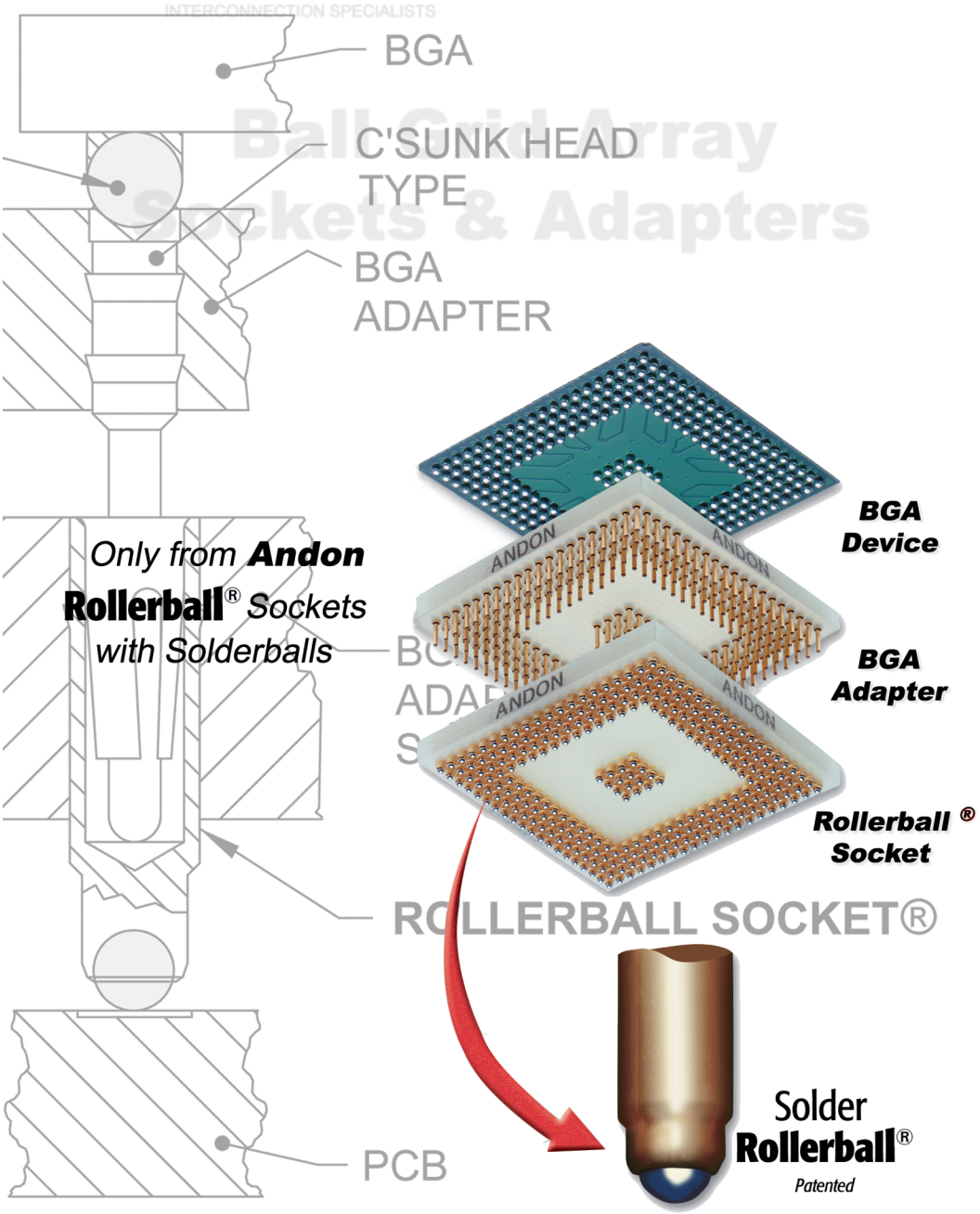
ANDON
INTERCONNECTION SPECIALISTS

RoHS Compliant
ISO 9001
Certified

BALL GRID ARRAY SOCKETS & ADAPTERS



Available in any configuration or footprint! Visit us at:

www.andonelect.com or www.andonelectronics.com

BGA-13A

ANDON HAS BECOME recognized as the Interconnection Specialist, offering a single, reliable source for IC sockets, micro-precision sockets, adapters, board-to-board interconnects and contact/terminal products. Over the years Andon has set the industry standard for innovation, reliability and superior quality.

Andon's ISO 9001 certified facility offers leading edge tooling, high-temperature molding, stamping, screw machine products and automated assembly capabilities. The result is a line of products, like our Rollerball™ Socket technology, that brings true problem solving product process innovation and cost savings to the industry.

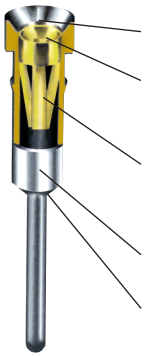
Whether you need large or small volume production, stock solutions or custom sockets and interconnects, Andon has the inherently smart, simple and cost-effective solutions to make you more productive.

Andon President, John O. Tate, pioneered many of the innovative, high-reliability interconnects for military, aerospace and commercial applications that have become industry standards. In 1965, he developed the stamped and formed multi-finger precision IC socket contact, which remains the preferred method throughout the world for connecting today's microprocessors and other critical components.

- **ANDON produces a large variety of board level interconnects**
- **ANDON has over 40 years experience in high-rel socket and connector manufacture**
- **ANDON specializes in high-precision turned parts (screw machine) to close tolerance and down to micro-miniature sizes**
- **ANDON provides high-rel solutions to interconnect problems with the proven "2-piece stamped and formed contact/terminal (screw machine)" design which prevents solder wicking onto the contact**
- **ANDON provides design and engineering services for custom interconnects**
- **ANDON provides prototypes up to large volume automated production**
- **ANDON provides conversion sockets for straight pin components converted to SMD sockets**
- **ANDON is your**

"Reliable Partner For Progress"

Cutaway View of Andon's High-Rel Socket



Largest possible tapered funnel entry

Multi-finger, BeCu inner contact with funnel entry design allows for easy insertion of IC lead

Multi-finger contact plated and assembled loose in order to avoid unplated cut-off areas

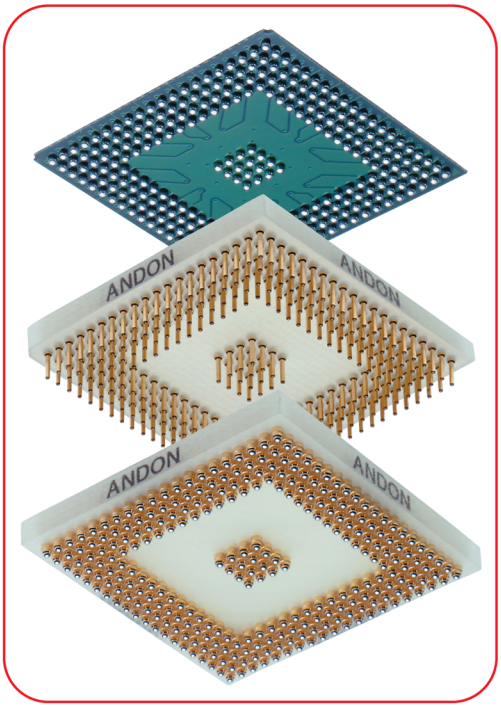
Closed base eliminates solder wicking

Chamfer ensures perfect alignment of the terminal on the PC board

NEW TECHNOLOGY FROM ANDON!

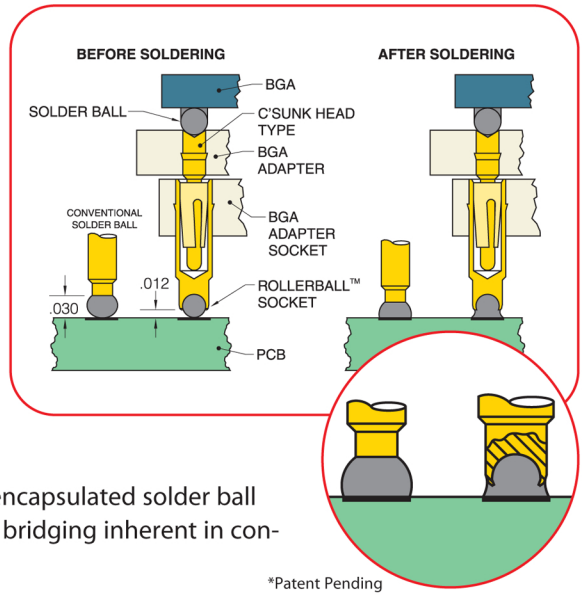
BGA Rollerball ™ Sockets *

Designed to revolutionize BGA assembly and improve reliability and quality!



- Innovative solution for PCB coplanarity assembly problems
- The only socket design that provides the highest thru-put and quality
- Solder sphere is mechanically assembled into the terminal and positioned closer to the PCB for extremely accurate soldering every time

Rollerball ™ Sockets eliminate many problems inherent in the shipping and assembly of conventional BGA sockets. The unique design also improves performance characteristics and reduces expensive rework and scrap while increasing production yields. The key to Andon's new design is a radiused hole at the bottom of the terminal. The terminal is then crimped over the solder ball beyond its hemisphere to encapsulate the solder ball, leaving just enough of the solder ball exposed to provide sufficient solder for soldering to a PCB. Some ASICs with large ball counts using the conventional BGA terminal design experience coplanarity tolerance problems when there is no metal-to-metal contact between the solder ball and the PCB pad. The solder ball will tend to flow toward the gold plated land area under the microprocessor or socket terminal and not downward to make contact with the PCB pad. With Andon's Rollerball ™ Socket design, the critical distance between the terminal and the PCB pad is typically reduced from .036"-.040" to .018"-.022". The solder becomes part of the "anchor" cross section and provides additional mechanical strength to the connection as well as improved electrical connectivity .



Because it also provides controlled dispersion of solder, the encapsulated solder ball in the new Rollerball ™ Socket also reduces the risk of solder bridging inherent in conventional solder ball terminal designs.

*Patent Pending

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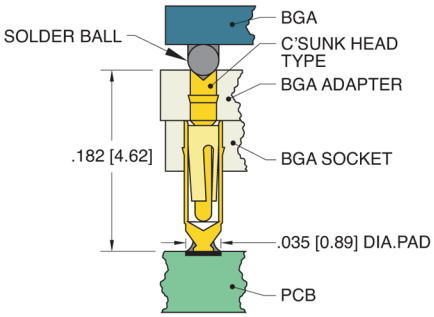
4 Court Drive, Lincoln RI 02865, United States of America
www.andonelectronics.com or www.andonelect.com
Phone 401-333-0388 Fax 401-333-0287
Email Info@andonelect.com

Series 10

1.27 mm (.050 inch) Pitch BGA Sockets and Adapters
Ball Grid Array Socketing System

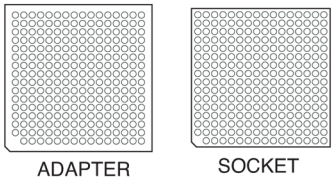
The Ideal Solution To Fix BGA Assembly Problems On Large PCBs

- ADAPTER WITH TERMINAL PINS FOR PLUGGING INTO SOCKET. BGA SOLDERED DIRECTLY ONTO ADAPTER.
- SOCKET WITH TERMINALS FOR SOLDERING DIRECTLY ONTO PCB WITH PLATED THRU HOLES OR SURFACE MOUNT PADS.
- REWORK COST AND RISK OF DAMAGE REDUCED TO EXPENSIVE BGA AND MULTI LAYER PCB'S.



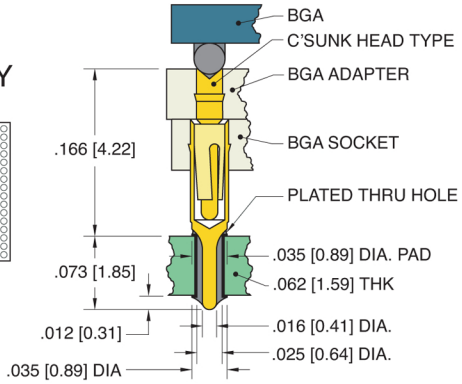
SURFACE MOUNT

BALL GRID ARRAY
SOCKETING ASSEMBLY



ADAPTER SOCKET

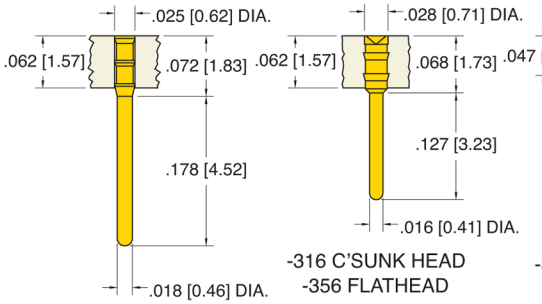
.050 [1.27] X .050 [1.27] PITCH
MANY FOOTPRINTS AVAILABLE



THRU HOLE

Terminal Types

ADAPTER TERMINALS

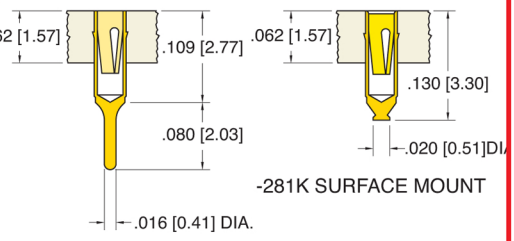


-337 FLATHEAD

-316 C'SUNK HEAD
-356 FLATHEAD

-312 C'SUNK HEAD
-355 FLATHEAD
(FOR .062" INSULATOR)

SOCKET TERMINALS



-274K THRU HOLE

-281K SURFACE MOUNT

TECHNICAL SPECIFICATIONS

Material:	
Insulator:	FR-4 Laminate U.L. Rated 94V-0
Terminal:	Brass Plated Gold
Contact:	BeCu Plated Gold
Adapter:	Brass Plated Gold

ORDERING INFORMATION

10-XX-XX-XXX-XXX-XXX-N10

Series — Grid — Footprint — Plating — Terminal Type — Number of Pins

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NEW PRODUCT

Series 10

1.27 mm (.050 inch) Pitch BGA Sockets and Adapters Rollerball™ Grid Array Socketing System

The Ideal Solution To Fix BGA Assembly Problems On Large PCBs

- ADAPTER WITH TERMINAL PINS FOR PLUGGING INTO ROLLERBALL™ SOCKET. BGA SOLDERED DIRECTLY ONTO ADAPTER.
- SOCKET WITH ROLLERBALL™ TERMINALS FOR SOLDERING DIRECTLY ONTO PCB.
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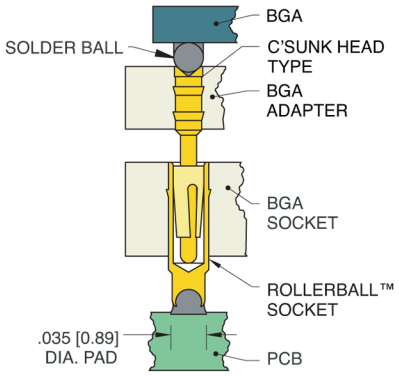
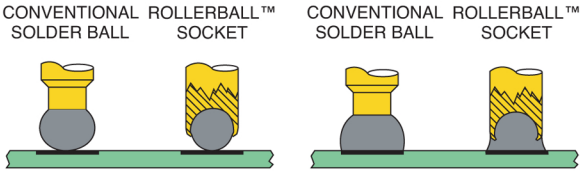
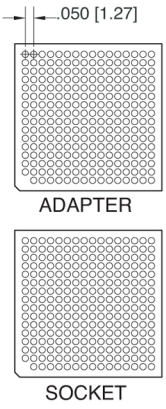


SURFACE MOUNT



BEFORE SOLDERING AFTER SOLDERING

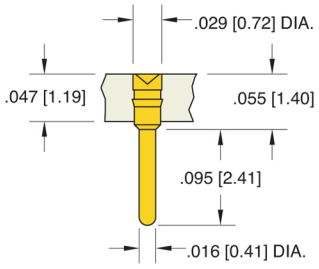
ROLLERBALL™ GRID ARRAY
SOCKETING ASSEMBLY
Patent Pending



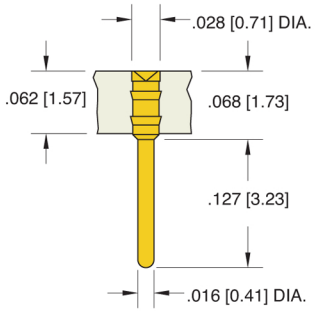
.050 [1.27] X .050 [1.27] PITCH
MANY FOOTPRINTS AVAILABLE

Terminal Types

ADAPTER TERMINALS

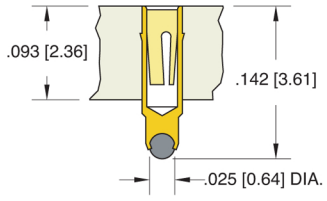


-312 C'SUNK HEAD
-355 FLATHEAD
(FOR .062" INSULATOR)



-316 C'SUNK HEAD
-356 FLATHEAD

SOCKET TERMINAL



-RB338K ROLLERBALL™ SOCKET

TECHNICAL SPECIFICATIONS

Material:	
Insulator:	FR-4 Laminate U.L. Rated 94V-0
Terminal:	Brass Plated Gold
Contact:	BeCu Plated Gold
Solderball:	63% Tin, 37% Lead
Adapter:	Brass Plated Gold

ORDERING INFORMATION

10-XX-XX-XXX-XXX-XXX-N10

Series — Grid — Footprint — Number of Pins — Terminal Type — Plating

ANDON ELECTRONICS CORPORATION
4 Court Drive, Lincoln RI 02865, United States of America
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Phone 401-333-0388 Fax 401-333-0287
Email Info@andonelect.com

Series 12

1 mm (.0394 inch) Pitch BGA Sockets and Adapters
Ball Grid Array Socketing System

The Ideal Solution To Fix BGA Assembly Problems On Large PCBs

- ADAPTER WITH TERMINAL PINS FOR PLUGGING INTO SOCKET. BGA SOLDERED DIRECTLY ONTO ADAPTER.
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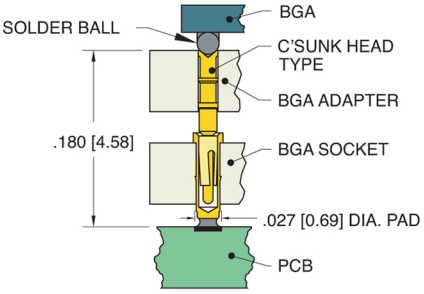
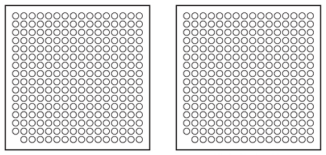


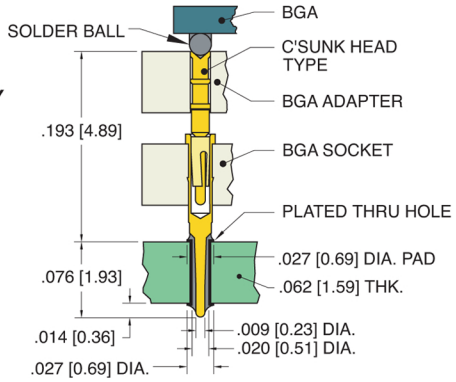
SURFACE MOUNT

BALL GRID ARRAY SOCKETING ASSEMBLY



ADAPTER SOCKET

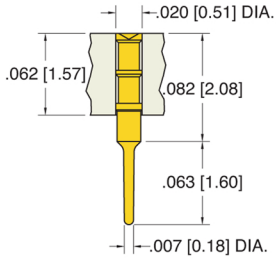
.0394 [1.00] X .0394 [1.00] PITCH
MANY FOOTPRINTS AVAILABLE



THRU HOLE

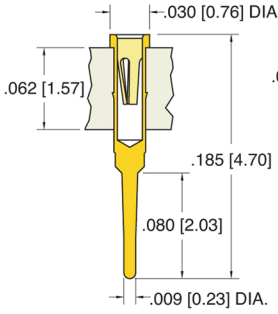
Terminal Types

ADAPTER TERMINAL

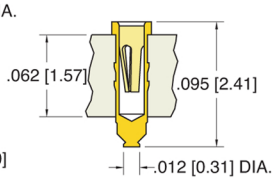


-320 C'SUNK HEAD
-321 FLATHEAD

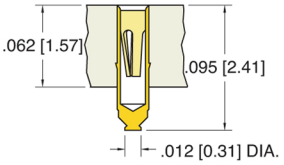
SOCKET TERMINALS



-347T THRU HOLE



-319T SURFACE MOUNT



-329T SURFACE MOUNT

TECHNICAL SPECIFICATIONS

Material:	
Insulator:	FR-4 Laminate U.L. Rated 94V-0
Terminal:	Brass Plated Gold
Contact:	BeCu Plated Gold
Adapter:	Copper Alloy Plated Gold

ORDERING INFORMATION

12-XX-XX-XXX-XXX-XXX-N10

Series — Grid — Footprint — Plating — Terminal Type — Number of Pins

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NEW PRODUCT

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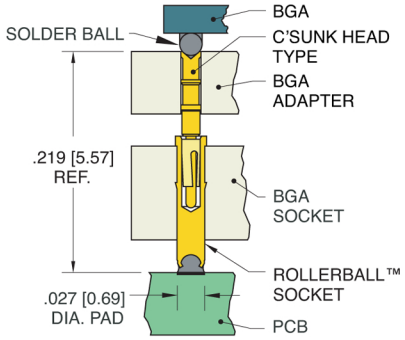
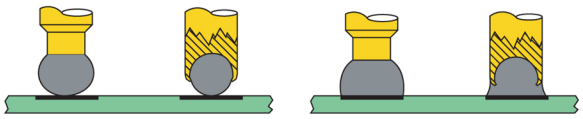
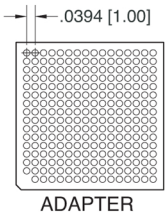


SURFACE MOUNT

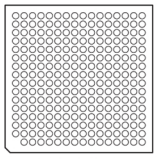


BEFORE SOLDERING AFTER SOLDERING

ROLLERBALL™ GRID ARRAY
SOCKETING ASSEMBLY
Patent Pending



ADAPTER

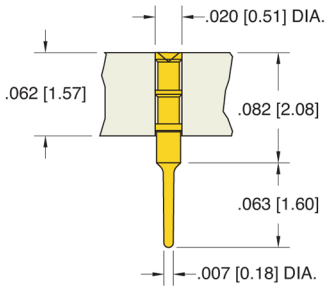


SOCKET

.0394 [1.00] X .0394 [1.00] PITCH
MANY FOOTPRINTS AVAILABLE

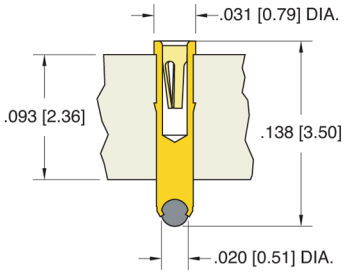
Terminal Types

ADAPTER TERMINAL



-320 C'SUNK HEAD
-321 FLATHEAD

SOCKET TERMINAL



-RB339T SURFACE MOUNT ROLLERBALL™

TECHNICAL SPECIFICATIONS

Material:	
Insulator:	FR-4 Laminate U.L. Rated 94V-0
Terminal:	Brass Plated Gold
Contact:	BeCu Plated Gold
Solderball:	63% Tin, 37% Lead
Adapter:	Copper Alloy Plated Gold

ORDERING INFORMATION

12-XX-XX-XXX-XXX-XXX-N10

Series — Grid — Footprint — Plating — Terminal Type — Number of Pins

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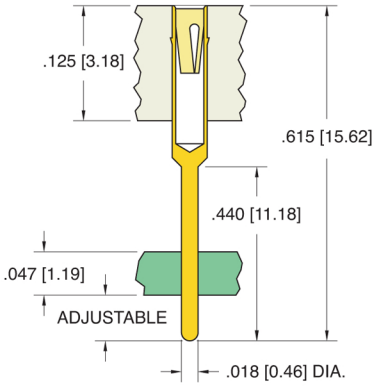
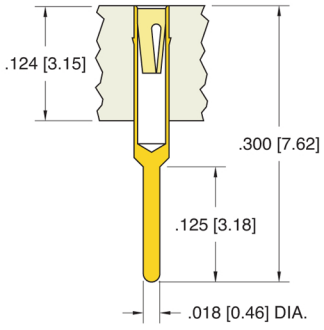
Socket Assemblies For Multi-Pin Connectors

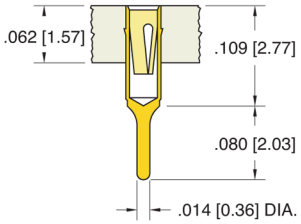
1.27 mm (.050 inch) Pitch



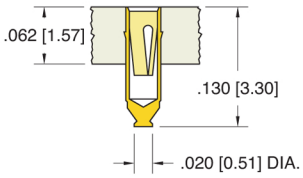
-314K THRU HOLE



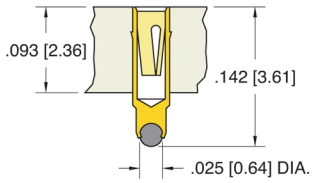
-275K THRU HOLE



-274K THRU HOLE

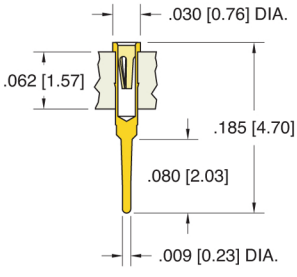


-281K SURFACE MOUNT

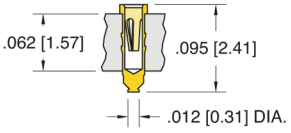


-RB338K SURFACE MOUNT ROLLERBALL™

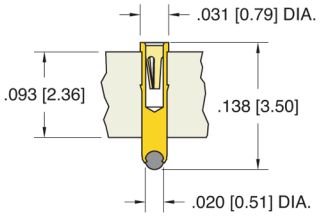
1 mm (.0394 inch) Pitch



-347T THRU HOLE



-319T SURFACE MOUNT



-RB339T SURFACE MOUNT ROLLERBALL™

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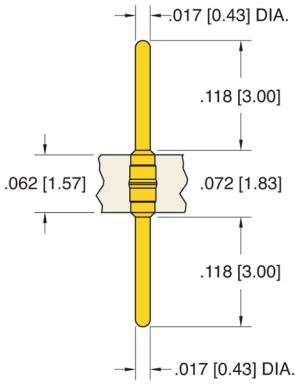
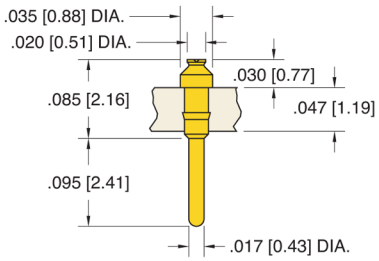
Adapter Terminals
For Multi-Pin Connectors

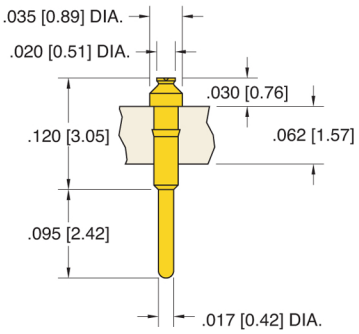
1.27 mm (.050 inch) Pitch



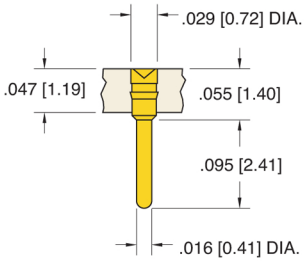
-308 BOARD TO BOARD



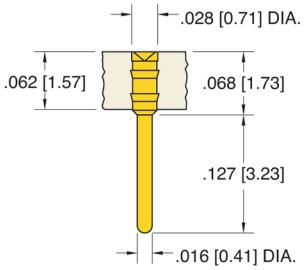
-288 DAUGHTER BOARD



-323 DAUGHTER BOARD

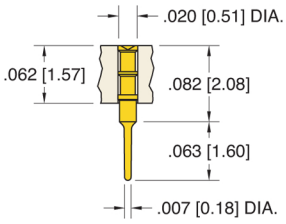


-312 C'SUNK HEAD BGA
-355 FLATHEAD BGA

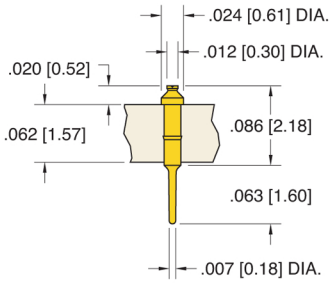


-316 C'SUNK HEAD BGA
-356 FLATHEAD BGA

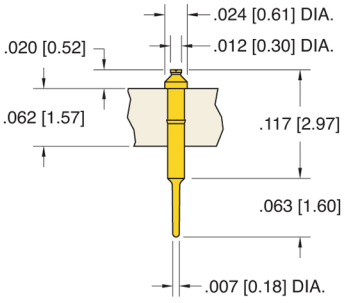
1 mm (.0394 inch) Pitch



-320 C'SUNK HEAD BGA
-321 FLATHEAD BGA



-330 DAUGHTER BOARD



-332 DAUGHTER BOARD

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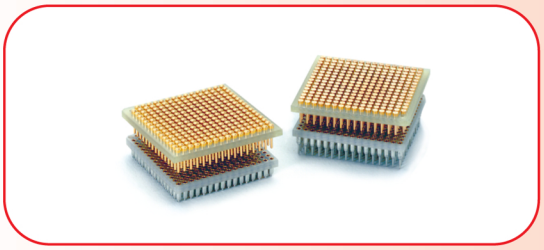
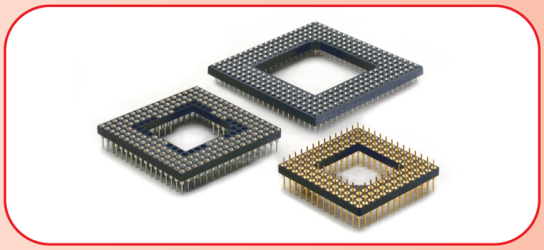
4 Court Drive, Lincoln RI 02865, United States of America
www.andonelectronics.com or www.andonelect.com
Phone 401-333-0388 Fax 401-333-0287
Email Info@andonelect.com



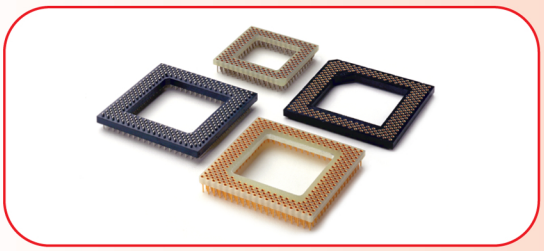
BGA Sockets and Adapters

Provide an ideal method for mounting ball grid array devices onto a PCB. The device is soldered to the adapter, simplifying solder verification and testing. The device/adapter assembly then plugs into the BGA socket which is permanently soldered to the PCB. The BGA adapter is offered with either flat or countersunk heads. Our BGA sockets can be surface or thru-hole mounted. Socket insulators are made of FR-4 to withstand convection soldering. Andon BGA sockets and adapters are available in virtually any size or configuration, using off-the-shelf or custom designed screw machine terminals.



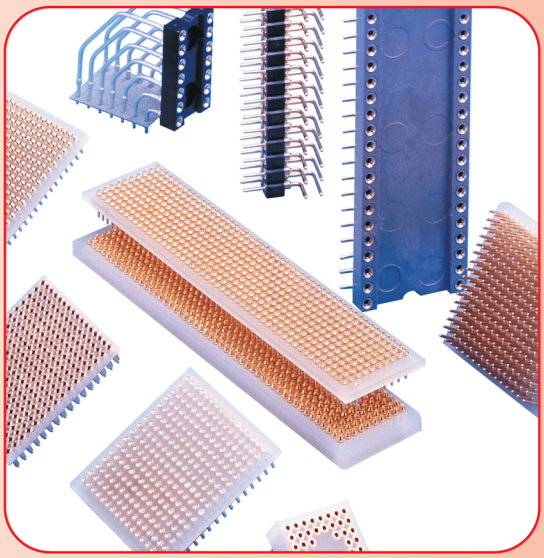
PGA Sockets and Adapters

Andon pin grid array sockets and PGA adapters are perfect for high pin count microprocessors. Andon offers the widest selection of standard footprints, from 5x5 to 26x26, as well as custom designed PGA sockets. Andon PGA sockets offer a choice of insertion and extraction forces, including Andon's exclusive 1 oz. ultra low-force contact. Standard insulators are made of high-temperature Nylon 46, suitable for IR, convection and wave soldering. Custom PGA sockets are available with insulators made of thick glass epoxy FR-4 or polyimide. Many terminals and pin lengths are available.



IPGA Sockets and Interconnects

Connect high pin count ICs with interstitial footprints with Andon IPGA sockets and interconnects. Socket insulators are made of FR-4 or molded plastic UL94V-O to withstand wave or convection soldering. Precision machined pins offer the lowest possible profile. The closed bottom design eliminates flux and solder contamination. Our exclusive one-ounce socket contact design, produced in-house, reduces damage to both the device and the substrate.



Right angle sockets and adapters, multi-pin connectors, LED sockets and many other products are available from Andon.

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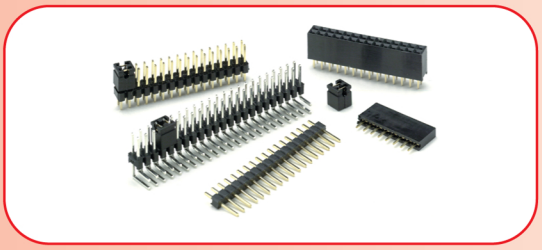
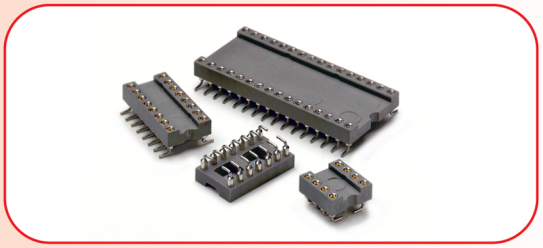
4 Court Drive, Lincoln RI 02865, United States of America
www.andonelectronics.com or www.andonelect.com
Phone 401-333-0388 Fax 401-333-0287
Email Info@andonelect.com



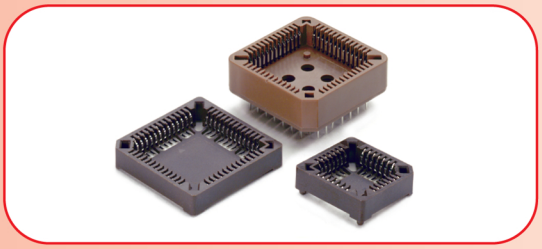
Jumpers, Pin Headers and Receptacles

Andon pin headers and receptacle headers provide ideal board-to-board interconnections. Andon pin headers are X/Y stackable, and are available in 2.54 mm, 2 mm and the exclusive 1 mm pitch, with single or dual row, straight or right angle terminals. Standard lengths are up to 50 pin positions (50 x 10 pin positions for 500 pin). Other miniature sizes are available upon request. We offer mini shorting jumpers in 2.54 mm, 2 mm and new 1 mm pitch, as well as a multi-jumper. There's also a family of 2.54 mm pitch receptacle headers, including both single and dual row versions, with either straight or right angle terminals.



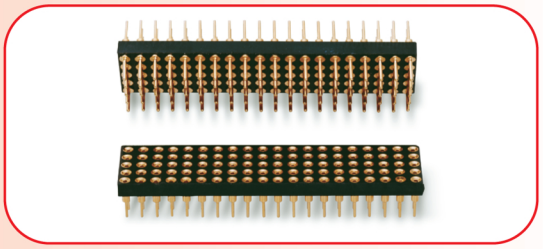
SMD Gull Wing and "J" Lead DIP Sockets

Andon surface mount gull wing and "J" lead DIP sockets are ideally suited for "pick and place." Our gull wing sockets provide maximum strength solder joints as well as easy in-circuit testing. Andon gull wing DIP sockets are available in a wide variety of configurations, including open and solid frame varieties. Andon "J" lead DIP sockets are specially designed for soldering to existing footprints. Both gull wing and "J" lead DIP sockets are available with insulators made of molded plastic UL94V-O or blue FR-4 epoxy, suitable for IR or convection soldering. All sockets feature High-Rel 4-finger socket contacts.



PLCC and LCC Sockets

Andon offers a wide variety of thru-hole and SMD PLCC and LCC sockets to accept JEDEC type substrates. For High-Rel, high shock and high vibration applications, we offer edge wipe contacts made of flat heavy gauge copper alloy. For low cost applications, Andon utilizes face wipe contacts made of rolled-leaf copper alloy. All sockets use UL94V-O insulators. Sockets are available in tubes, trays or tape and reel.



Board-to-Board Connectors

Stacking boards to any height spacing is made easy with Andon's large choice of terminal lengths, sockets and connectors to mix or match to obtain the required board-to-board spacing. Rugged and reliable, Andon offers a variety of multi-finger contacts to provide the right insertion and withdrawal forces.

ANDON ELECTRONICS CORPORATION
4 Court Drive, Lincoln RI 02865, United States of America
www.andonelectronics.com or www.andonelect.com
Phone 401-333-0388 Fax 401-333-0287
Email Info@andonelect.com

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ANDON ELECTRONICS CORPORATION
4 Court Drive Lincoln, RI 02865 USA
Phone: 401-333-0388 Fax: 401-333-0287
Email: Info@andonelect.com
Visit us on the Web at www.andonelect.com
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