polymer, 30% Glass Reinforced. U.L. Rated 94V-0. Color: Black. Thermal Index to 260°C.

FR-4 Fiberglass Epoxy Board. U.L. Rated 94V-0. Color: Black. Thermal Index to 140°C.

Polyimide Film (Peel-A-Way®). U.L. Rated 94V-0. Thermal Index to 400°C.

PPS Polyphenylene Sulfide Glass Reinforced. U.L. Rated 94V-0. Color Natural. Thermal Index to 260º C. (Note: Not compatible with high temperature processing.)

Terminals:

Brass - Copper Alloy (C36000) per ASTM-B-16.

Contacts:

Beryllium Copper (BeCu) (C17200) per ASTM-B-194.

Standard Contact Plating Specifications:

G: 30 micro inches Gold per MIL-G-45204 over 50 micro inches of Nickel per QQ-N-290.

T: 150 micro inches of 90/10 Tin/Lead per MIL-P-81728 over 50 micro inches of Nickel per QQ-N-290.

Standard Terminal Shell Plating Specifications:

G: 10 micro inches Gold per ASTM-B-488 over 50 micro inches Nickel per QQ-N-290.

GH: 30 micro inches Gold per ASTM-B-488 over 50 micro inches Nickel per QQ-N-290.

T: 200 micro inches of 90/10 Tin/Lead per MIL-P-81728 over 50 micro inches Nickel per QQ-N-290.

M: 100 micro inches of Matte Tin per ASTM545-97 over 50 micro inches Nickel per QQ-N-290.

Optional Plating Specifications:

(consult factory for availability)

Contact: 10 micro inches Gold per ASTM-B-488 over 50 micro inches Nickel per QQ-N-290.

Contact: Gold Flash over 50 micro inches Nickel per QQ-N-290.

Terminal Shell: Gold Flash over 50 micro inches Nickel per QQ-N-290.

Terminal Shell: 200 micro inches of 90/10 Tin/Lead per MIL-P-81728 over 100 micro inches Copper.

Solder Spheres and Solder Preforms:

Standard: Eutectic Tin/Lead, 63Sn/37Pb. 183°C (361°F)

Lead-free: Tin/Silver/Copper, 95.5Sn/4.0Ag/0.5Cu or 96.5Sn/3.0Ag/0.5Cu. 218°C (424°F)

Tape Seal:

Silicone backed Polyimide film. Temperature range: -74°C to 260°C (-100°F to 500°F), Intermittent to 371°C (700°F).

Tolerances: Unless otherwise noted all dimensions are +/- .005 (0.13mm)
Custom designs available upon request.

ISO 9001:2008 Certified
(Certificate No. 7566)

Federal I.D. #: 05-0394638
Federal Supply #: 61638

Bellcore Mfg. Code: ADVI
SIC Code: 3678

A Note About Our RoHS Compliant Part Numbers

When insulator or plating materials changed, new part numbers have been established to assist our customers with inventory and documentation control. For existing products that already met RoHS requirements, such as Peel-A-Way® Sockets with Gold plating, part numbers have not changed.

All RoHS Compliant part numbers will be clearly indicated on data sheets and package labels. Look for our "RoHS Compliant Pb Free" symbol and easy-to-use How to Order tables throughout this catalog to assist with selecting RoHS Compliant interconnect products. For complete product information, including RoHS Compliance Test Reports, visit our web site at www.advanced.com or contact one of our experienced Manufacturer's Representatives or Distributors in your area.

This catalog was produced and printed in the U.S.A.

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