

## MILL-MAX MFG. CORP.

190 Pine Hollow Road Oyster Bay, NY 11771 www.mill-max.com

Mill-Max Mfg. Corp. is a vertically integrated engineering and manufacturing company capable of producing over 100 million interconnect components a week, making us the largest manufacturer of precision-machined interconnect components in North America.

Established in 1971 by Roger Bahnik, Chairman and CEO, Mill-Max has a tradition of exercising total control from raw materials to finished product. Our 150,000 square foot plant, located in Oyster Bay, NY, houses all facilities including: engineering, customer service, sales \& marketing, tooling, primary and secondary machining, stamping, gold and tin plating, injection molding, automatic assembly operations and strict process control, monitored by our experienced Quality Control Inspectors.

Mill-Max is particularly distinguished by its use of proprietary high speed turning machines. On our factory floor, hundreds of automated machines turn copper alloy rod and wire at high speed as cutting tools shape each pin. This method enables us to hold tolerances down to $+/-.0005$ inches. High-speed turning machines have the flexibility to be easily and quickly re-configured to make pins in different sizes and shapes. This makes the task of producing custom products simple.

In this Design Guide, you will find a wide variety of interconnect components. Our product line includes precision-machined spring-loaded connectors, SIP, DIP, PGA, BGA, and PLCC sockets, board-to-board interconnects and pin headers, PCB pins, receptacles and solder terminals, all available in SMT and through-hole. Cannot find what you need? Remember, Mill-Max specializes in application specific products. Contact one of our technical services engineers to discuss your specific requirements.

Mill-Max products are found in such diversified markets as:

- Automotive - Industrial Controls
- Backplanes - Instrumentation
- Broadcasting Equipment - Medical Cables
- Bar Code Scanners - Networking Systems
- Cable Television - Pagers
- Cellular Phones - Power Supplies
- Computers
- Scanners
- Connectors
- Smoke Detectors
- DC/DC Converters
- Test Equipment
- Fiber Optics
- Telecommunications

From order entry to shipping product, Mill-Max is focused on the total satisfaction of our customers. Through our sales representative organizations, Mill-Max products are sold directly, as well as through a network of 26 authorized distributors located throughout the United States and in various locations worldwide. It's this commitment to excellence that truly makes Mill-Max your source for Maximum Interconnect Solutions.

## NOTE

- All dimensions in this design guide are in inches unless otherwise stated.
- All rights reserved. Copyright Mill-Max Mfg. Corp., 2009
- In the interest of improved design and performance, Mill-Max reserves the right to make changes in its specifications without prior notice.
- Orders subject to terms and conditions @ www.mill-max.com

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DISCRETE PIN INTERCONNECTS

Pin receptacles are individual component lead sockets primarily used for the plugging and unplugging of components on pc boards. Pin receptacles are made by press-fitting a pre-tooled "multi-finger" contact into a precisionmachined shell. These receptacles will accept round pins ranging in diameter from .008 " to .102 ", as well as square \& rectangular component leads.

Wrapost receptacles are individual component lead sockets with . 025 " or .045" square pin termination for wire wrapped interconnection. Wrapost receptacles will accept round pins ranging in diameter from .015" to .047", as well as square \& rectangular component leads.

PRINTED CIRCUIT PINS
PAGES 170-191


Printed circuit pins are machined, individual pins used for various plug-in applications and board to board interconnection. They are commonly fastened to pc boards by being press-fit, swaged (riveted) or soldered.

Wrapost terminals are individual pins with $.025^{\prime \prime}$ or .045 " square termination for wire wrapped interconnection. They are commonly fastened to pc boards by being press-fit, swaged (riveted) or soldered.

SOLDER TERMINALS
PAGES 196-212


Solder terminals are machined terminals used primarily for attaching wires to circuit boards. Turret, slotted and pin types are available. They are commonly swaged (riveted) and soldered to pc boards.

## Pins \& Receptacles:

Pins and receptacle shells are manufactured by precision high speed turning machines. The base materials for these components are copper alloys.

Receptacles are a two piece construction consisting of a plated contact press-fit into a plated shell. The contacts are stamped from beryllium copper strip.

## Materials:

## Pins \& Receptacle Shells:

Brass Alloy 360 UNS C36000 ASTM-B16 (Up to a .250" diameter)
Phosphor Bronze alloy 544 UNS C54400 ASTM-B139 (Up to a .072" diameter)
Tellurium Copper alloy 145 UNS C14500 ASTM-B301 (Up to a .156" diameters)

See page 126 for a complete list of standard available stock diameters.
(For the availability of larger diameter materials contact Technical Services).

## Contacts:

Beryllium copper UNS C17200 ASTM-B194 (For most applications)
Beryllium Nickel UNS N03360 (For high temperature applications)
(For individual contact specifications see pages 216-226)
The materials listed above are all RoHS compliant.

## Dimensional, Mechanical \& Environmental Data:

Standard tolerances for pins and receptacle shells are:
Diameters +/- .002"
Lengths +/- .005"
Angles +/- $2^{\circ}$
Mechanical Life (Durability): Mill-Max receptacles are capable of 1000 minimum insertion/extraction cycles for a broad range of applications. Mating pin size, shape and finish along with application specific variables will affect the life of a contact.

Contact Forces: See individual contact specifications on pages 216-226.

## Environmental Data:

- Operating temperature range: $-55 /+125^{\circ} \mathrm{C}$
- Vibration (No electrical discontinuity

Greater than $1 \mu \mathrm{~s}$ ): $\quad 10-2000 \mathrm{HZ}, 15 \mathrm{G}$

- Shock (No electrical discontinuity

$$
\text { Greater than } 1 \mu \mathrm{~s}): \quad 50 \mathrm{G}
$$

Electrical data is dependent on the contact used in the receptacle. See page 214 for free air current ratings of the contacts.

## Platings:

GOLD per ASTM B 488 \& MIL-G-45204, Type 1, Code C SILVER per ASTM B 700, Grade B, Class S
TIN per ASTM B 545, Type 1
TIN/LEAD (93/7) per ASTM B 545
ELECTRO-SOLDER (60/40) per ASTM B 579, Bright
NICKEL per SAE-AMS-QQ-N-290
ELECTROLESS NICKEL per MIL-C-26074
COPPER per SAE-AMS-2418

## Connectors:

Connectors are headers, sockets and interconnects. They consist of pins, receptacles or spring pins assembled into thermoplastics or FR-4 epoxy laminate insulator bodies. They are available in DIP, SIP, strip and PGA packages in grids of .050 ", $.070^{\prime \prime}, 2 \mathrm{~mm}, .100$ " and .100 " interstitial for PGA's.

## Electrical Data:

| SERIES: | 100-700 | 800 | 830 | 850 |
| :---: | :---: | :---: | :---: | :---: |
| - Rated current (Amps): | 1 | 3 | 3 | 1 |
| - Rated voltage: |  | 100 VRMS/150 VDC |  |  |
| - Contact resistance: |  | $10 \mathrm{~m} \Omega$ max. |  |  |
| - Insulation resistance: |  | $10,000 \mathrm{M} \Omega \mathrm{min}$. |  |  |
| - Dielectric strength: |  | 1000 VRMS min. |  |  |
| (700 VRMS min. for s | ries 117 | 7 Shrink |  |  |
| Air and creepage dis | ce (inch.) | h.): |  |  |



Electrical data above does not apply to BGA, PLCC, USB or Spring-Loaded connectors. Electrical data for these products can be found on the following pages: BGA - Page 113; PLCC - Page 113; USB - Pages 121 \& 122; SpringLoaded connectors - Pages 6-12.

Operating temperature range: $-55 /+125^{\circ} \mathrm{C}$
General tolerances for assembled connector products:

- Lengths: +/- .010"
- Connector Flatness: . 005 " (up to 1 ' in length)
- Co-planarity of SMT Connectors: .005" (up to 1' in length)
- For connectors exceeding 1 " in length the flatness /co-planarity may exceed .005". Please contact Technical Services for more information.
(Note: Specifications and tolerances are provided wherever possible. Due to the wide variety of connectors Mill-Max offers, the specific tolerances vary from product to product. If you need information regarding the tolerance of a particular part, please contact technical services.)


## GENERAL TECHNICAL SPECIFICATIONS

## Materials:

## Insulator Bodies:

Standard material is glass filled thermoplastic polyester (PCT), self extinguishing, rated UL $94 \mathrm{~V}-0$.

Some surface mount, pin grid array and spring pin connector insulators are molded from high temperature Nylon 46, rated UL 94 V-0.

FR-4 Epoxy laminate is a thermoset material used in custom insulators and high temperature applications. It is especially useful because of its low Temperature Coefficient of Expansion (TCE). See chart below:

| TCE for molded insulator | $30 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ |
| :--- | :--- |
| TCE for 4-Layer PCB | $13 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ |
| TCE for unclad epoxy | $12 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ |

The above insulator materials are all suitable for lead free soldering processes up to $260^{\circ} \mathrm{C}$.

For complete material properties of plastics used by Mill-Max see page 227.

For inquiries regarding other insulator materials, please contact Technical Services.

## Spring Pins:

Spring pins consist of precision-machined brass compo nents assembled together with beryllium copper or stainless steel springs. External components and internal springs are gold plated. Spring pins are designed to be used at mid-stroke. Over compression can cause damage restricting the movement of the plunger.

## Materials:

External Components (Body, Piston, Base, Tail):
Brass Alloy 360 UNS C36000 ASTM-B16
Springs:
Beryllium copper UNS C17200 ASTM-B197
Stainless Steel 302
Dimensional, Mechanical \& Environmental Data:
Standard tolerances for spring pins at initial height:
Diameters +/- .002"
Lengths +/- .006"
Mechanical life (Durability): 1,000,000 cycles minimum Force tolerance: +/- 20 g (See individual spring pin data on pages 6-17 for forces)
Stroke tolerance: +/- .005"

## Environmental Data:

- Operating temperature range: $-55 /+125^{\circ} \mathrm{C}$
- Vibration (No electrical discontinuity

Greater than $1 \mu \mathrm{~s}$ ): $\quad 0-200 \mathrm{HZ}, 10 \mathrm{G}$

- Shock (No electrical discontinuity

Greater than $1 \mu \mathrm{~s}$ ): $\quad 50 \mathrm{~g}$
For complete material properties of metals, platings and plastics used by Mill-Max see page 227.

Where applicable, Mill-Max products and procedures are designed to meet the following standards:

MIL-STD 1916 - DOD preferred methods for acceptance of product
MIL-STD 202G - Test methods for electronic and electrical component parts
MIL-STD 45662 - Calibration system requirements, or ISO 10012
MIL-F-14072 - Finishes for ground based electronic equipment
MIL-I-45208 - Inspection system requirements, or equivalent
MIL-S-83505 - General specification for sockets (lead, electronic components)
MIL-S-83734 - General specification for DIP sockets

In the interest of improved design, quality and performance, Mill-Max reserves
the right to make changes in its specifications without prior notice.

## SPRING-LOADED CONNECTORS

Mill-Max Spring-Loaded Connectors are ideal for a wide range of applications, from portable data acquisition units and mobile communication to medical and military equipment applications. Their unique design can be the perfect answer for many situations, establishing electrical continuity on virtually any surface including problematic vibratory environments. Unlike the fixed mating height created by pins and receptacles, spring-loaded connectors are able to compensate for floating heights and uneven mating surfaces, thus maintaining a reliable electrical connection.

When strategically placed within an assembly and utilized correctly (shielded from over compression and direct side load forces,) miniature spring-loaded connectors can provide a reliable connection up to a million cycles.

Some typical applications include:

- The internal battery connection in portable instruments, or as the external battery connection for charging these instruments (docking stations.)
- As a method for stacking printed circuit boards in an assembly. Utilizing spring pin connectors is a convenient approach to creating mezzanine-tiered board modules that can be assembled and disassembled quickly.
- Blind-mating applications. The spring pin piston need only make contact with its mating surface. This is typically a land or pad that is larger than the plunger diameter. Compare this to a pin and socket connection where alignment must be more precise for the pin to enter the socket.

Mill-Max Spring-Loaded Connectors can mate to the following surfaces:

- A conductive input/output pad found on the instrument pack itself.
- A gold-plated land on a circuit board. A hard gold over nickel plated surface is recommended for the mating surface. This is the same as would be used for the printed circuit fingers associated with card edge connectors.
- Individual Mill-Max gold-plated nail head pins which can be soldered to the mating circuit board to serve as targets.
- Mill-Max Target Connectors which provide a large .070" diameter flat, gold-plated circuit path to the board.


SPRING-LOADED CONNECTORS
Series 811, 813
Surface Mount, Low Profile
Single and Double Row Strips

- Modular contacts for use on .100" grid, available in five heights from .137" to .236", supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a long stroke relative to the low profile of the assembly.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- Both 811 \& 813 series, contact styles 1 thru 4, are available on 32 mm wide carrier tape for pick and place assembly per EIA-481. See page 9 for strip lengths available and ordering information.

SINGLE ROW Series 811


Style 0 only

DOUBLE ROW Series 813




SPRING-LOADED CONNECTORS

## Surface Mount, High Profile

Single and Double Row Strips

- Modular contacts for use on .100" grid, available in ten heights from .255 " to .430 ", supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a long stroke relative to the low profile of the assembly.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- Both 812 \& 814 series are available on 32 mm or 44 mm wide carrier tape for automated pick and place assembly per EIA-481. See page 9 for strip lengths available and ordering information.

SINGLE ROW Series 812


DOUBLE ROW Series 814



Ordering Information
Single Row Series 812
812-22-0XX-30-00X-101
$\checkmark \quad{ }^{\longrightarrow}$ Specify contact style 0-9
Specify \# of contacts $\longrightarrow$ 02-64

## Double Row Series 814

814-22-0XX-30-00X-101
$\checkmark \quad \zeta$ Specify contact style 0-9
Specify \# of contacts $\longrightarrow$ 04-72
For 812 \& 814 Tape \& Reel packaging See page 9

| CONTACT <br> STYLE | INITIAL HEIGHT <br> $\mathbf{A}$ | CONTACT <br> STYLE | INITIAL HEIGHT <br> $\mathbf{A}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\mathbf{0}$ | .255 | $\mathbf{5}$ | .350 |
| $\mathbf{1}$ | .275 | $\mathbf{6}$ | .370 |
| $\mathbf{2}$ | .295 | $\mathbf{7}$ | .390 |
| $\mathbf{3}$ | .315 | $\mathbf{8}$ | .410 |
| $\mathbf{4}$ | .335 | $\mathbf{9}$ | .430 |

Technical Specifications
Materials:
Contact piston \& Base: Machined copper alloy plated $20 \mu$ " gold over 100 $\mu$ " nickel
Spring: Beryllium copper plated $10 \mu$ " gold
Insulator: High temp. thermoplastic rated UL94 V-0
Mechanical:
Spring force @ initial height (A): 25 grams
Spring force @ mid stroke (.0275): 60 grams
Durability: 1,000,000 cycles min.
Coplanarity: .005" (Single Row up to 10 pins; Double Row up to 20 pins) For higher pin counts contact Tech Support.

## Electrical:

Voltage rating: $100 \mathrm{Vrms} / 150 \mathrm{Vdc}$
Current rating: 2A (continous), 3A (peak) per contact
Contact resistance: $20 \mathrm{~m} \Omega$ max.
Insulation resistance: $10,000 \mathrm{M} \Omega \mathrm{min}$.
Dielectric strength: 700 Vrms min.
Capacitance: 1 pF max.


SPRING-LOADED CONNECTORS

## Surface Mount, High Profile

Single and Double Row Strips

- Modular contacts for use on .100" grid, available in a height of .288", supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a .045" mid. stroke and a .090" max. stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 819 \& 820 series contact strips are designed for placement onto a Ø .082" solder pad prior to reflow soldering.


| SINGLE ROW Series 819 | Ordering Information |
| :--- | :--- |

SPRING-LOADED CONNECTORS

- Modular contacts for use on .100" grid, supplied in single row contact strips. Piston action is parallel to the board surface.
- Precision-machined piston / base and gold plated components assure a $1,000,000 \mathrm{~min}$. cycle life.
- Pistons have a .045" mid. stroke \& .090" max. stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 810 series contact strips are designed for manual placement onto solder pads.


SPRING-LOADED CONNECTORS
Series 812...01X101
Surface Mount with Alignment pins
814...01X101

Single and Double Row Strips

- Modular contacts for use on .100 " grid, available in ten heights from . 255 " to .430 ", supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a .0275 mid stroke \& . 055 max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 812 \& 814 series contact strips are designed for manual placement into $\varnothing .023 \pm .003$ " plated-thruholes in the circuit board prior to intrusive reflow soldering.


Single Row Series 812...01X101


Double Row Series 814...01X101


Ordering Information

| Single Row Series 812...01X101 |  |  |  |
| :---: | :---: | :---: | :---: |
| Specify \# |  | $\begin{aligned} & \hline \stackrel{-101}{\leftrightarrows} \text { Specif } \\ & 03-64 \end{aligned}$ | ontact style 0-9 |
| Double Row Series 814...01X101 |  |  |  |
| Specify \# of contacts $\qquad$ 06-72 |  |  |  |
| CONTACT STYLE | INITIAL HEIGHT A | CONTACT STYLE | INITIAL HEIGHT A |
| 0 | . 255 | 5 | . 350 |
| 1 | . 275 | 6 | . 370 |
| 2 | . 295 | 7 | . 390 |
| 3 | . 315 | 8 | . 410 |
| 4 | . 335 | 9 | . 430 |

## Technical Specifications

Materials:
Contact piston \& Base: Machined copper alloy plated $20 \mu$ " gold over $100 \mu$ " nickel
Spring: Beryllium copper plated $10 \mu$ " gold
Insulator: High temp. thermoplastic rated UL94 V-0
Mechanical:
Spring force @ initial height (A): 25 grams
Spring force @ mid stroke (B/2): 60 grams
Durability: 1,000,000 cycles min.

## Electrical:

Voltage rating: $100 \mathrm{Vrms} / 150 \mathrm{Vdc}$
Current rating: 2A (continous), 3A (peak) per contact
Contact resistance: $20 \mathrm{~m} \Omega$ max.
Insulation resistance: $10,000 \mathrm{M} \Omega \mathrm{min}$.
Dielectric strength: 700 Vrms min .
Capacitance: 1 pF max.


SPRING-LOADED CONNECTORS
Series 811, 812
Surface Mount
813, 814
Carrier Tape \& Packaging

| Ordering Information for Series 811/812/813/814 in Carrier Tape |  |
| :---: | :---: |
| Single Row Series 811 | Double Row Series 813 |
| 811-22-0XX-30-00X-191 <br> Specify contact style 0-4 <br> Specify \# of contacts 02-08 <br> ( 32 mm wide tape, 400 parts per 13 " reel ) | 813-22-0XX-30-00X-191 <br> Specify contact style 0-4 <br> Specify \# of contacts 04-16 <br> ( 32 mm wide tape, 400 parts per $13^{\prime \prime}$ reel ) |
| Single Row Series 811 | Double Row Series 813 |
| 811-22-0XX-30-00X-191 <br> Specify contact style 1-4 <br> Specify \# of contacts 09-12 <br> ( 44 mm wide tape, 200 parts per $13^{\prime \prime}$ reel ) | $\xrightarrow[\substack{\text { Specify } \# \text { of contacts } 18-24 \\(44 \mathrm{~mm} \text { wide tape, } 200 \text { parts per } 13 " \text { reel })}]{\text { Specify contact style }}$ |
| Single Row Series 812 | Double Row Series 814 |
| 812-22-0XX-30-00X-191 <br> Specify contact style 0-2 <br> Specify \# of contacts 02-08 <br> ( 32 mm wide tape, 400 parts per $13^{\prime \prime}$ reel ) | 814-22-0XX-30-00X-191 <br> Specify contact style 0-2 <br> Specify \# of contacts 04-16 <br> ( 32 mm wide tape, 400 parts per $13^{\prime \prime}$ reel ) |
| Single Row Series 812 | Double Row Series 814 |
| 812-22-0XX-30-00X-191 <br> Specify contact style 0-2 <br> Specify \# of contacts 09-12 <br> ( 44 mm wide tape, 200 parts per $13^{\prime \prime}$ reel ) | 814-22-0XX-30-00X-191 <br> Specify contact style 0-2 <br> Specify \# of contacts 18-24 <br> ( 44 mm wide tape, 200 parts per $13^{\prime \prime}$ reel ) |
| Single Row Series 812 | Double Row Series 814 |
| 812-22-0XX-30-00X-191 <br> Specify contact style 3-9 <br> Specify \# of contacts 02-12 <br> ( 44 mm wide tape, 200 parts per $13^{\prime \prime}$ reel ) | 814-22-0XX-30-00X-191 <br> Specify contact style 3-9 <br> Specify \# of contacts 04-24 <br> ( 44 mm wide tape, 200 parts per $13^{\prime \prime}$ reel ) |
|  |  |

SPRING-LOADED CONNECTORS
Series 821, 823
Through Hole Mount
Single and Double Row Strips

- Modular contacts for use on .100" grid, available in five heights from .137" to .236", supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a long stroke relative to the low profile of the assembly.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 821 \& 823 series contact strips are designed for manual placement into Ø.022 $\pm .003$ " plated-thruholes in the circuit board prior to hand, wave or reflow soldering.


SPRING-LOADED CONNECTORS
Series 825, 827
Through Hole Mount
Single and Double Row Strips

- Modular contacts for use on .100" grid, available in a height of .302", supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a . 045 mid stroke \& . 090 max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 825 \& 827 series contact strips are designed for manual placement into $\varnothing .030 \pm .003$ " plated-thruholes in the circuit board prior to hand, wave or reflow soldering.


| SINGLE ROW Series 825 | Ordering Information |
| :--- | :--- |

SPRING-LOADED CONNECTORS
Series 816...00X101
Through Hole Mount
818...00X101

## Single and Double Row Strips

- Modular contacts for use on .100" grid, available in ten heights from .255" to .430 ", supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a . 0275 mid stroke \& . 055 max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 816 \& 818 series contact strips are designed for manual placement into Ø .023 $\pm .003$ " plated-thruholes in the circuit board prior to intrusive reflow soldering.



SPRING-LOADED CONNECTORS

- Modular contacts for use on .100" grid, available in a height of .294", supplied in single contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a $.045^{\prime \prime}$ mid stroke and $.090^{\prime \prime}$ max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for wave and reflow soldering processes.
- 829 series contact strips are designed for manual placement into $\varnothing .032 \pm .003$ " plated-thru-holes in the circuit board prior to hand, wave or reflow soldering.


| Single Row Series 829 | Ordering Information |
| :---: | :---: |
|  | Series 829 Single Row Right Angle |
|  |  |
| FRONT VIEW | Specify \# of pins $\longrightarrow 02-10$ |
|  |  |
|  | Technical Specifications <br> Materials: <br> Contact piston \& Base: Machined copper alloy plated $20 \mu$ " gold over $100 \mu$ " nickel. <br> Spring: Beryllium copper plated $10 \mu^{\prime \prime}$ gold Insulator: High temp. thermoplastic rated UL94 V-0 <br> Mechanical: <br> Spring force @ initial height: 25 grams <br> Spring force @ mid stroke: 60 grams <br> Durability: 1,000,000 cycles min. |
| Suggested P.C.B Footprint | Electrical: |
|  | Voltage rating: $100 \mathrm{Vrms} / 150 \mathrm{Vdc}$ <br> Current rating: 2A (continous), 3A (peak) per contact <br> Contact resistance: $20 \mathrm{~m} \Omega$ max. <br> Insulation resistance: $10,000 \mathrm{M} \Omega$ min. <br> Dielectric strength: 700Vrms min. <br> Capacitance: 1 pF max. |

SPRING-LOADED CONNECTORS

## Single and Double Row Strips

- Modular contacts for use on .050" grid, supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a $1,000,000 \mathrm{~min}$. cycle life.
- Pistons have a .0275" mid stroke \& .055" max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 854 \& 855 series contact strips are designed for manual placement into $\varnothing .023 \pm .003$ " plated-thruholes in the circuit board.


| Single Row Series 854 | Ordering Information |
| :---: | :---: |
| $1$ | Series 854 Single Row Through Hole Mount |
|  | $\text { Specify \# of pins } \xrightarrow{854-22-0_{-}-10-001101}$ |
|  | Series 855 Double Row Through Hole Mount |
|  | $\begin{gathered} 855-22-0_{-}-10-001101 \\ \text { Specify \# of pins } \xrightarrow{\longleftrightarrow} 04-40 \end{gathered}$ |
|  | For Electrical, <br> Mechanical \& Enviromental <br> Data, See pg. 4.1 <br> For RoHS complia <br> select $\diamond$ plating |
| Double Row Series 855 | Technical Specifications <br> Materials: <br> Contact piston \& Base: Machined copper alloy plated $20 \mu$ " gold over 100 $\mu$ " nickel. <br> Spring: Beryllium copper plated $10 \mu$ " gold Insulator: High temp. thermoplastic rated UL94 V-0 |
|  |  |
|  |  |
|  | Mechanical: |
|  | Spring force @ mid stroke (B/2): 60 grams |
|  | Durability: 1,000,000 cycles min. Electrical: |
|  | Current rating: 2A (continous), 3A (peak) per contact |
|  | Contact resistance: $20 \mathrm{~m} \Omega$ max. <br> Insulation resistance: $10,000 \mathrm{M} \Omega \mathrm{min}$. Dielectric strength: 700 Vrms min. Capacitance: 1pF max. |

# SPRING-LOADED CONNECTORS .050" Grid Surface Mount, High Density Single and Double Row Strips 

Series 854...30-001101

- Modular contacts for use on .050" grid, supplied in single and double row contact strips.
- Precision-machined piston / base and gold plated components assure a 1,000,000 min. cycle life.
- Pistons have a .0275 " mid stroke \& .055" max stroke.
- Low resistance, high current contacts are rated at 2 amps continuous, 3 amps peak.
- High temperature thermoplastic insulators are suitable for surface mount processes.
- 854 \& 855 series contact strips are designed for manual placement onto .040 " $\varnothing$ solder pads.



Fig. 1


Fig. 2


Fig. 4


Fig. 5


Fig. 6

- Series 319,330 and 399 single row strips may be cut to any length.
- Spring Target connectors present a large flat surface for making tangent connections to our standard $.042^{\prime \prime}$ dia spring pin plungers. The target connectors provide an excellent gold plated conductive path back to the board mounted spring pin connector.
- Target connectors use MM \#1938, \#1940, \#1941, \#1942 and \#3024 pins. See page 185 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

|  | Series 319... $041 \quad$ SMT w/ Alignment Pins |
| :--- | :--- |
|  |  |

Fig. 1
319-10-1_ _-30-041000
Specify \# of pins $\quad$ 01-64
Series 319... $001 \quad$ Standard Solder Tails

Fig. 2
319-10-1_ --00-001000
Specify \# of pins $\quad$ 01-64

Fig. 4
Series 319... 002 Long Solder Tails

Fig. 3
Specify \# of pins $\quad$ 01-64
Series 319... $005 \quad$ Elevated Solder Tails
Specify \# of pins $\stackrel{319-10-1}{\longrightarrow}$ 01-64

Fig. 5
Series 330... 240
Solder Cups
330-10-1_ _-10-240000
Specify \# of pins $\quad$ 01-64
Series 399... 008 Right Angle Solder Tails
Fig. 6
Specify \# of pins $\quad$ 01-64


| PLATING CODE $=$ | $\mathbf{1 0}$ |  |  |  |
| :--- | :---: | :--- | :--- | :--- |
| Pin Plating 匹accr־ | $10 \mu " \mathrm{Au}$ |  |  |  |



Coplanarity . 005 ". For Pin Counts >20 positions consult Technical Support.

Fig. 1


Fig. 2
( 072 DIA.

Fig. 3
( 0

Fig. 4


Fig. 5


Fig. 6

- Series 419,430 and 499 double row strips may be cut to any length.
- Spring Target connectors present a large flat surface for making tangent connections to our standard $.042^{\prime \prime}$ dia spring pin plungers. The target connectors provide an excellent gold plated conductive path back to the board mounted spring pin connector.
- Target connectors use MM \#1938, \#1940, \#1941, \#1942 and \#3024 pins. See page 185 for details.
- Insulators are high temp. thermoplastic.


Fig. 3

| Fig. 3 | Series 419... 002 | Long Solder Tails |
| :---: | :---: | :---: |
|  | 419-10-2 - -00-002000 |  |
|  | Specify \# of pi | $\rightarrow$ 04-64 |
| Fig. 4 | Series 419... 005 | Elevated Solder Tails |
|  | 419-10-2 _ -00-005000 |  |
|  | pecify \# of pins $\longrightarrow$ 04-64 |  |

Fig. 4
Ordering Information

Fig. 1


| Ordering Information |
| :--- | :--- |

Fig. 5

| Series 430...240 | Solde |
| :---: | :---: |
| $430-10-2_{-}-10-240000$ |  |
| Specify \# of pins |  |
| $\longrightarrow \quad 04-64$ |  |

Series 499... 008 Right Angle Solder Tails

Fig. 6
Specify \# of pins $\quad$ — 04-64 Single and Double Row


Fig. 1


Coplanarity .005". For Pin Counts >20 positions consult Technical Support.

Fig. 2


Fig. 3


Coplanarity .005". For Pin Counts $>40$ positions consult Technical Support.

Fig. 4

- Series 856,857 single and double row strips may be cut to any length.
- Spring Target connectors present a large flat surface for making tangent connections to our standard .019 " dia spring pin plungers. The target connectors provide an excellent gold plated conductive path back to the board mounted spring pin connector.
- Target connectors use MM \#1933 and \#1935 pins. See page 180 for details.
- Insulators are high temp. thermoplastic.

Ordering Information


Fig. 3
Series 857... 051
Standard Solder Tails

Fig. 4
Series 857... 05
Surface Mount


SPRING-LOADED CONNECTORS Discrete Spring-Loaded Contacts


SPRING-LOADED CONNECTORS Discrete Spring-Loaded Contacts



SPRING-LOADED CONNECTORS Discrete Spring-Loaded Contacts

## 0910-0

 $0910-1=4$

0910-0-57-20-76-14-11-0
Short Stroke, Surface mount Packaged on 16 mm wide carrier tape: 1,500 parts per 13" reel.


0910-X-57-20-75-14-11-0
Standard Stroke, Surface mount Packaged on carrier tape. See chart for tape width and qty. per reel

| Basic Part <br> Number | Length <br> A |
| :---: | :---: |
| $0910-1$ | .177 |
| $0910-2$ | .197 |
| $0910-3$ | .217 |
| $0910-4$ | .236 |


| Basic Part <br> Number | Tape <br> Width | Quantity <br> per Reel |
| :---: | :---: | :---: |
| $0910-1$ | 16 mm | 1,500 |
| $0910-2$ | 24 mm | 1,100 |
| $0910-3$ | 24 mm | 1,100 |
| $0910-4$ | 24 mm | 1,100 |

 0990-0

0990-0-50-20-76-14-11-0
Short Stroke, Surface mount
Large Base


0990-X-50-20-75-14-11-0
Standard Stroke, Surface mount Large Base

ORDER CODE: 09XX - X - XX - 20-7X - 14-11-0 Spring Number
 MATERIAL SPECIFICATIONS:

SLEEVE \& PLUNGER MATERIAL: Copper Alloy SPRING MATERIAL: Beryllium Copper SLEEVE \& PLUNGER FINISH: $20 \mu^{\prime \prime}$ Gold over Nickel SPRING FINISH: $10 \mu^{"}$ Gold over Nickel DIMENSION IN INCHES:
TOLERANCES ON: LENGTHS: $\pm .006$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$
$0997-0=9$

0997-X-50-20-75-14-11-0
Standard Stroke, Surface mount Large Base

MECHANICAL \& ELECTRICAL SPECIFICATIONS:
DURABILITY: 1,000,000 cycles
CURRENT RATING: 2A continuous, 3A peak CONTACT RESISTANCE: $20 \mathrm{~m} \Omega$ max.

|  | SPRING NUMBER | $\begin{gathered} \hline \text { Mid. } \\ \text { STROKE } \end{gathered}$ | $\begin{gathered} \text { Max. } \\ \text { STROKE } \end{gathered}$ | FORCE @ Mid. Stroke | Initial Force (Pre-load) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & 75 \\ & 76 \end{aligned}$ | $\begin{aligned} & .0275 \\ & .0195 \end{aligned}$ | $\begin{aligned} & .055 \\ & .039 \end{aligned}$ | $\begin{aligned} & 60 \mathrm{~g} \\ & 60 \mathrm{~g} \end{aligned}$ | $\begin{aligned} & 25 \mathrm{~g} \\ & 25 \mathrm{~g} \end{aligned}$ |
|  | 75 \& 76 Springs are not Interchangeable |  |  |  |  |

SPRING-LOADED CONNECTORS Discrete Spring-Loaded Contacts

0950


0950-0-15-20-71-14-11-0
Standard Stroke Solder Mount in . 018 min. mounting hole

0951


0951-0-15-20-71-14-11-0
Standard Stroke, Surface mount High profile

0933


0962
 Standard Stroke, Crimp Barrel For Wire Termination


|  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ORDER CODE: 09XX - X-15-20-7X-14-11-0 <br> Spring Number $\qquad$ <br> MATERIAL SPECIFICATIONS: |  | ANICAL DUR URRENT CONTAC | ECTRIC <br> TY: 1,000 NG: 2A c SISTANC | PECIFICAT <br> cycles <br> ous, 3A peak $\mathrm{m} \Omega$ max. |  |
| SLEEVE \& PLUNGER MATERIAL: Copper Alloy SPRING MATERIAL: Beryllium Copper | SPRING NUMBER | $\begin{aligned} & \text { Mid. } \\ & \text { STROKE } \end{aligned}$ | $\begin{gathered} \text { Max. } \\ \text { STROKE } \end{gathered}$ | FORCE @ Mid. Stroke | Initial Force (Pre-load) |
| SLEEVE \& PLUNGER FINISH: $20 \mu$ " Gold over Nickel <br> SPRING FINISH: $10 \mu$ " Gold over Nickel <br> DIMENSION IN INCHES: <br> TOLERANCES ON: LENGTHS: $\pm .006$ | $\begin{aligned} & 71 \\ & 75 \end{aligned}$ | $\begin{aligned} & .0275 \\ & .0275 \end{aligned}$ | $\begin{aligned} & .055 \\ & .055 \end{aligned}$ | $\begin{aligned} & 50 \mathrm{~g} \\ & 60 \mathrm{~g} \end{aligned}$ | $\begin{aligned} & 15 \mathrm{~g} \\ & 25 \mathrm{~g} \end{aligned}$ |
| ANGLES: $\pm 2^{\circ}$ | Springs are not Interchangeable |  |  |  |  |

SPRING-LOADED CONNECTORS
Discrete Spring-Loaded Contacts


0850-0-15-20-83-14-11-0
Power Spring Pin Solder Mount in .090 min . mounting hole

0852

## Specifications for \#0850-0 \& \#0852-0:

## Material:

- Sleeve \& Plunger Material: Copper Alloy
- Spring Material: Stainless Steel 302.


## Mechanical Characteristics:

- Force @ mid-stroke (.045") = 120 grams
- Maximum stroke length = .090"
- Mechanical life: 1,000,000 cycles


## Electrical Characteristics:

- Rated Current (Free air): Continuous $9 \mathrm{amps} @ 10^{\circ} \mathrm{C}$ temperature rise.


0852-0-15-20-83-14-11-0
Power Spring Pin Solder Mount in . 043 min . mounting hole
0853

## Specifications for \#0851-0 \& \#0853-0:

## Material:

- Sleeve \& Plunger Material: Copper Alloy
- Spring Material: Stainless Steel 302.

Mechanical Characteristics:

- Force @ mid-stroke (.045") = 120 grams
- Maximum stroke length = .090"
- Mechanical life: 1,000,000 cycles

Electrical Characteristics:

- Rated Current (Free air): Continuous $9 \mathrm{amps} @ 10^{\circ} \mathrm{C}$ temperature rise.


0853-0-15-20-82-14-11-0
Power Spring Pin
0853-0-15-20-82-14-11-0
Power Spring Pin
Solder Mount in .090 min . mounting hole


## DIP SOCKETS，CARRIERS AND HEADERS QUICK SELECTOR CHART

USE THIS CONVENIENT CHART TO SELECT THE RIGHT DIP PRODUCT FOR YOUR APPLICATION．
1）Determine the style of pin needed to meet your requirement．
2）Select the appropriate insulator frame and grid spacing．
3）Turn to indicated page for detail and ordering information．
4）＊denotes pins that Mill－Max will custom assemble in a selected insulator． Contact our applications engineers for further information．

DUAL－IN－LINE SOCKETS AND CARRIERS


For Shrink DIP Sockets（on ．070＂grid），see page 57－60
For Technical Specifications，see page 4.
DUAL－IN－LINE HEADERS

|  | T PIN |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SELECT INSULATOR | TURN TO PAGE \＃ | d | 号 | 星 | \％ | d | 自 |
|  | OPEN FRAME DIP | 48 | 49 | 50 | 51 | $\begin{array}{ll}52 & 54 \\ 53 & 55\end{array}$ | 56 |

## DUAL-IN-LINE INSULATORS <br> Standard Open Frame



## DUAL-IN-LINE INSULATORS Standard, Closed Frame Ultra Low Profile, Open Frame



## DUAL-IN-LINE INSULATORS <br> Shrink DIP, Open and Closed Frame Automatic Insertion, Open Frame




DUAL-IN-LINE SOCKETS
Standard Solder Tail Open Frame


DUAL-IN-LINE SOCKETS
Series 111
Long Solder Tail for Multilayer PC-Boards Open Frame


DUAL-IN-LINE SOCKETS
Series 115... 001
 Open Frame


DUAL-IN-LINE SOCKETS
Series 115... 003
Ultra Low Profile Open Frame


- Our lowest profile DIP socket with an above PCB height of only .095".
- Special short Hi-Rel, 4-finger BeCu \#12 contact is rated at 3 amps . See page 218 for details.
- Series 115 use MM \#1534 pins. See page 132 for details.
- Insulators are high temperature thermoplastic.


|  |  |  |  |  | Ordering Information |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C |  |  |  |  |  |
| 6 | 0.3 | 0.3 | 0.4 | 68 | 115-XX-306-41-003000 |  |  |  |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 115-XX-308-41-003000 |  |  |  |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 115-XX-314-41-003000 |  |  |  |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 115-XX-316-41-003000 |  |  |  |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 115-XX-318-41-003000 |  |  |  |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 115-XX-320-41-003000 |  |  |  |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 115-XX-322-41-003000 |  | For RoHS select | pliance ng code. |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 115-XX-324-41-003000 select $\diamond$ plating code. |  |  |  |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 115-XX-328-41-003000 |  |  |  |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 115-XX-420-41-003000 |  |  |  |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 115-XX-422-41-003000 |  |  |  |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 115-XX-424-41-003000 |  |  |  |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 115-XX-428-41-003000 |  |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 115-XX-624-41-003000 |  |  |  |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 115-XX-628-41-003000 |  |  |  |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 115-XX-632-41-003000 |  |  |  |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 115-XX-636-41-003000 |  |  |  |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 115-XX-640-41-003000 |  |  |  |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 115-XX-648-41-003000 |  |  |  |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 115-XX-650-41-003000 |  |  |  |
|  |  |  |  |  |  |  |  |  |
| SPECIFY PLATING CODE XX= |  |  |  |  | 93 |  | $43 \diamond$ | $44 \diamond$ |
| Sleeve (Pin) (0)) |  |  |  |  | $200 \mu$ " Sn/Pb |  | $200 \mu$ " Sn | $200 \mu$ "Sn |
| Contact (Clip) $\square^{\text {a }}$ ) |  |  |  |  | $30 \mu$ " Au |  | $30 \mu$ " Au | $200 \mu$ " Sn |

DUAL-IN-LINE SOCKETS
Series 110... 605
Automatic Insertion Open Frame


- High temperature thermoplastic insulator with standoffs is compatible with standard automatic insertion equipment.
- Soft copper alloy machined pins allows clinching. Chamfered contact entry allows for ease of IC insertion without bent leads.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps. See page 218 for details.
- Series 110 use MM \#1005 pins. See page 137 for details.



DUAL-IN-LINE SOCKETS
Series 101
Clinch Pin Open Frame


- Special lock-down feature prevents floating of socket during soldering. Open insulator with ladder construction.
- Sockets are XY stackable.
- Socket pins feature closed end construction eliminating any solder wicking problems.
- Series 101 use MM \#1001 \& MM \#0156 pins. See page 136 for details.
- Insulators are high temperature thermoplastic.




## DUAL-IN-LINE SOCKETS <br> Solderless Press-Fit Open Frame




- Unique compliant tail pins conform to $.040 "+.003^{\prime \prime}$ finished hole diameter without stressing inner layers.
- Two tails lengths are offered for .060"-. 100 " and .090 "-. 130 " thick panels.
- Series 146 use MM \#4612 or MM \#4613 pins with a BeCu \#30 contact, rated at 3 amps . See page 133 for details.
- Insulators are high temperature thermoplastic.




## APPLICATION OF COMPLIANT TAIL PINS

Mill-Max's patented* compliant tail features precision-machined pins that are hollow and slotted to conform to a $.040 " \pm .003 "$ diameter PTH. As the pin is inserted, the slot compresses to fit the PTH, thus avoiding damage (see illustration at left). The pin's tail has fine serrations that form a perfect "gas tight" connection that doesn't require soldering. And since the pin doesn't damage the hole, compliant tail sockets and connectors can be easily replaced.
*Patent No. 4,799,904.


DUAL-IN-LINE SOCKETS
Series 110, 122, 123... 801 With Integral Decoupling Capacitor Open Frame


- Low profile DIP sockets with integral decoupling capacitor: $.1 \mu$ F 20\%-50V multi-layer ceramic epoxy encapsulated. Temp. range: $-25^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$.
- Hi-Rel, 4 -finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Series 110, 122 and 123 use MM \#1001, \#0088 or \#0089 pins. See pages 136 and 166 for details.
- Insulators are high temperature thermoplastic.

|  |  |  |  |  | Ordering Information |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Solder Tail | 2 Level Wrapost$L=.370$ | 3 Level Wrapost$L=.510$ |
|  | A | B | C |  |  |  |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 110-XX-314-41-801000 | 122-13-314-41-801000 | 123-XX-314-41-801000 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 110-XX-316-41-801000 | 122-13-316-41-801000 | 123-XX-316-41-801000 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 110-XX-318-41-801000 | 122-13-318-41-801000 | 123-XX-318-41-801000 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 110-XX-320-41-801000 | 122-13-320-41-801000 | 123-XX-320-41-801000 |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 110-XX-322-41-801000 | 122-13-322-41-801000 | 123-XX-322-41-801000 |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 110-XX-324-41-801000 | 122-13-324-41-801000 | 123-XX-324-41-801000 |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 110-XX-328-41-801000 | 122-13-328-41-801000 | 123-XX-328-41-801000 |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 110-XX-422-41-801000 | 122-13-422-41-801000 | 123-XX-422-41-801000 |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 110-XX-624-41-801000 | 122-13-624-41-801000 | 123-XX-624-41-801000 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 110-XX-628-41-801000 | 122-13-628-41-801000 | 123-XX-628-41-801000 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 110-XX-632-41-801000 | 122-13-632-41-801000 | 123-XX-632-41-801000 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 110-XX-640-41-801000 | 122-13-640-41-801000 | 123-XX-640-41-801000 |



DUAL-IN-LINE SOCKETS
Series 210, 222, 223
Solder Tail and Wrapost Closed Frame


- Closed frame insulator withstands high mechanical impact.
- Available with standard solder pins, 2-level or 3-level wraposts.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps. See page 218 for details.
- Series 210, 222 and 223 use MM \#1001, \#0088 or \#0089 pins. See pages 136 and 166 for details.
- Insulators are high temperature thermoplastic.



Ordering Information

| Solder Tail | 2 Level Wrapost <br> $\mathrm{L}=.370$ | 3 Level Wrapost <br> $\mathrm{L}=.510$ |
| :---: | :---: | :---: |

210-XX-306-41-001000 $222-X X-306-41-001000$ 210-XX-308-41-001000 210-XX-310-41-001000 210-XX-314-41-001000 210-XX-316-41-001000 210-XX-318-41-001000 210-XX-320-41-001000 210-XX-322-41-001000 210-XX-324-41-001000

210-XX-422-41-001000 210-XX-424-41-001000

210-XX-624-41-001000 210-XX-628-41-001000 210-XX-632-41-001000 210-XX-636-41-001000
210-XX-640-41-001000

210-XX-964-41-001000

222-XX-308-41-001000
222-XX-310-41-001000
222-XX-314-41-001000
222-XX-316-41-001000
222-XX-318-41-001000
222-XX-320-41-001000
222-XX-322-41-001000
222-XX-324-41-001000

222-XX-422-41-001000
222-XX-424-41-001000

222-XX-624-41-001000
222-XX-628-41-001000
222-XX-632-41-001000
222-XX-636-41-001000
222-XX-640-41-001000

222-XX-964-41-001000

223-XX-306-41-001000 223-XX-308-41-001000 223-XX-310-41-001000 223-XX-314-41-001000 223-XX-316-41-001000 223-XX-318-41-001000 223-XX-320-41-001000 223-XX-322-41-001000 223-XX-324-41-001000

223-XX-422-41-001000 223-XX-424-41-001000

223-XX-624-41-001000 223-XX-628-41-001000 223-XX-632-41-001000 223-XX-636-41-001000 223-XX-640-41-001000

223-XX-964-41-001000

| SPECIFY PLATING CODE $\mathrm{XX}=$ | $13 \diamond$ | 93 | 99 | $43 \diamond$ | $44 \diamond$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Sleeve (Pin) (0)) D | $10 \mu$ " Au | $200 \mu$ " Sn/Pb | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu$ " Sn | $200 \mu$ " Sn |
| Contact (Clip) $\bigcirc \bigcirc$ | $30 \mu$ " Au | $30 \mu " \mathrm{Au}$ | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ | $30 \mu$ " Au | $200 \mu$ " Sn |

MILITARY DUAL-IN-LINE SOCKETS

Solder Tail, Open Frame


MILITARY DUAL-IN-LINE SOCKETS
Series 210... 101
MIL-S-83734 APPROVED
Solder Tail, Closed Frame


- Sockets are XY stackable.
- Machined outer sleeve with Hi-
Rel, BeCu \#30 inner contact.
- Socket pins feature closed-end
construction eliminating any
solderfllux wicking problems.
- Packaged in tubes compatible
with automatic insertion equip-
ment.
- Series 210 use MM \#1001 pins.
See page 136 for details.
- Insulators are high temperature
thermoplastic.

|  |  |  |  |  | Ordering Information |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C |  | Mill-Max Part Number | Military Part Number |  |  |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 210-XX-306-41-101000 | M83734/1-YYY |  |  |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 210-XX-308-41-101000 | M83734/2-YYY |  |  |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 210-XX-314-41-101000 | M83734/3-YYY |  |  |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 210-XX-316-41-101000 | M83734/4-YYY |  |  |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 210-XX-318-41-101000 | M83734/5-YYY |  |  |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 210-XX-320-41-101000 | M83734/13-YYY |  |  |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 210-XX-422-41-101000 | M83734/6-YYY |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 210-XX-624-41-101000 | M83734/8-YYY |  |  |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 210-XX-628-41-101000 | M83734/7-YYY |  |  |
| 32 | 1.6 | 0.6 | 0.7 | 10 | 210-XX-632-41-101000 | M83734/17-YYY |  |  |
| 40 | 2.0 | 0.6 | 0.7 | 8 | 210-XX-640-41-101000 | M83734/10-YYY |  |  |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 210-XX-964-41-101000 | M83734/15-YYY |  |  |
|  |  |  |  |  |  |  | X=Plating Cod See Below |  |
|  |  |  |  |  | SEE PAGE 35 FOR COMPLETE QPL |  |  |  |
|  |  |  |  |  | SPECIFY MILL-MAX PLATING CODE XX= | 33 | 83 | 88 |
|  |  |  |  |  | FOR MILITARY CODE YYY= | 031 | 032 | 033 |
|  |  |  |  |  | (6 PIN ONLY) YYY= | 025 | 026 | 027 |
|  |  |  |  |  | (32 PIN ONLY) YYY= | 013 | 014 | 015 |
|  |  |  |  |  | Sleeve (Pin) (0)】) | $30 \mu$ " Au | $300 \mu$ " Sn/Pb | $300 \mu " \mathrm{Sn} / \mathrm{Pb}$ |
|  |  |  |  |  | Contact (Clip) 0 - | $30 \mu$ " Au | $30 \mu$ " Au | $100 \mu " \mathrm{Sn} / \mathrm{Pb}$ |
| www | mi | a | co |  | 33 | -516-922-6000 |  |  |

MILITARY DUAL-IN-LINE SOCKETS
Series 223... 101
MIL-S-83734 APPROVED
3 Level Wrapost, Closed Frame

|  | 25 |  |  |  |  | - Sockets are XY stackable. <br> - Machined outer sleeve with Hi Rel, $\mathrm{BeCu} \# 30$ inner contact. <br> - Socket pins feature closed-end construction eliminating any solder/flux wicking problems. <br> - Series 223 use MM \#0038-3 pins. See page 166 for details. <br> - Insulators are high temperature thermoplastic. |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Ordering Information |  |  |  |  |
|  |  |  |  |  | Mill-Max Part Number |  | Military Part Number |  |  |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 223-XX-306-41-101000 |  | M83734/1-YYY |  |  |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 223-XX-308-41-101000 |  | M83734/2-YYY |  |  |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 223-XX-314-41-101000 |  | M83734/3-YYY |  |  |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 223-XX-316-41-101000 |  | M83734/4-YYY |  |  |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 223-XX-318-41-101000 |  | M83734/5-YYY |  |  |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 223-XX-320-41-101000 |  | M83734/13-YYY |  |  |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 223-XX-422-41-101000 |  | M83734/6-YYY |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 223-XX-624-41-101000 |  | M83734/8-YYY |  |  |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 223-XX-628-41-101000 |  | M83734/7-YYY |  |  |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 223-XX-632-41-101000 |  | M83734/17-YYY |  |  |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 223-XX-640-41-101000 |  | M83734/10-YYY |  |  |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 223-XX-964-41-101000 |  | M83734/15-YYY |  |  |
|  |  |  |  |  |  | For Electrical, Mechanical \& Enviromental Data, See pg. 4 |  | Plating See Below | $e$ |
|  |  |  |  |  |  | SEE PAGE 35 FOR | OMPLE | QPL |  |
|  |  |  |  |  | SPECIF | Y MILL-MAX PLATING CODE XX= | 33 | 83 | 88 |
|  |  |  |  |  |  | FOR MILITARY CODE YYY= | 010 | 011 | 012 |
|  |  |  |  |  |  | (32 PIN ONLY) YYY= | 007 | 008 | 009 |
|  |  |  |  |  | Sleeve (Pin) | , (0) $D=$ | $30 \mu " \mathrm{Au}$ | 300 ${ }^{\prime \prime}$ Sn/Pb | $300 \mu " \mathrm{Sn} / \mathrm{Pb}$ |
|  |  |  |  |  | Contact (C) | lip) $0 \otimes$ | $30 \mu$ " Au | $30 \mu$ " Au | $100 \mu " \mathrm{Sn} / \mathrm{Pb}$ |
| www.mill-max.com |  |  |  |  |  | 34 | -516-922-6000 |  |  |

## DIP SOCKETS QUALIFIED <br> to MIL-S-83734

| MIL SPEC \# | MILL-MAX \# | MIL SPEC \# | MILL-MAX \# | MIL SPEC \# | MILL-MAX \# |
| :---: | :---: | :---: | :---: | :---: | :---: |
| M83734/1-010 | 223-33-306-41-101000 | M83734/7-010 | 223-33-628-41-101000 | M83734/15-032 | 210-83-964-41-101000 |
| M83734/1-011 | 223-83-306-41-101000 | M83734/7-011 | 223-83-628-41-101000 | M83734/15-033 | 210-88-964-41-101000 |
| M83734/1-012 | 223-88-306-41-101000 | M83734/7-012 | 223-88-628-41-101000 |  |  |
| M83734/1-025 | 210-33-306-41-101000 | M83734/7-028 | 110-33-628-41-530000 | M83734/17-001 | 221-33-632-41-101000 |
| M83734/1-026 | 210-83-306-41-101000 | M83734/7-029 | 110-83-628-41-530000 | M83734/17-002 | 221-83-632-41-101000 |
| M83734/1-027 | 210-88-306-41-101000 | M83734/7-030 | 110-88-628-41-530000 | M83734/17-003 | 221-88-632-41-101000 |
|  |  | M83734/7-031 | 210-33-628-41-101000 | M83734/17-004 | 222-33-632-41-101000 |
| M83734/2-010 | 223-33-308-41-101000 | M83734/7-032 | 210-83-628-41-101000 | M83734/17-005 | 222-83-632-41-101000 |
| M83734/2-011 | 223-83-308-41-101000 | M83734/7-033 | 210-88-628-41-101000 | M83734/17-006 | 222-88-632-41-101000 |
| M83734/2-012 | 223-88-308-41-101000 |  |  | M83734/17-007 | 223-33-632-41-101000 |
| M83734/2-028 | 110-33-308-41-530000 | M83734/8-010 | 223-33-624-41-101000 | M83734/17-008 | 223-83-632-41-101000 |
| M83734/2-029 | 110-83-308-41-530000 | M83734/8-011 | 223-83-624-41-101000 | M83734/17-009 | 223-88-632-41-101000 |
| M83734/2-030 | 110-88-308-41-530000 | M83734/8-012 | 223-88-624-41-101000 | M83734/17-013 | 210-33-632-41-101000 |
| M83734/2-031 | 210-33-308-41-101000 | M83734/8-028 | 110-33-624-41-530000 | M83734/17-014 | 210-83-632-41-101000 |
| M83734/2-032 | 210-83-308-41-101000 | M83734/8-029 | 110-83-624-41-530000 | M83734/17-015 | 210-88-632-41-101000 |
| M83734/2-033 | 210-88-308-41-101000 | M83734/8-030 | 110-88-624-41-530000 |  |  |
|  |  | M83734/8-031 | 210-33-624-41-101000 |  |  |
| M83734/3-010 | 223-33-314-41-101000 | M83734/8-032 | 210-83-624-41-101000 |  |  |
| M83734/3-011 | 223-83-314-41-101000 | M83734/8-033 | 210-88-624-41-101000 |  |  |
| M83734/3-012 | 223-88-314-41-101000 |  |  |  |  |
| M83734/3-028 | 110-33-314-41-530000 | M83734/9-010 | 223-33-636-41-101000 |  |  |
| M83734/3-029 | 110-83-314-41-530000 | M83734/9-011 | 223-83-636-41-101000 |  |  |
| M83734/3-030 | 110-88-314-41-530000 | M83734/9-012 | 223-88-636-41-101000 |  |  |
| M83734/3-031 | 210-33-314-41-101000 | M83734/9-031 | 210-33-636-41-101000 |  |  |
| M83734/3-032 | 210-83-314-41-101000 | M83734/9-032 | 210-83-636-41-101000 |  |  |
| M83734/3-033 | 210-88-314-41-101000 | M83734/9-033 | 210-88-636-41-101000 |  |  |
| M83734/4-010 | 223-33-316-41-101000 | M83734/10-010 | 223-33-640-41-101000 |  |  |
| M83734/4-011 | 223-83-316-41-101000 | M83734/10-011 | 223-83-640-41-101000 |  |  |
| M83734/4-012 | 223-88-316-41-101000 | M83734/10-012 | 223-88-640-41-101000 |  |  |
| M83734/4-028 | 110-33-316-41-530000 | M83734/10-028 | 110-33-640-41-530000 |  |  |
| M83734/4-029 | 110-83-316-41-530000 | M83734/10-029 | 110-83-640-41-530000 |  |  |
| M83734/4-030 | 110-88-316-41-530000 | M83734/10-030 | 110-88-640-41-530000 |  |  |
| M83734/4-031 | 210-33-316-41-101000 | M83734/10-031 | 210-33-640-41-101000 |  |  |
| M83734/4-032 | 210-83-316-41-101000 | M83734/10-032 | 210-83-640-41-101000 |  |  |
| M83734/4-033 | 210-88-316-41-101000 | M83734/10-033 | 210-88-640-41-101000 |  |  |
| M83734/5-010 | 223-33-318-41-101000 | M83734/13-010 | 223-33-320-41-101000 |  |  |
| M83734/5-011 | 223-83-318-41-101000 | M83734/13-011 | 223-83-320-41-101000 |  |  |
| M83734/5-012 | 223-88-318-41-101000 | M83734/13-012 | 223-88-320-41-101000 |  |  |
| M83734/5-028 | 110-33-318-41-530000 | M83734/13-028 | 110-33-320-41-530000 |  |  |
| M83734/5-029 | 110-83-318-41-530000 | M83734/13-029 | 110-83-320-41-530000 |  |  |
| M83734/5-030 | 110-88-318-41-530000 | M83734/13-030 | 110-88-320-41-530000 |  |  |
| M83734/5-031 | 210-33-318-41-101000 | M83734/13-031 | 210-33-320-41-101000 |  |  |
| M83734/5-032 | 210-83-318-41-101000 | M83734/13-032 | 210-83-320-41-101000 |  |  |
| M83734/5-033 | 210-88-318-41-101000 | M83734/13-033 | 210-88-320-41-101000 |  |  |
| M83734/6-010 | 223-33-422-41-101000 | M83734/14-028 | 110-33-648-41-530000 |  |  |
| M83734/6-011 | 223-83-422-41-101000 | M83734/14-029 | 110-83-648-41-530000 |  |  |
| M83734/6-012 | 223-88-422-41-101000 | M83734/14-030 | 110-88-648-41-530000 |  |  |
| M83734/6-028 | 110-33-422-41-530000 |  |  |  |  |
| M83734/6-029 | 110-83-422-41-530000 | M83734/15-010 | 223-33-964-41-101000 |  |  |
| M83734/6-030 | 110-88-422-41-530000 | M83734/15-011 | 223-83-964-41-101000 |  |  |
| M83734/6-031 | 210-33-422-41-101000 | M83734/15-012 | 223-88-964-41-101000 |  |  |
| M83734/6-032 | 210-83-422-41-101000 | M83734/15-028 | 110-33-964-41-530000 |  |  |
| M83734/6-033 | 210-88-422-41-101000 | M83734/15-029 | 110-83-964-41-530000 |  |  |
|  |  | M83734/15-030 | 110-88-964-41-530000 |  |  |
|  |  | M83734/15-031 | 210-33-964-41-101000 |  |  |

DUAL-IN-LINE SOCKETS
Series 110... 105
Surface Mount, Gull Wing Open Frame


## DUAL-IN-LINE SOCKETS



- Closed frame insulator is vision system compatible.
- High-temp Nylon 46 insulator is suitable for all forms of reflow soldering.
- Traditional gull-wing leads permit visual inspection of solder joints.
- Available packaged in tubes or on tape \& reel per EIA-481.
- Uses Mill-Max \#1005 pin. See page 137 for details.


|  |  |  |  | Ordering |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C | QTY PER TUBE | TUBE PACKAGING |  |
|  |  |  |  | VACUUM PAD TOP |  |  |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 210-XX-306-41-105000 | 2 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 210-XX-308-41-105000 | 2 |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 210-XX-314-41-105000 | 2 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 210-XX-316-41-105000 | 2 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 210-XX-318-41-105000 | 2 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 210-XX-320-41-105000 | 2 |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 210-XX-324-41-105000 | 2 |
|  |  |  |  | VACUUM PAD |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 210-XX-624-41-105000 | 2 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 210-XX-628-41-105000 | 2 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 210-XX-632-41-105000 | 2 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 210-XX-640-41-105000 |  |


| 210-XX-624-41-105799 | 44 | 300 |
| :---: | :--- | :--- |
| 210-XX-628-41-105799 | 56 | 300 |
| 210-XX-632-41-105799 | 56 | 300 |
| NOT AVAILABLE |  |  |



| SPECIFY PLATING CODE XX= | $13 \diamond$ | 93 |  |  | $43 \diamond$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sleeve (Pin) (0)) D- | $10 \mu$ " Au | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ |  |  | $200 \mu$ " Sn |  |
| Contact (Clip) $0 \geqslant$ | 30," Au | 30ر" Au |  |  | 30ر" Au |  |

DUAL-IN-LINE SOCKETS
Series 114
Surface Mount, Stub Tail Open Frame


DUAL-IN-LINE SOCKETS
Series 113


DUAL-IN-LINE SOCKETS Closed Frame


- Unique floating contacts compensate for the effects of unevenly screened solder paste.
- Available packaged in tubes or on tape \& reel per EIA-481.
- High temp. Nylon 46 insulator, is suitable for infra-red \& vapor phase soldering. Closed frame insulator is vision system compatible.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Series 214 use MM \#1434 pins. See page 133 for details.


Ordering Information

| - | A | B | c |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 | 0.3 | 0.3 | 0.4 | QTY PER TUBE | TUBE PACKAGING | TAPE \& REEL PACKAGING | $\underset{\substack{\text { TAPE WIDTH } \\(\mathrm{mm})}}{ }$ | QTY PER REEL |
|  |  |  |  | VACUUM PAD TOP SURFACE ONLY |  |  |  |  |
|  |  |  |  | 67 | 214-XX-306-01-670800 | 214-XX-306-01-670799 | 16 | 750 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 214-XX-308-01-670800 | 214-XX-308-01-670799 | 16 | 1000 |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 214-XX-314-01-670800 | 214-XX-314-01-670799 | 32 | 750 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 214-XX-316-01-670800 | 214-XX-316-01-670799 | 32 | 750 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 214-XX-318-01-670800 | 214-XX-318-01-670799 | 44 | 750 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 214-XX-320-01-670800 | 214-XX-320-01-670799 | 44 | 750 |
|  |  |  |  |  | VACUUM P | AD TOP AND BOTTOM |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 214-XX-624-01-670800 | 214-XX-624-01-670799 | 44 | 400 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 214-XX-628-01-670800 | 214-XX-628-01-670799 | 56 | 400 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 214-XX-632-01-670800 | 214-XX-632-01-670799 | 56 | 400 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 214-XX-640-01-670800 | NOT AVAILABLE |  |  |



DUAL-IN-LINE SOCKETS
Series 121, 122, 123, 124
1 thru 4 Level Wrapost Open Frame


DUAL-IN-LINE SOCKETS
Series 126
Pluggable Wrapost Open Frame


- Combines one through three level wrapost with pluggable solder tails.
- Suitable for use as an interconnect socket with intermediate wire wrapped connections.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Series 126 use MM \#2601, \#2602 \& \#2603 pins. See page 167 for details.


|  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C |  | (1 level = .232) |
| 10 | 0.5 | 0.2 | 0.3 | 40 | 126-XX-210-41-001000 |
| 4 | 0.2 | 0.3 | 0.4 | 102 | 126-XX-304-41-001000 |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 126-XX-306-41-001000 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 126-XX-308-41-001000 |
| 10 | 0.5 | 0.3 | 0.4 | 40 | 126-XX-310-41-001000 |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 126-XX-314-41-001000 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 126-XX-316-41-001000 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 126-XX-318-41-001000 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 126-XX-320-41-001000 |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 126-XX-322-41-001000 |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 126-XX-324-41-001000 |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 126-XX-328-41-001000 |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 126-XX-420-41-001000 |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 126-XX-422-41-001000 |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 126-XX-424-41-001000 |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 126-XX-428-41-001000 |
| 32 | 1.6 | 0.4 | 0.5 | 12 | 126-XX-432-41-001000 |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 126-XX-624-41-001000 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 126-XX-628-41-001000 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 126-XX-632-41-001000 |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 126-XX-636-41-001000 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 126-XX-640-41-001000 |
| 42 | 2.1 | 0.6 | 0.7 | 9 | 126-XX-642-41-001000 |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 126-XX-648-41-001000 |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 126-XX-650-41-001000 |
| 52 | 2.6 | 0.6 | 0.7 | 7 | 126-XX-652-41-001000 |
| 50 | 2.5 | 0.9 | 1.0 | 8 | 126-XX-950-41-001000 |
| 52 | 2.6 | 0.9 | 1.0 | 7 | 126-XX-952-41-001000 |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 126-XX-964-41-001000 |

126-XX-210-41-002000
126-XX-304-41-002000 126-XX-306-41-002000 126-XX-308-41-002000 126-XX-310-41-002000 126-XX-314-41-002000 126-XX-316-41-002000 126-XX-318-41-002000 126-XX-320-41-002000 126-XX-322-41-002000 126-XX-324-41-002000 126-XX-328-41-002000 126-XX-420-41-002000 126-XX-422-41-002000 126-XX-424-41-002000 126-XX-428-41-002000 126-XX-432-41-002000 126-XX-624-41-002000 126-XX-628-41-002000 126-XX-632-41-002000 126-XX-636-41-002000 126-XX-640-41-002000 126-XX-642-41-002000 126-XX-648-41-002000 126-XX-650-41-002000 126-XX-652-41-002000 126-XX-950-41-002000 126-XX-952-41-002000 126-XX-964-41-002000
$X X=$ Plating Code
See Below

L = . 661
(3 level $=.469$ )
126-XX-210-41-003000
126-XX-304-41-003000 126-XX-306-41-003000 126-XX-308-41-003000 126-XX-310-41-003000 126-XX-314-41-003000 126-XX-316-41-003000 126-XX-318-41-003000 126-XX-320-41-003000 126-XX-322-41-003000 126-XX-324-41-003000 126-XX-328-41-003000 126-XX-420-41-003000 126-XX-422-41-003000 126-XX-424-41-003000 126-XX-428-41-003000 126-XX-432-41-003000 126-XX-624-41-003000 126-XX-628-41-003000 126-XX-632-41-003000 126-XX-636-41-003000 126-XX-640-41-003000 126-XX-642-41-003000 126-XX-648-41-003000 126-XX-650-41-003000 126-XX-652-41-003000 126-XX-950-41-003000 126-XX-952-41-003000 126-XX-964-41-003000

| SPECIFY PLATING CODE XX= |  | 93 |  | $43 \diamond$ |  |
| :--- | :--- | :---: | :--- | :---: | :---: |
| Sleeve (Pin) (0) ) |  | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ |  | $200 \mu " \mathrm{Sn}$ |  |
| Contact (Clip) |  | $30 \mu " \mathrm{Au}$ |  | $30 \mu " \mathrm{Au}$ |  |

[^0]DUAL-IN-LINE SOCKETS
Elevated Open Frame


- For mechanical and electrical interconnection and stacking of PCBs.
- Other platings and heights are available upon request.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Series 116 use MM \#0153-X pins. See page 138 for details.
- Insulators are high temperature thermoplastic.


|  |  |  |  |  | For Electrical, Mechanical \& Enviromental Data, See pg. 4 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C |  | L = . 236 | L = . 315 | L = . 402 | L = . 472 | L = . 594 |
| 10 | 0.5 | 0.2 | 0.3 | 40 | 116-XX-210-41-006000 | 116-XX-210-41-003000 | 116-XX-210-41-007000 | 116-XX-210-41-008000 | 116-XX-210-41-001000 |
| 4 | 0.2 | 0.3 | 0.4 | 102 | 116-XX-304-41-006000 | 116-XX-304-41-003000 | 116-XX-304-41-007000 | 116-XX-304-41-008000 | 116-XX-304-41-001000 |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 116-XX-306-41-006000 | 116-XX-306-41-003000 | 116-XX-306-41-007000 | 116-XX-306-41-008000 | 116-XX-306-41-001000 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 116-XX-308-41-006000 | 116-XX-308-41-003000 | 116-XX-308-41-007000 | 116-XX-308-41-008000 | 116-XX-308-41-001000 |
| 10 | 0.5 | 0.3 | 0.4 | 40 | 116-XX-310-41-006000 | 116-XX-310-41-003000 | 116-XX-310-41-007000 | 116-XX-310-41-008000 | 116-XX-310-41-001000 |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 116-XX-314-41-006000 | 116-XX-314-41-003000 | 116-XX-314-41-007000 | 116-XX-314-41-008000 | 116-XX-314-41-001000 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 116-XX-316-41-006000 | 116-XX-316-41-003000 | 116-XX-316-41-007000 | 116-XX-316-41-008000 | 116-XX-316-41-001000 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 116-XX-318-41-006000 | 116-XX-318-41-003000 | 116-XX-318-41-007000 | 116-XX-318-41-008000 | 116-XX-318-41-001000 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 116-XX-320-41-006000 | 116-XX-320-41-003000 | 116-XX-320-41-007000 | 116-XX-320-41-008000 | 116-XX-320-41-001000 |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 116-XX-322-41-006000 | 116-XX-322-41-003000 | 116-XX-322-41-007000 | 116-XX-322-41-008000 | 116-XX-322-41-001000 |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 116-XX-324-41-006000 | 116-XX-324-41-003000 | 116-XX-324-41-007000 | 116-XX-324-41-008000 | 116-XX-324-41-001000 |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 116-XX-328-41-006000 | 116-XX-328-41-003000 | 116-XX-328-41-007000 | 116-XX-328-41-008000 | 116-XX-328-41-001000 |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 116-XX-420-41-006000 | 116-XX-420-41-003000 | 116-XX-420-41-007000 | 116-XX-420-41-008000 | 116-XX-420-41-001000 |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 116-XX-422-41-006000 | 116-XX-422-41-003000 | 116-XX-422-41-007000 | 116-XX-422-41-008000 | 116-XX-422-41-001000 |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 116-XX-424-41-006000 | 116-XX-424-41-003000 | 116-XX-424-41-007000 | 116-XX-424-41-008000 | 116-XX-424-41-001000 |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 116-XX-428-41-006000 | 116-XX-428-41-003000 | 116-XX-428-41-007000 | 116-XX-428-41-008000 | 116-XX-428-41-001000 |
| 32 | 1.6 | 0.4 | 0.5 | 12 | 116-XX-432-41-006000 | 116-XX-432-41-003000 | 116-XX-432-41-007000 | 116-XX-432-41-008000 | 116-XX-432-41-001000 |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 116-XX-624-41-006000 | 116-XX-624-41-003000 | 116-XX-624-41-007000 | 116-XX-624-41-008000 | 116-XX-624-41-001000 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 116-XX-628-41-006000 | 116-XX-628-41-003000 | 116-XX-628-41-007000 | 116-XX-628-41-008000 | 116-XX-628-41-001000 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 116-XX-632-41-006000 | 116-XX-632-41-003000 | 116-XX-632-41-007000 | 116-XX-632-41-008000 | 116-XX-632-41-001000 |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 116-XX-636-41-006000 | 116-XX-636-41-003000 | 116-XX-636-41-007000 | 116-XX-636-41-008000 | 116-XX-636-41-001000 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 116-XX-640-41-006000 | 116-XX-640-41-003000 | 116-XX-640-41-007000 | 116-XX-640-41-008000 | 116-XX-640-41-001000 |
| 42 | 2.1 | 0.6 | 0.7 | 9 | 116-XX-642-41-006000 | 116-XX-642-41-003000 | 116-XX-642-41-007000 | 116-XX-642-41-008000 | 116-XX-642-41-001000 |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 116-XX-648-41-006000 | 116-XX-648-41-003000 | 116-XX-648-41-007000 | 116-XX-648-41-008000 | 116-XX-648-41-001000 |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 116-XX-650-41-006000 | 116-XX-650-41-003000 | 116-XX-650-41-007000 | 116-XX-650-41-008000 | 116-XX-650-41-001000 |
| 52 | 2.6 | 0.6 | 0.7 | 7 | 116-XX-652-41-006000 | 116-XX-652-41-003000 | 116-XX-652-41-007000 | 116-XX-652-41-008000 | 116-XX-652-41-001000 |
| 50 | 2.5 | 0.9 | 1.0 | 8 | 116-XX-950-41-006000 | 116-XX-950-41-003000 | 116-XX-950-41-007000 | 116-XX-950-41-008000 | 116-XX-950-41-001000 |
| 52 | 2.6 | 0.9 | 1.0 | 7 | 116-XX-952-41-006000 | 116-XX-952-41-003000 | 116-XX-952-41-007000 | 116-XX-952-41-008000 | 116-XX-952-41-001000 |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 116-XX-964-41-006000 | 116-XX-964-41-003000 | 116-XX-964-41-007000 | 116-XX-964-41-008000 | 116-XX-964-41-001000 |


| SPECIFY PLATING CODE XX= |  | 93 |  |  | $43 \diamond$ |
| :--- | :--- | :--- | :--- | :--- | :---: |
| Sleeve (Pin) (a)) |  | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ |  |  | $200 \mu " \mathrm{Sn}$ |
| Contact (Clip) |  | $30 \mu " \mathrm{Au}$ |  |  | $30 \mu " \mathrm{Au}$ |


| For RoHS compliance |
| :---: |
| select $\diamond$ plating code. |



- Convenient way to load loose receptacles on a PC board.
- Removable plastic carriers can be returned for reloading.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Series 612 use MM \#0132, \#0135, \#0255 or \#8855 pins. See pages 136 and 142 for details.
- Insulators are high temperature thermoplastic.



DUAL-IN-LINE SOCKETS
Series 614... 001
Carrier Type Low Profile

|  |  |  |  |  |  | - Convenient way to load loose receptacles on a PC board. <br> - Removable plastic carriers can be returned for reloading. <br> - Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details. <br> - Series 614 use MM \#1401 pins. See page 141 for details. <br> - Insulators are high temperature thermoplastic. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Ordering Information |  |  |  |  |  |
|  | A | B | C |  |  |  |  |  |  |  |
| 10 | 0.5 | 0.2 | 0.3 | 40 | 614-XX-210-41-001000 |  |  |  |  |  |
| 4 | 0.2 | 0.3 | 0.4 | 102 | 614-XX-304-41-001000 <br> 614-XX-306-41-001000 |  |  |  |  |  |
| 6 | 0.3 | 0.3 | 0.4 | 67 |  |  |  |  |  |  |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 614-XX-308-41-001000 |  |  |  |  |  |
| 10 | 0.5 | 0.3 | 0.4 | 40 | 614-XX-310-41-001000 |  |  |  |  |  |
| 14 | 0.7 | 0.3 | 0.4 | 28 | $\begin{aligned} & \text { 614-XX-314-41-001000 } \\ & 614-X X-316-41-001000 \end{aligned}$ |  |  |  | For RoHS C |  |
| 16 | 0.8 | 0.3 | 0.4 | 25 |  |  |  |  | select $\diamond p$ | code. |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 614-XX-318-41-001000 |  |  |  |  |  |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 614-XX-320-41-001000 |  |  |  |  |  |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 614-XX-322-41-001000 |  |  |  |  |  |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 614-XX-324-41-001000 |  |  |  |  |  |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 614-XX-328-41-001000 |  |  |  |  |  |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 614-XX-420-41-001000 |  |  |  |  |  |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 614-XX-422-41-001000 |  |  |  |  |  |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 614-XX-424-41-001000 |  |  |  |  |  |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 614-XX-428-41-001000 |  |  |  |  |  |
| 32 | 1.6 | 0.4 | 0.5 | 12 | 614-XX-432-41-001000 |  |  |  |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 614-XX-624-41-001000 |  |  |  |  |  |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 614-XX-628-41-001000 |  |  |  |  |  |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 614-XX-632-41-001000 |  |  |  |  |  |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 614-XX-636-41-001000 |  |  |  |  |  |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 614-XX-640-41-001000 |  |  |  |  |  |
| 42 | 2.1 | 0.6 | 0.7 | 9 | 614-XX-642-41-001000 |  |  |  |  |  |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 614-XX-648-41-001000 |  |  |  |  |  |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 614-XX-650-41-001000 |  |  |  |  |  |
| 52 | 2.6 | 0.6 | 0.7 | 7 |  |  |  |  |  |  |
| 50 | 2.5 | 0.9 | 1.0 | 8 |  |  |  |  |  |  |
| 52 | 2.6 | 0.9 | 1.0 | 7 |  |  |  |  |  |  |
| 64 | 3.2 | 0.9 | 1.0 | 6 |  |  |  |  |  |  |
| SPECIFY PLATING CODE XX= |  |  |  |  |  | 93 |  |  | $43 \diamond$ |  |
| Sleeve (Pin) |  | (0)) | $\square$ |  |  | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ |  |  | $200 \mu^{\prime \prime} \mathrm{Sn}$ |  |
| Contact (Clip) |  | 0 |  |  |  | $30{ }^{\prime \prime} \mathrm{Au}$ |  |  | 30 ${ }^{\text {" }} \mathrm{Au}$ |  |

DUAL-IN-LINE SOCKETS
Carrier Type
Low Profile


- Low profile receptacles sit only .031" high above the board.
- Removable plastic carriers can be returned for reloading.
- Hi-Rel, 3 -finger BeCu \#11 contact is rated at 3 amps . See page 217 for details.
- Series 605 and 614 use MM \#0548 \& \#1407 pins. See page 128 for details.
- Insulators are high temperature thermoplastic.


|  |  |  |  |  | Length = . 146 <br> (. 039 Min. Mounting Hole) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C |  |  |
| 10 | 0.5 | 0.2 | 0.3 | 40 | 614-XX-210-31-007000 |
| 4 | 0.2 | 0.3 | 0.4 | 102 | 614-XX-304-31-007000 |
| 6 | 0.3 | 0.3 | 0.4 | 68 | 614-XX-306-31-007000 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 614-XX-308-31-007000 |
| 10 | 0.5 | 0.3 | 0.4 | 40 | 614-XX-310-31-007000 |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 614-XX-314-31-007000 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 614-XX-316-31-007000 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 614-XX-318-31-007000 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 614-XX-320-31-007000 |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 614-XX-322-31-007000 |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 614-XX-324-31-007000 |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 614-XX-328-31-007000 |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 614-XX-420-31-007000 |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 614-XX-422-31-007000 |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 614-XX-424-31-007000 |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 614-XX-428-31-007000 |
| 32 | 1.6 | 0.4 | 0.5 | 12 | 614-XX-432-31-007000 |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 614-XX-624-31-007000 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 614-XX-628-31-007000 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 614-XX-632-31-007000 |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 614-XX-636-31-007000 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 614-XX-640-31-007000 |
| 42 | 2.1 | 0.6 | 0.7 | 9 | 614-XX-642-31-007000 |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 614-XX-648-31-007000 |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 614-XX-650-31-007000 |
| 52 | 2.6 | 0.6 | 0.7 | 7 | 614-XX-652-31-007000 |
| 50 | 2.5 | 0.9 | 1.0 | 8 | 614-XX-950-31-007000 |
| 52 | 2.6 | 0.9 | 1.0 | 7 | 614-XX-952-31-007000 |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 614-XX-964-31-007000 |

605-XX-210-11-480000
605-XX-304-11-480000 605-XX-306-11-480000 605-XX-308-11-480000 605-XX-310-11-480000 605-XX-314-11-480000 605-XX-316-11-480000 605-XX-318-11-480000 605-XX-320-11-480000 605-XX-322-11-480000 605-XX-324-11-480000 605-XX-328-11-480000

605-XX-420-11-480000 605-XX-422-11-480000 605-XX-424-11-480000 605-XX-428-11-480000 605-XX-432-11-480000

605-XX-624-11-480000 605-XX-628-11-480000 605-XX-632-11-480000 605-XX-636-11-480000 605-XX-640-11-480000 605-XX-642-11-480000 605-XX-648-11-480000
 605-XX-650-11-480000 605-XX-652-11-480000 605-XX-950-11-480000 605-XX-952-11-480000 605-XX-964-11-480000


| SPECIFY PLATING CODE XX= |  |  | 93 |  |  | $43 \diamond$ |  |
| :--- | :--- | :--- | :---: | :--- | :--- | :--- | :--- |
| Sleeve (Pin) © ) D |  |  | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ |  |  | $200 \mu " \mathrm{Sn}$ |  |
| Contact (Clip) O |  |  | $30 \mu " \mathrm{Au}$ |  |  | $30 \mu " \mathrm{Au}$ |  |




- Ultra low profile receptacles sit only $.018^{\prime \prime}$ to .031 " high above the board.
- Removable plastic carriers can be returned for reloading.
- Hi-Rel, 3-finger BeCu \#11 contact is rated at 3 amps . See page 217 for details.
- Series 614 use MM \#0552-1, \#0552-2 or \#0442-0 pins. See pages 128 and 129 for details.
- Insulators are high temperature thermoplastic.


|  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C |  | $\begin{gathered} \text { Length }=.136 \\ \text { (. } 039 \text { Min. Mounting Hole) } \\ \hline \end{gathered}$ |
| 10 | 0.5 | 0.2 | 0.3 | 40 | 614-XX-210-31-012000 |
| 4 | 0.2 | 0.3 | 0.4 | 102 | 614-XX-304-31-012000 |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 614-XX-306-31-012000 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 614-XX-308-31-012000 |
| 10 | 0.5 | 0.3 | 0.4 | 40 | 614-XX-310-31-012000 |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 614-XX-314-31-012000 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 614-XX-316-31-012000 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 614-XX-318-31-012000 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 614-XX-320-31-012000 |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 614-XX-322-31-012000 |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 614-XX-324-31-012000 |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 614-XX-328-31-012000 |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 614-XX-420-31-012000 |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 614-XX-422-31-012000 |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 614-XX-424-31-012000 |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 614-XX-428-31-012000 |
| 32 | 1.6 | 0.4 | 0.5 | 12 | 614-XX-432-31-012000 |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 614-XX-624-31-012000 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 614-XX-628-31-012000 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 614-XX-632-31-012000 |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 614-XX-636-31-012000 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 614-XX-640-31-012000 |
| 42 | 2.1 | 0.6 | 0.7 | 9 | 614-XX-642-31-012000 |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 614-XX-648-31-012000 |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 614-XX-650-31-012000 |
| 52 | 2.6 | 0.6 | 0.7 | 7 | 614-XX-652-31-012000 |
| 50 | 2.5 | 0.9 | 1.0 | 8 | 614-XX-950-31-012000 |
| 52 | 2.6 | 0.9 | 1.0 | 7 | 614-XX-952-31-012000 |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 614-XX-964-31-012000 |


| SPECIFY PLATING CODE XX= |  | 93 |  | $43 \diamond$ |  |
| :--- | :--- | :---: | :--- | :---: | :--- |
| Sleeve (Pin) (0) |  | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ |  | $200 \mu " \mathrm{Sn}$ |  |
| Contact (Clip) O |  | $30 \mu " \mathrm{Au}$ |  | $30 \mu " \mathrm{Au}$ |  |

[^1]DUAL-IN-LINE PIN HEADERS
Solder Tail and Wrapost Open Frame


DUAL-IN-LINE SLOTTED HEADERS


DUAL-IN-LINE TURRET HEADERS
Series 170, 173

## Solder Tail and Wrapost

 Open Frame

- Series 170 \& 173 DIL headers are equipped with turret heads for wiring applications.
- Series 170 terminations are pluggable .020" dia. solder tails MM \#0700, See page 183 for details. Series 173 terminations are three level wraposts MM \#0730. See page 195 for details.
- Insulators are high temperature thermoplastic.


|  |  |  |  |  | Ordering Information |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Solder Tail | 3 Level Wrapost |  |  |  |  |
|  | A | B | C |  |  |  |  |  |  |
| 10 | 0.5 | 0.2 | 0.3 | 41 | 170-XX-210-00-001000 | 173-10-210-00-001000 |  |  |  |  |
| 4 | 0.2 | 0.3 | 0.4 | 102 | 170-XX-304-00-001000 | $\begin{aligned} & 173-10-304-00-001000 \\ & 173-10-306-00-001000 \end{aligned}$ |  |  |  |  |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 170-XX-306-00-001000 |  |  |  |  |  |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 170-XX-308-00-001000 | 173-10-308-00-001000 |  |  |  |  |
| 10 | 0.5 | 0.3 | 0.4 | 40 | 170-XX-310-00-001000 | $173-10-310-00-001000$ |  |  |  |  |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 170-XX-314-00-001000 |  |  |  | For RoHS select | compliance lating code. |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 170-XX-316-00-001000 | 173-10-316-00-001000 |  |  |  |  |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 170-XX-318-00-001000 | 173-10-318-00-001000 |  |  |  |  |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 170-XX-320-00-001000 | 173-10-320-00-001000 |  |  |  |  |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 170-XX-322-00-001000 | 173-10-322-00-001000 |  |  |  |  |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 170-XX-324-00-001000 | 173-10-324-00-001000 |  |  |  |  |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 170-XX-328-00-001000 | 173-10-328-00-001000 |  |  |  |  |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 170-XX-420-00-001000 | 173-10-420-00-001000 |  |  |  |  |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 170-XX-422-00-001000 | 173-10-422-00-001000 |  |  |  |  |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 170-XX-424-00-001000 | 173-10-424-00-001000 |  |  |  |  |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 170-XX-428-00-001000 | 173-10-428-00-001000 |  |  |  |  |
| 32 | 1.6 | 0.4 | 0.5 | 12 | 170-XX-432-00-001000 | 173-10-432-00-001000 |  |  |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 170-XX-624-00-001000 | 173-10-624-00-001000 |  |  |  |  |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 170-XX-628-00-001000 | 173-10-628-00-001000 |  |  |  |  |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 170-XX-632-00-001000 | 173-10-632-00-001000 |  |  |  |  |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 170-XX-636-00-001000 | 173-10-636-00-001000 |  |  |  |  |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 170-XX-640-00-001000 | 173-10-640-00-001000 |  |  |  |  |
| 42 | 2.1 | 0.6 | 0.7 | 9 | 170-XX-642-00-001000 | 173-1 | 0-642-00 | 001000 |  |  |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 170-XX-648-00-001000 | 173-10-648-00-001000 |  |  |  |  |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 170-XX-650-00-001000 | 173-10-650-00-001000 |  |  |  |  |
| 52 | 2.6 | 0.6 | 0.7 | 7 | 170-XX-652-00-001000 | 173-10-652-00-001000 |  |  |  |  |
| 50 | 2.5 | 0.9 | 1.0 | 8 | 170-XX-950-00-001000 | 173-10-950-00-001000 |  |  | XX=Plating Code |  |
| 52 | 2.6 | 0.9 | 1.0 | 7 | 170-XX-952-00-001000 | 173-10-952-00-001000 |  |  |  |  |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 170-XX-964-00-001000 | 173-10-964-00-001000 |  |  |  |  |
|  |  |  |  |  | SPECIFY PLATING CODE $X$ |  | $10 \diamond$ | 90 | $40 \diamond$ |  |
|  |  |  |  |  | Pin Plating ¢cecre |  | 10ر" Au | 200н" S | 200, " Sn |  |

DUAL-IN-LINE SOLDER CUP HEADERS
Solder Tail and Wrapost Open Frame


DUAL-IN-LINE PIN HEADERS Interconnect Open Frame


## DUAL-IN-LINE PIN HEADERS Interconnect Open Frame



DUAL-IN-LINE PIN HEADERS Interconnect Open Frame

|  |  |  |  |  |  | - Series 134 DIL Headers combine .030" diameter pins with pluggable .020 " diameter solder tails. <br> - Series: <br> 134... 020 use MM \#3402 pins 134... 010 use MM \#3401 pins 134... 050 use MM \#3405 pins 134... 000 use MM \#3400 pins 134... 100 use MM \#3410 pins See pages 182 for details. <br> - Insulators are high temperature thermoplastic. |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | $\text { = . } 190$ | Or | dering Inf | rmation |  |
|  | A | B | C |  |  |  | $L=.315$ | L = . 605 | $L=1.070$ |
| 10 | 0.5 | 0.2 | 0.3 | 41 | 134-10-210-00-020000 | 134-10-210-00-010000 | 134-10-210-00-050000 | 134-10-210-00-000000 | 134-10-210-00-100000 |
| 4 | 0.2 | 0.3 | 0.4 | 102 | 134-10-304-00-020000 | 134-10-304-00-01000 | 134-10-304-00-050000 | 134-10-304-00-000000 | 134-10-304-00-100000 |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 134-10-306-00-020000 | 134-10-306-00-010000 | 134-10-306-00-050000 | 134-10-306-00-000000 | 134-10-306-00-100000 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 134-10-308-00-020000 | 134-10-308-00-010000 | 134-10-308-00-050000 | 134-10-308-00-000000 | 134-10-308-00-100000 |
| 10 | 0.5 | 0.3 | 0.4 | 40 | 134-10-310-00-020000 | 134-10-310-00-010000 | 134-10-310-00-050000 | 134-10-310-00-000000 | 134-10-310-00-100000 |
| 14 | 0.7 | 0.3 | 0.4 | 28 | 134-10-314-00-020000 | 134-10-314-00-010000 | 134-10-314-00-050000 | 134-10-314-00-000000 | 134-10-314-00-100000 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 134-10-316-00-020000 | 134-10-316-00-010000 | 134-10-316-00-050000 | 134-10-316-00-000000 | 134-10-316-00-100000 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 134-10-318-00-020000 | 134-10-318-00-010000 | 134-10-318-00-050000 | 134-10-318-00-000000 | 134-10-318-00-100000 |
| 20 | 1.0 | 0.3 | 0.4 | 20 | 134-10-320-00-020000 | 134-10-320-00-010000 | 134-10-320-00-050000 | 134-10-320-00-000000 | 134-10-320-00-100000 |
| 22 | 1.1 | 0.3 | 0.4 | 18 | 134-10-322-00-020000 | 134-10-322-00-010000 | 134-10-322-00-050000 | 134-10-322-00-000000 | 134-10-322-00-100000 |
| 24 | 1.2 | 0.3 | 0.4 | 16 | 134-10-324-00-020000 | 134-10-324-00-010000 | 134-10-324-00-050000 | 134-10-324-00-000000 | 134-10-324-00-100000 |
| 28 | 1.4 | 0.3 | 0.4 | 14 | 134-10-328-00-020000 | 134-10-328-00-010000 | 134-10-328-00-050000 | 134-10-328-00-000000 | 134-10-328-00-100000 |
| 20 | 1.0 | 0.4 | 0.5 | 20 | 134-10-420-00-020000 | 134-10-420-00-010000 | 134-10-420-00-050000 | 134-10-420-00-000000 | 134-10-420-00-100000 |
| 22 | 1.1 | 0.4 | 0.5 | 18 | 134-10-422-00-020000 | 134-10-422-00-010000 | 134-10-422-00-050000 | 134-10-422-00-000000 | 134-10-422-00-100000 |
| 24 | 1.2 | 0.4 | 0.5 | 16 | 134-10-424-00-020000 | 134-10-424-00-010000 | 134-10-424-00-050000 | 134-10-424-00-000000 | 134-10-424-00-100000 |
| 28 | 1.4 | 0.4 | 0.5 | 14 | 134-10-428-00-020000 | 134-10-428-00-010000 | 134-10-428-00-050000 | 134-10-428-00-000000 | 134-10-428-00-100000 |
| 32 | 1.6 | 0.4 | 0.5 | 12 | 134-10-432-00-020000 | 134-10-432-00-010000 | 134-10-432-00-050000 | 134-10-432-00-000000 | 134-10-432-00-100000 |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 134-10-624-00-020000 | 134-10-624-00-010000 | 134-10-624-00-050000 | 134-10-624-00-000000 | 134-10-624-00-100000 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 134-10-628-00-020000 | 134-10-628-00-010000 | 134-10-628-00-050000 | 134-10-628-00-000000 | 134-10-628-00-100000 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 134-10-632-00-020000 | 134-10-632-00-010000 | 134-10-632-00-050000 | 134-10-632-00-000000 | 134-10-632-00-100000 |
| 36 | 1.8 | 0.6 | 0.7 | 11 | 134-10-636-00-020000 | 134-10-636-00-010000 | 134-10-636-00-050000 | 134-10-636-00-000000 | 134-10-636-00-100000 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 134-10-640-00-020000 | 134-10-640-00-010000 | 134-10-640-00-050000 | 134-10-640-00-000000 | 134-10-640-00-100000 |
| 42 | 2.1 | 0.6 | 0.7 | 9 | 134-10-642-00-020000 | 134-10-642-00-010000 | 134-10-642-00-050000 | 134-10-642-00-000000 | 134-10-642-00-100000 |
| 48 | 2.4 | 0.6 | 0.7 | 8 | 134-10-648-00-020000 | 134-10-648-00-010000 | 134-10-648-00-050000 | 134-10-648-00-000000 | 134-10-648-00-100000 |
| 50 | 2.5 | 0.6 | 0.7 | 8 | 134-10-650-00-020000 | 134-10-650-00-010000 | 134-10-650-00-050000 | 134-10-650-00-000000 | 134-10-650-00-100000 |
| 52 | 2.6 | 0.6 | 0.7 | 7 | 134-10-652-00-020000 | 134-10-652-00-010000 | 134-10-652-00-050000 | 134-10-652-00-000000 | 134-10-652-00-100000 |
| 50 | 2.5 | 0.9 | 1.0 | 8 | 134-10-950-00-020000 | 134-10-950-00-010000 | 134-10-950-00-050000 | 134-10-950-00-000000 | 134-10-950-00-100000 |
| 52 | 2.6 | 0.9 | 1.0 | 7 | 134-10-952-00-020000 | 134-10-952-00-010000 | 134-10-952-00-050000 | 134-10-952-00-000000 | 134-10-952-00-100000 |
| 64 | 3.2 | 0.9 | 1.0 | 6 | 134-10-964-00-020000 | 134-10-964-00-010000 | 134-10-964-00-050000 | 134-10-964-00-000000 | 134-10-964-00-100000 |
| For RoHS compliance select $\diamond$ plating code. |  |  |  |  | PLATING CODE = |  | $10 \diamond$ |  |  |
|  |  |  |  | Pin Plating | 匹त्cru | 10ر" Au |  |  |



- Series 142 DIL Headers have double ended .018" diameter pluggable solder tails.
- Used to interconnect PC Boards with spacings of .210 ", . 335 ", .585 " or .835 " Series 142 use MM \#4259-1, -2, -3 or -4 pins. See page 179 for details.

- Insulators are high temperature thermoplastic.

|  |  |  |  |  | Ordering Information |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | L=. 210 | L=. 335 | L=. 585 | L=. 835 |
|  | A | B | C |  |  |  |  |
| 6 | 0.3 | 0.3 | 0.4 | 67 | 142-XX-306-00-591000 | 142-XX-306-00-592000 | 142-XX-306-00-593000 | 142-XX-306-00-594000 |
| 8 | 0.4 | 0.3 | 0.4 | 50 | 142-XX-308-00-591000 | 142-XX-308-00-592000 | 142-XX-308-00-593000 | 142-XX-308-00-594000 |
| 14 | 0.7 | 0.3 | 0.4 | 29 | 142-XX-314-00-591000 | 142-XX-314-00-592000 | 142-XX-314-00-593000 | 142-XX-314-00-594000 |
| 16 | 0.8 | 0.3 | 0.4 | 25 | 142-XX-316-00-591000 | 142-XX-316-00-592000 | 142-XX-316-00-593000 | 142-XX-316-00-594000 |
| 18 | 0.9 | 0.3 | 0.4 | 22 | 142-XX-318-00-591000 | 142-XX-318-00-592000 | 142-XX-318-00-593000 | 142-XX-318-00-594000 |
| 20 | 1.0 | 0.3 | 0.4 | 40 | 142-XX-320-00-591000 | 142-XX-320-00-592000 | 142-XX-320-00-593000 | 142-XX-320-00-594000 |
| 24 | 1.2 | 0.3 | 0.4 | 17 | 142-XX-324-00-591000 | 142-XX-324-00-592000 | 142-XX-324-00-593000 | 142-XX-324-00-594000 |
| 22 | 1.1 | 0.4 | 0.5 | 14 | 142-XX-422-00-591000 | 142-XX-422-00-592000 | 142-XX-422-00-593000 | 142-XX-422-00-594000 |
| 24 | 1.2 | 0.6 | 0.7 | 16 | 142-XX-624-00-591000 | 142-XX-624-00-592000 | 142-XX-624-00-593000 | 142-XX-624-00-594000 |
| 28 | 1.4 | 0.6 | 0.7 | 14 | 142-XX-628-00-591000 | 142-XX-628-00-592000 | 142-XX-628-00-593000 | 142-XX-628-00-594000 |
| 32 | 1.6 | 0.6 | 0.7 | 12 | 142-XX-632-00-591000 | 142-XX-632-00-592000 | 142-XX-632-00-593000 | 142-XX-632-00-594000 |
| 40 | 2.0 | 0.6 | 0.7 | 10 | 142-XX-640-00-591000 | 142-XX-640-00-592000 | 142-XX-640-00-593000 | 142-XX-640-00-594000 |




DUAL-IN-LINE HEADERS
Series 150
Surface Mount, Gull Wing Open Frame


DUAL-IN-LINE SOCKETS
Series 117, 127, 217
Shrink DIP Sockets and Strips
227, 317, 327
Solder Tail and Wrapost


- High density DIP sockets and strips for devices featuring .070" lead spacing.
- Solder tails use MM \#1802 receptacles, See page 140 for details. Wraposts use MM \# 1702-2 or 1703-3 receptacles, See page 166 for details.
- Receptacles use Hi-Rel, 4finger \#30 contact and 6-finger \#43 contact, both rated at 3 amps. See pages 218 \& 220.
- Insulators are high temp. thermoplastic.



DUAL-IN-LINE SOCKETS
Series 117, 317
Gull Wing Shrink DIP Sockets \& Strips Surface Mount Solder Tail


## DUAL-IN-LINE HEADERS Solder Tail



## DUAL-IN-LINE HEADERS <br> Gull Wing Shrink DIP Headers and Strips <br> Surface Mount Solder Tail

Series 162, 862


DUAL-IN-LINE SOCKETS
Series 299
Right Angle Mount Closed Frame

|  |  |  |  | On |  | - For components to be mounted perpendicularly to the PCB, such as LED displays. <br> - Horizontal mount solder tails are available with either . 300 " (standard) or .100 " row spacing. <br> - Series 299 use MM \#1103/0903, \#1103/1610 or \#1103/0904 pins. See pages 137 \& 138 for details. <br> - Hi-Rel, 4 -finger BeCu \#30 contact is rated at 3 amps . See page 218 for details. <br> - Insulators are high temperature thermoplastic. |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Ordering Information |  |  |  |  |  |
|  |  |  |  |  |  | $E=.300$ |  | $E=.100$ |  |  |  |
| 6 | 0.3 | 0.3 | 0.4 |  |  | 299-XX-306-10-001000 |  | 299-XX-306-11-001000 |  |  |  |
| 8 | 0.4 | 0.3 | 0.4 |  |  | 299-XX-308-10-001000 |  | 299-XX-308-11-001000 |  |  |  |
| 10 | 0.5 | 0.3 | 0.4 |  |  | 299-XX-310-10-001000 |  | 299-XX-310-11-001000 |  |  |  |
| 12 | 0.6 | 0.3 | 0.4 | 33 |  | 299-XX-312-10-001000 |  | 299-XX-312-11-001000 |  |  |  |
| 14 | 0.7 | 0.3 | 0.4 | 29 |  | 299-XX-314-10-001000 |  | 299-XX-314-11-001000 |  |  |  |
| 16 | 0.8 | 0.3 | 0.4 | 25 |  | 299-XX-316-10-001000 |  | 299-XX-316-11-001000 |  |  |  |
| 18 | 0.9 | 0.3 | 0.4 | 22 |  | $\begin{aligned} & \text { 299-XX-318-10-001000 } \\ & 299-X X-320-10-001000 \end{aligned}$ |  | 299-XX-318-11-001000 |  |  |  |
| 20 | 1.0 | 0.3 | 0.4 | 20 |  |  |  | 299-XX-320-11-001000 |  |  |  |
| 24 | 1.2 | 0.3 | 0.4 | 16 |  | $\begin{aligned} & \text { 299-XX-320-10-001000 } \\ & 299-X X-324-10-001000 \end{aligned}$ |  | 299-XX-324-11-001000 |  |  |  |
| 8 | 0.4 | 0.6 | 0.7 | 50 |  | 299-XX-608-10-002000 |  |  |  |  |  |
| 10 | 0.5 | 0.6 | 0.7 | 40 |  | 299-XX-610-10-002000 |  |  |  |  |  |
| 12 | 0.6 | 0.6 | 0.7 | 34 |  | 299-XX-612-10-002000 |  |  |  |  |  |
| 14 | 0.7 | 0.6 | 0.7 | 28 |  | 299-XX-614-10-002000 |  |  |  |  |  |
| 16 | 0.8 | 0.6 | 0.7 | 25 |  | 299-XX-616-10-002000 |  |  |  |  |  |
| 18 | 0.9 | 0.6 | 0.7 | 22 |  | 299-XX-618-10-002000 |  |  |  |  |  |
| 20 | 1.0 | 0.6 | 0.7 | 20 |  | 299-XX-620-10-002000 |  |  |  |  |  |
| 22 | 1.1 | 0.6 | 0.7 | 18 |  | 299-XX-622-10-002000 |  |  |  |  |  |
| 24 | 1.2 | 0.6 | 0.7 | 16 |  | 299-XX-624-10-002000 |  |  |  |  |  |
| 26 | 1.3 | 0.6 | 0.7 | 15 |  | 299-XX-626-10-002000 |  |  |  |  |  |
| 28 | 1.4 | 0.6 | 0.7 | 14 |  | 299-XX-628-10-002000 |  |  |  |  |  |
| 30 | 1.5 | 0.6 | 0.7 | 13 |  | 299-XX-630-10-002000 |  |  |  |  |  |
| 32 | 1.6 | 0.6 | 0.7 | 12 |  | 299-XX-632-10-002000 |  |  |  |  |  |
| 36 | 1.8 | 0.6 | 0.7 | 11 |  | 299-XX-636-10-002000 |  |  |  |  |  |
| 40 | 2.0 | 0.6 | 0.7 | 10 |  | 299-XX-640-10-002000 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| SPECIFY PLATING CODE XX= |  |  |  |  |  | 93 |  |  |  | $43 \diamond$ |  |
| Sleeve (Pin) |  | (d) $)=$ |  |  |  | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ |  |  |  | 200 ${ }^{\prime \prime}$ " Sn |  |
| Contact (Clip) |  | $0 \otimes$ |  |  |  | $30 \mu$ " Au |  |  |  | 30ر" Au |  |

DUAL-IN-LINE SOCKETS
Series 296, 299, 594
Vertical Display Sockets
(See also page 61 for Right Angle DIP Sockets)

Fig. 1

FOOTPRINT
Fig. 2


- Series 296, 299 \& 594 vertical display sockets are used to mount dot matrix and 7-segment LED displays at the edge of and perpendicular to a printed circuit board. This positions the display directly behind the translucent front panel of the equipment.
- Series 299 \& 594 are through hole mount and can be wave or intrusive reflow soldered.
- Series 296 is surface mount and can be supplied on carrier tape for automated "pick 'n place" assembly.
- Insulators are high temp. Nylon 46, suitable for all soldering processes including "lead-free".

| Fig. | No. of <br> pins | Ordering Information |
| :---: | :---: | :---: |
| 1 | 10 | 299-99-210-12-001800 <br> Plating code |
| Roors |  |  |


296-XX-010-30-691800
(Discrete sockets)
296-XX-010-30-692800
(Supplied on 24 mm wide carrier tape per EIA-481: 450 per 13" reel)

DUAL-IN-LINE SOCKETS
Relay \& Zig-Zag Sockets


DUAL-IN-LINE SOCKETS

## Selectively Loaded Relay DIP Sockets

Solder Tail
 QUICK SELECTOR CHART

USE THIS CONVENIENT CHART TO SELECT THE RIGHT SIP INTERCONNECT FOR YOUR APPLICATION

1) Determine the style of pin needed to meet your requirement.
2) Select the appropriate insulator frame, pitch and grid spacing.
3) Turn to indicated page for detail and ordering information.
4) For custom assembly in a selected insulator, contact our applications engineers.

SINGLE \& DOUBLE ROW SIP SOCKETS, HEADERS AND CARRIERS


INTERCONNECTS
Series 850, 851
.050" Grid Headers and Sockets
852, 853


Fig. 1


- Series 850 single and double row interconnects have .050" pin spacing \& permit board stacking as low as . 248 ".
- Pin headers have .016" dia. pins (MM \#4006-0 ). See page 175 for details.
- MM \#0467 and MM \#4890 receptacles use Hi-Rel, 3-finger BeCu \#11 contacts rated at 3 amps. ( \#11 contact accepts pin diameters from .015"-.020" ). See pages 129 and 131 for details.
- Insulators are high temp. thermoplastic, suitable for all soldering operations.


Ordering Information

| Fig. 1 | Single Row | .087" Profile Pin Header |
| :---: | :---: | :---: |
|  | Specify \# of | $\begin{aligned} & -0_{-}--10-001000 \\ & \underline{\longrightarrow} \quad 01-50 \end{aligned}$ |
| Fig. 2 | Double Row | .075" Profile Pin Header |
|  | Specify \# o | $\begin{aligned} & \text { K- }----10-001000 \\ & \longrightarrow 002-100 \end{aligned}$ |



Fig. 3


Fig. 4


Fig. 5

INTERCONNECTS

## .050" Grid Right Angle Headers and Sockets Single and Double Row



Fig. 1


Fig. 2


Fig. 3


Fig. 4

INTERCONNECTS
Series 850, 851
.050" Grid Surface Mount Headers and Sockets
852, 853 Single and Double Row


Fig. 2


Fig. 3


Fig. 4
 accept pin diameters from .015-.021. See page 131 for details.

- Coplanarity .005" (Single Row max 20 pins; Double Row max 40 pins). For higher pin counts contact techical support.
- Insulators are high temp. thermoplastic.

| Ordering Information |  |  |
| :---: | :---: | :---: |
| Single Row Header, Left Hand Footprint <br> Odd or Even \# of pins |  |  |
|  |  |  |

Fig. 1L

| $850-X X-0_{-}$ |  |  |  |
| :--- | :--- | :---: | :---: |
| Specify \# of pins |  |  |  |
| Single Row Header, Right Hand Footprint |  |  |  |
| $-30-001000$ |  |  |  |
| $01-50$ |  |  |  |


| Fig. 1R | Even \# of pins |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { 850-XX-0_- } \\ \text { Specify even \# of pins } \stackrel{-30-002000}{\longrightarrow} 02-50 \end{gathered}$ |  |  |  |
| Fig. 2 | Double Row Header, Even \# of pins |  |  |  |
|  |  |  |  |  |
| SPECIFY PLATING CODE XX= |  | $10 \diamond$ | 90 | $40 \diamond$ |
| Pin Plating | こacč | $10 \mu$ " Au | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | 200 ${ }^{\prime \prime}$ Sn |
|  | Single Row Socket, Left Hand Footprint Odd or Even \# of pins |  |  |  |

Fig. 3L

| $\begin{array}{l}44 \text { Plating } \\ \text { Non-Standard } \\ \text { Specify \# of pins }\end{array}$ |  |  |  |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
|  | ght |  |  |

Fig. 3R Even \# of pins


INTERCONNECTS Single Row


- Series 850 horizontal Surface Mount Z-Bend headers are availble with .016 " da. solder tails and pluggable pins (MM \#4006-1). See page 175 for details.
- Series 851 horizontal Surface Mount Z-Bend sockets use MM \#4890-1 receptacles that accept pin diameters from .015"-.020". See pages 131 for


Ordering Information

|  | Single Row $\quad$ Surface Mount Z-Bend Header |
| :--- | :--- |

Coplanarity .005". For Pin Counts >20 positions consult Technical Support.

Fig. 1


Coplanarity .005". For Pin Counts >20 positions consult Technical Support.

Fig. 2



Fig. 2
Single Row Surface Mount Z-Bend Socket
$850-10-0---40-001000$
Specify \# of pins $\quad \longrightarrow \quad 02-20$


## INTERCONNECTS


$.050 "$ \& . 100 " Grid Surface Mount Headers and Sockets Single Row

- "Block" termination makes the interconnects "self-standing". This also minimizes profile and reduces the footprint compared with traditional "gull wing" designs.
- Series 399 is a matched pair of .050 " pitch sockets and headers with a mated height of only . $218^{\prime \prime}$.
- Series 340 is a $100^{\prime \prime}$ pitch SIP socket using Mill-Max \#30 contact (Data on page 218). The profile is only .200 ".
- Insulators are high temp. thermoplastic, suitable for all soldering processes.


Ordering Information

|  | Single Row Header, .050" Grid |
| :--- | :--- |

Fig. 1




> For RoHS compliance select $\diamond$ plating code.

Fig. 3

| SPECIFY PLATING CODE XX= |  | 91 | $41 \diamond$ |
| :---: | :---: | :---: | :---: |
| Sleeve (Pin) |  | $200{ }^{\prime \prime}$ Sn/Pb | 200 ${ }^{\prime \prime}$ Sn |
| Contact (Clip) |  | $10 \mu^{\prime \prime} \mathrm{Au}$ | 10⿲" Au |
| Fig. 3 | Single Row Socket, .100" Grid |  |  |
|  |  | $X-30-7801$ <br> pecify \# of | s 02-64 |
| SPECIFY PLATING CODE XX= |  | 99 | 44® |
| Sleeve (Pin) | (Pin) (0)) | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | 200 ${ }^{\prime \prime}$ "Sn |
| Contact (Clip) | ct (Clip) 0 ) | $200{ }^{\prime \prime}$ Sn/Pb | 200 ${ }^{\prime \prime}$ " ${ }^{\text {n }}$ |

INTERCONNECTS
Series 830, 831
2mm Grid Headers and Sockets
832, 833


Fig. 1

Fig. 2


Fig. 3


Fig. 4


Ordering Information
Single Row Pin Header

- Series 830 single and double row interconnects have 2 mm pin spacing and permit board stacking as low as .322".
- Pin headers ( 830 \& 832 series) use MM \#5012 pins. See page 175 for details.
- Sockets ( 831 \& 833 series) use MM \#1802 receptacles and accept pin diameters from $.015 "-.025$ ". See page 140 for details.
- Insulators are high temp. thermoplastic, suitable for all soldering operations.



Fig. 1

Fig. 2
Fg.

830-XX-0_ - $10-001000$
Specify \# of pins $\quad$ 01-50
Double Row Pin Header
832-XX-_ _ _-10-001000
Specify \# of pins $\quad$ 002-100


INTERCONNECTS
Series 830, 831

## 2mm Grid Surface Mount Headers And Sockets Single and Double Row

\begin{tabular}{|c|c|c|c|c|c|c|}
\hline  \& \begin{tabular}{l}
- Headers 832) us pins. Se for deta \\
- Sockets use MM recepta accept from . 01 page 14
\end{tabular} \& \begin{tabular}{l}
(830 \& \\
MM\# 6218 \\
page 175 \\
s. \\
(831 \& 833) \\
\# 1802 \\
les and \\
in diameter \\
5-.025. See \\
0 for details
\end{tabular} \& \&  \&  \&  \\
\hline \multirow[t]{4}{*}{\begin{tabular}{l}
Coplanarity . 005 . For Pin Counts \\
> 24 Consult Tech Support \\
Fig. 2
\end{tabular}} \& \multicolumn{6}{|l|}{\begin{tabular}{l}
(Single Row max 12 pins; Double Row max 24 pins) for higher pin counts contact technical support. \\
- Insulators are high temp. thermoplastic.
\end{tabular}} \\
\hline \& \multicolumn{6}{|c|}{Ordering Information} \\
\hline \& \multirow[b]{2}{*}{Fig. 1L} \& \multicolumn{5}{|l|}{Single Row Header, Left Hand Footprint Odd or Even \# of pins} \\
\hline \& \& \multicolumn{5}{|l|}{\begin{tabular}{l} 
830-XX-0 \\
Specify \# of pins \\
\\
\hline\(-30-001000\) \\
\hline
\end{tabular}} \\
\hline \multicolumn{7}{|l|}{\begin{tabular}{|c|l|}
\(\substack{\text { Left tand } \\
\text { Footprint }}\) \& Single Row Header, Right Hand Footprint \\
Even \# of pins
\end{tabular}} \\
\hline \(-1.087-\quad\) Number of Pin \& Fig. 1R \& \multicolumn{5}{|l|}{Specify even \# of pins \(\longrightarrow\) 02-50} \\
\hline , \& \multirow[b]{2}{*}{Fig. 2} \& \multicolumn{5}{|l|}{Double Row Header, Even \# of pins} \\
\hline  \& \& \multicolumn{5}{|l|}{Specify even \# of pins \(\xrightarrow{L^{-30-001000}} 0004-100\)} \\
\hline \& \multicolumn{3}{|l|}{SPECIFY PLATING CODE XX=} \& \(10 \diamond\) \& \multicolumn{2}{|l|}{90} \\
\hline \& Pin Plating \& car \& \& \(10 \mu\) " A \& \(200{ }^{\prime \prime}\) Sn/Pb \& \(0 \mu^{\prime \prime} \mathrm{Sn}\) \\
\hline \begin{tabular}{l}
Coplanarity .005". For Pin Counts \\
> 12 Consult Tech Support
\end{tabular} \& \multirow{3}{*}{Fig. 3L} \& \multicolumn{5}{|l|}{Single Row Socket, Left Hand Footprint Odd or Even \# of pins} \\
\hline \& \& \multicolumn{5}{|l|}{\multirow[t]{2}{*}{831-XX-0_--30-001000
Specify \# of pins

$01-50$}} <br>

\hline \multirow[b]{8}{*}{| Coplanarity .005". For Pin Counts |
| :--- |
| Fig. 4 |} \& \& \& \& \& \& <br>

\hline \& \multirow[b]{2}{*}{Fig. 3} \& \multicolumn{5}{|l|}{Single Row Socket, Right Hand Footprint Even \# of pins} <br>
\hline \& \& \multicolumn{5}{|l|}{Specify even \# of pins $\square$ 02-50} <br>
\hline \& \multirow[b]{2}{*}{Fig. 4} \& \multicolumn{5}{|l|}{Double Row Socket, Even \# of pins} <br>
\hline \& \& \multicolumn{5}{|l|}{$833-X X-$
Specify even \# of pins
$\xrightarrow{-30-001000}$
$004-100$} <br>
\hline \& \multicolumn{2}{|l|}{SPECIFY PLATING CODE XX=} \& \& 93 \& \multicolumn{2}{|l|}{$43 \diamond$} <br>
\hline \& \multicolumn{2}{|l|}{Sleeve (Pin) (0)) ${ }^{\text {a }}$} \& \& 2004" SnPb \& \multicolumn{2}{|l|}{$200 \mu^{\prime \prime} \mathrm{Sn}$} <br>
\hline \& Contact (Clip) \& $0 \Rightarrow$ \& \& $30 \mu^{\prime \prime} \mathrm{Au}$ \& \multicolumn{2}{|l|}{$30{ }^{\prime \prime} \mathrm{Au}$} <br>
\hline
\end{tabular}

INTERCONNECTS

## 2mm Grid Right Angle Headers and Sockets

 Single and Double Row

- Series 830 \& 832 use MM \#3790 \& MM \#3796 pins. See page 176 for details.
- Series 831 \& 833 use MM \#1805 and MM \#3805 receptacles and accept pin diameters from .015"-.025". See page 140 for details.
- Receptacles use Hi-Rel, 6 finger BeCu \#43 contact rated at 3 amps . See page 220 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

Fig. 2
Fig. 2



Fig. 3


Fig. 4
Fig. 4
Fig. 3


INTERCONNECTS
Series 301, 310,
.100" Grid (.018" dia.) Pins, Straight and Right Angle
350, 399


Fig. 1


Fig. 2


Fig. 3


Fig. 4


Fig. 5

- Series $3 X X$ are available with straight and right angle solder tails.
- Series 350 \& 399... 009 use MM \#3404 and \#5011 pins. See pages 179 \& 181 for details.
- Series 301, 310 \& 399... 003 use MM \#0156, \#1001 \& \#1103 receptacles. See pages 136 \& 137 for details.
- Receptacles use Hi-Rel, 4 finger \#30 BeCu contact rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.


Ordering Information


| SPECIFY PLATING CODE XX= |  | $10 \diamond$ |  | 0 | $40 \diamond$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pin Plating | $\underline{c c c a s}$ | $10 \mu^{\prime \prime} \mathrm{Au}$ | 200" ${ }^{\prime \prime}$ | Sn/Pb | $200 \mu^{\prime \prime}$ Sn |  |  |
| Fig. 3 | Series 310... 001 |  |  |  | Straight Socket |  |  |
|  | 310-XX-1_-41-001000 |  |  |  |  |  |  |
|  | Specify \# of pins $\quad$ - 01-64 |  |  |  |  |  |  |
| Fig. 4 | Series 301... 056 Socket w/ Retention Pegs |  |  |  |  |  |  |
|  | $\begin{gathered} \text { 301-XX-1_- }-41-560000 \\ \text { Specify \# of pins } \\ \longrightarrow \end{gathered}$ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Fig. 5 | Series 399... 003 |  |  | Right Angle Socket |  |  |  |
|  | $\begin{gathered} 399-X X-1---10-003000 \\ \text { Specify \# of pins } \quad \stackrel{\text { 01-64 }}{\longrightarrow} \end{gathered}$ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| SPECIFY PLATING CODE XX= |  | 91 | 93 | 99 | $41 \diamond$ | $43 \diamond$ | $44 \diamond$ |
| Sleeve (Pin) (0)J | - 104"Au | 200u" STMb | 200u" SNP | 200M"SnPb | 200H"Sn | 200u"Sn | 200"s |
| Contact (Clip) | ® $30 \square^{\prime \prime} \mathrm{Au}$ | $10 \mu^{\prime \prime} \mathrm{Au}$ | ${ }^{30 \mu^{\prime \prime}} \mathrm{Au}$ | 200u"SnPb | $10 \mu^{\text {P }}$ Au | 301 | 200\%"Sn |

INTERCONNECTS


Fig. 1


Fig. 2

Fig. 3


Fig. 4


- Series 4XX are available with straight and right angle solder tails.
- Series 450 \& 499... 009 use MM \#3404 and \#5011/5113 pins. See pages 179 \& 181 for details.
- Series 410 \& 499... 003 use MM \#1001 and \#1103/1602 receptacles. See pages 136, 137 \& 138 for details.
- Receptacles use Hi-Rel, 4 finger \#30 BeCu contact rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 450...006 | Straight Pin Header |
| :---: | :---: | :---: |
|  | 450-XX-2 | $--00-006000$ |
|  | Specify \# of pins | $\longrightarrow 02-64$ |

Fig. 2
Series 499... 009 Right Angle Pin Header

499-10-2 _ _-10-009000
Specify \# of pins $\quad \longrightarrow \quad 02-64$

Fig. 4
499-XX-2
Right Angle Socket
Fig. 3

|  |  |  | For RoHS compliance select $\diamond$ plating code. |  |
| :---: | :---: | :---: | :---: | :---: |
| SPECIFY PLATING CODE XX= | $10 \diamond$ | 90 | $40 \diamond$ |  |
| Pin Plating चceccuc | $10 \mu " \mathrm{Au}$ | 200ر" Sn/Pb | $200 \mu$ " Sn |  |


| Fig. 3 | Series 410...001 | Straight Socket |
| :---: | :---: | :---: |
|  | $410-X X-2$ | $-41-001000$ |

INTERCONNECTS
.100" Grid Solder Cup Headers and Sockets


- Series 380 \& 480 use MM \#8000 pins. See page 183 for details.
- Series 329 \& 429 use MM \#2954 pin receptacles and accept pin diameters from .015 "-. 025 ". See page 142 for details.
- Series 329 \& 429 receptacles use Hi-Rel, 4 finger $\mathrm{BeCu} \# 30$ contacts rated at 3 amps . See page 218 for details.
- Solder cups are pre-aligned.
- Insulators are high temp. thermoplastic.


Ordering Information


Fig. 2
Fig. 2
Fig. 1
380-XX-1_ _-00-001000 Specify \# of pins $\quad$ 01-64


For RoHS compliance
select $\diamond$ plating code.


Fig. 3
Fig. 3


Fig. 4

INTERCONNECTS
.100" Grid Surface Mount Headers and Sockets 414, 429
 consult Technical Support.

Fig. 1


Coplanarity .005". For Pin Counts $>10$ positions consult Technical Support.


- Series 329 and 429 pin interconnects offer vertical Surface Mount MM \#2956-X solder tails. See page 185 for details.
- Series 340 Surface mount sockets use MM \#4078 pins. Series 414 sockets use MM \#1434 pins. See pages 133 and 138 for details.
- Series 340 and 414 receptacles use HiRel, 4-finger BeCu \#30 contacts rated at 3 amps. Receptacles accept .015"-.025" diameter pins. See page 218 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

|  | Series 329... $560 \quad$ Surface Mount Pin Header |
| :--- | :--- |
|  |  |

Fig. 1

| Fig. 1 | $329-10-1$ <br> Specify \# of pins$\stackrel{-00-560000}{\longrightarrow} 02-64$ |
| :--- | :--- |
|  | Series 429...560 Surface Mount Pin Header |

Fig. 2
Surface Mount Pin Header

| PLATING CODE $=$ | $10 \diamond$ |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Pin Plating चracca | $10 \mu^{\prime \prime} \mathrm{Au}$ |  |  |  |  |  |
| Surface Mount Socket |  |  |  |  |  |  |



Coplanarity .005". For Pin Counts $>10$ positions consult Technical Support.

Fig. 4

Fig. 3
Specify \# of pins $\quad$ 04-72



INTERCONNECTS
Series 310, 351,


Coplanarity . 005 ". For Pin Counts $>10$ positions consult Technical Support.

Fig. 1


Coplanarity .005". For Pin Counts $>10$ positions consult Technical Support.

Fig. 2

Mates w/ Series 351... 002 Surface Mount Header (See Fig. 1)


Coplanarity .005". For Pin Counts $>10$ positions consult Technical Support.


Coplanarity .005". For Pin Counts $>10$ positions consult Technical Support.

Fig. 4

- Series 351 and 800 horizontal Surface Mount headers are availble with .018 " dia. pluggable pins (MM \#5102) and .028" dia. pluggable pins (MM \#1502). See page 185 for details.
- Series 310 horizontal Surface Mount ZBend sockets use MM \#1023 receptacles that accept pin diameters from .015"-.025" Series 801 use MM \#1303 receptacles that accept pin diameters from .025"-.037" and .025 " square leads. See pages 142 and 150 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 351... 002 | . 018 Dia. Surface Mount Header |
| :---: | :---: | :---: |
|  | 351-10-1_ _-40-002000 |  |
|  | Specify \# of | ns $\longrightarrow$ 02-10 |

Fig. 2
Series 800... 002 . 028 Dia. Surface Mount Header


Fig. 3
Specify \# of pins $\quad \longrightarrow$ 02-10
Series 801... 002 . 028 Dia. SMT Z-Bend Socket
Fig. 4 801-XX-0 _ -40-002000 Specify \# of pins $\quad$ 02-10



INTERCONNECTS
.100" Grid (.018" dia.) Pins SMT Gull Wing Headers \& Sockets
410, 450


INTERCONNECTS
Series 350, 450
.100" Grid (.025" dia.) Low Profile Headers \& Versatile Sockets
801, 803 Single and Double Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4


Fig. 5

- Series 350 \& 450 single and double row headers use MM \#0290 pins. See page 182 for details.
- Series 801 \& 803 single and double row low profile sockets use MM \#1303 pins. See page 150 for details.
- Series 801 and 803 receptacles use Hi-Rel, 6-finger BeCu \#16 contacts rated at 4.5 amps . Receptacles accept .025 " diameter and .025 " square pins. See page 221 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Single Row | . 025 Pin / . 018 Solder Tail |
| :---: | :---: | :---: |
|  | 350-XX-1_ _-00-001000 |  |
|  | Specify \# of pins $\longrightarrow$ 01-64 |  |
|  | Double Row | . 025 Pin / 018 Solder Tail |
| Fig. 2 |  | _ -00-001000 |

Fig. 2
450-XX-2 _ _-00-001000
Specify \# of pins $\quad$ O2-64


| SPECIFY PLATING CODE XX= | $10 \diamond$ | 90 | $40 \diamond$ |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Pin Plating ¿accu | $10 \mu " \mathrm{Au}$ | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu " \mathrm{Sn}$ |  |

Fig. 3
Single Row Low Profile Socket (short insulator)


Fig. 4
Specify \# of pins
01-36

Fig. 5
Double Row Low Profile Socket
803-43-0
Specify \# of pins
$\longrightarrow$${ }^{--10-003000}$


INTERCONNECTS
Series 800, 801
.100" Grid (.030" dia.) Low Profile Headers \& Versatile Sockets
802, 803
Single and Double Row


Fig. 1


Fig. 2


- Series 800 and 802 single and double row pin headers use MM \#5016 pins. See page 182 for details.
- Series 801 and 803 single and double row sockets use MM \#1303 pins. See page 150 for details.
- Series 801 and 803 receptacles use Hi-Rel, 6 -finger $\mathrm{BeCu} \# 47$ contacts rated at 4.5 amps . Receptacles accept .025 " diameter and .025 " square pins. See page 221 for details.
- Insulators are high temp. thermoplastic.



## Ordering Information



Fig. 3

| SPECIFY PLATING CODE XX= |  | $10 \diamond$ | 90 | $40 \diamond$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Pin Plating | accra | 10^" Au | 200 ${ }^{\prime \prime}$ Sn/Pb | 200 ${ }^{\prime \prime}$ Sn |  |
| Fig. 3 | Single Row Low Profile Socket (short insulator) |  |  |  |  |
|  | $801-X X-0$Specify \# of pins$\longrightarrow \quad 01-64$ |  |  |  |  |
| Fig. 4 | Single Row Low |  | Low Profile Socket (long insulator) |  |  |
|  |  | 801- | X-0 _ _-10 | 12000 |  |

Fig. 4


Fig. 5

INTERCONNECTS
Series 800, 801

Fig. 1
.100" Grid (.030" dia.) Pins, Straight and Right Angle Single Row


Fig. 2


Fig. 3


Fig. 4
Ordering Information

| Ordering Information |  |  |
| :---: | :---: | :---: |
| Fig. 1 | Series 800...10-001 | Straight Pin Header |
|  | Specify \# of pins | $L^{-10-001000}$ |
|  | 800-XX-0 | $01-64$ |

Fig. 1

| Ordering Information |  |  |
| :---: | :---: | :---: |
|  | Series 800...10-001 | Straight Pin Header |
| Fig. 1 | $800-X$ <br> Specify \# of pin | $\begin{aligned} & 10-001000 \\ & \longrightarrow \quad 01-64 \end{aligned}$ |

Fig. 2
Pin interconnects available with straight MM \#7007 or right angle MM \#5005 solder tails. See page 182 for details.

- Sockets are available with straight MM \#1304 or right angle MM \#1305 solder tails. See pages $148 \& 149$ for details.
- MM \#1304 and MM \#1305 receptacles use Hi-Rel, 6 -finger BeCu \#47 contacts rated at 4.5 amps . Receptacles accept .030" diameter and .025" square pins. See page 221 for details.
- Insulators are high temp. thermoplastic.


$\square$


Fig. 3

| SPECIFY PLATING CODE XX= | $10 \diamond$ | 90 | $40 \diamond$ |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pin Plating raccr | $10 \mu " \mathrm{Au}$ | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu " \mathrm{Sn}$ |  |  |  |  |
|  |  |  |  |  |  |  |  |


| Fig. 3 | Series 801...10-001 |  |  | Straight Socket |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\substack{44 \text { Plating } \\ \text { Non-Standard }}$Specify $\#$ of pins801-XX-0$\longrightarrow$ |  |  |  |  |  |
| Fig. 4 | Series 801...20-001 |  |  | Right Angle Socket |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| SPECIFY PLATING CODE XX= |  |  | 93 | 99 | $43 \diamond$ | $44 \diamond$ |
| Sleeve (Pin) (0)) D= |  |  | 200u" SnPb | 2001" SNPb | - ${ }^{200 \mu " S n}$ | 200u"Sn |
| Contact (Clip) 0 |  |  | $30 \mu^{\prime \prime} \mathrm{Au}$ | 2004"SNPb | 30ı" Au | 200 ${ }^{\prime}$ |

Fig. 4

INTERCONNECTS
Series 802, 803


- Pin interconnects available with straight MM \#7007 or right angle MM \#5005/5107 solder tails. See page 182 for details.
- Sockets are available with straight MM \#1304 or right angle MM \#1305/1306 solder tails. See pages $148 \& 149$ for details.
- MM \#1304, \#1305 \& \#1306 receptacles use use Hi-Rel, 6 -finger BeCu \#47 contacts rated at 4.5 amps . Receptacles accept .030 " diameter and .025 " square pins. See page 221 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 802...10-001 | Straight Pin Header |
| :---: | :---: | :---: |
|  | 802-XX-0_ _-10-001000 |  |
|  | Specify \# of pins $\longrightarrow$ 02-6 |  |
|  | Series 802...20-001 | ht Angle P |

Fig. 2
Fig. 2

## Double Row



Fig. 3


Fig. 4
Fig. 3

| SPECIFY PLATING CODE $\mathrm{XX}=$ | $10 \diamond$ | 90 | $40 \diamond$ |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $10 u^{\prime \prime} \mathrm{Au}$ | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu^{\prime \prime} \mathrm{Sn}$ |  |

Series 803...10-001
803-XX-_ _ _-10-001000
Specify \# of pins
$\longrightarrow$ 002-100

| Fig. 4 |  |
| :--- | ---: |
|  |  |


|  |  |  | For RoHS compliance select $\diamond$ plating code |
| :---: | :---: | :---: | :---: |
| SPECIFY PLATING CODE XX= | 93 | 99 | $43 \diamond$ |
| Sleeve (Pin) (0)] | $200{ }^{\text {S SNPb }}$ | 2004 "SnPb | ${ }^{200 \mu}{ }^{\prime \prime} \mathrm{Sn}$ |
| Contact (Clip) $0 \geqslant$ | ${ }^{301} \mathrm{H}^{\prime \prime} \mathrm{Au}$ | 2001"SnPb | $30 \mu^{\prime \prime} \mathrm{AL}$ |

INTERCONNECTS
Series 800, 801
.100" Grid (.030" dia.) Pins, Solderless Press-Fit
Single Row


Fig. 1


Fig. 2

Fig. 3

Fig. 4

- The unique compliant tail pins conform to $.040 " \pm .003^{\prime \prime}$ finished hole without stressing inner layers. Patent No. 4,799,904
- Series 800 pin headers are offered in two tail lengths for .060"-. 100" (MM \#5601) and . 090 "-. $130^{\prime \prime}$ (MM \#5602) thick panels. See page 187 for details.
- Series 801 sockets MM \#4614 or \#4615 use Hi-Rel, 6 -finger BeCu \#47 contacts rated at 4.5 amps . Receptacles accept .030 " diameter pins \& .025 " square pins. See page 221 for details.
- Insulators are high temp. thermoplastic.


| SPECIFY PLATING CODE XX= | $10 \diamond$ | $\mathbf{9 0}$ | $40 \diamond$ |  |
| :--- | :---: | :---: | :---: | :---: |
| Pin Plating ¿匹CCح | $10 \mu^{\prime \prime} \mathrm{Au}$ | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu^{\prime \prime} \mathrm{Sn}$ |  |

Compliant Tail Socket for . 060-. 100" thick boards
Fig. 3
Ordering Information

| Fig. 1 | Compliant Tail Pin Header for . 060 - . 100" thick boards |
| :---: | :---: |
|  | 800-XX-0 _ _-61-001000 |
|  | Specify \# of pins $\longrightarrow$ 01-64 |
| Fig. 2 | Compliant Tail Pin Header for . 090 - . 130" thick boards |
|  | 800-XX-0 _ _-62-001000 |
|  | Specify \# of pins $\quad$ - 01-64 |


| Fig. 3 | Compliant Tail Socket <br> for $.060-.100 "$ thick boards |
| :---: | :---: |
|  | $801-\mathrm{XX}-0 \_-61-001000$ <br> Specify \# of pins |

Compliant Tail Socket
Fig. 4
for . 090 - . 130" thick boards
801-XX-0 _ _-62-001000


INTERCONNECTS
Series 802, 803
.100" Grid (.030" dia.) Pins, Solderless Press-Fit
Double Row


Fig. 2


Fig. 3


Fig. 4

INTERCONNECTS

Fig. 1


Coplanarity . 005 ". For Pin Counts >20 positions consult Technical Support.

Fig. 2


- Series 800 \& 802 use MM \#7007 pins. See page 182 for details.
- Series 801 \& 803 use MM \#1304 receptacles and accept pin diameters from $.025 "-.037$ " and .025 " square pins. See page 148 for details.
- Receptacles use Hi-Rel, 6 finger BeCu \#47 contact rated at 4.5 amps . See page 221 for details.
- Insulators are high temp. thermoplastic.


Fig. 2
Fig. 1
Ordering Information

|  | $800 \ldots 001$ | Single Row Surface Mount Header |
| :--- | :--- | :--- |
|  |  |  |

800-10-0_ _-30-001000
Specify \# of pins $\longrightarrow$ 03-64
802... 001 Double Row Surface Mount Header


Specify \# of pins $\longrightarrow$ 04-72

For RoHS compliance select $\diamond$ plating code.

| PLATING CODE $=$ | $10 \diamond$ |  |  |  |
| :--- | :---: | :--- | :--- | :--- |
| Pin Plating 〒cccac= | $10 \mu " \mathrm{Au}$ |  |  |  |

801... 001 Single Row Surface Mount Socket

Fig. 3
Specify \# of pins $\stackrel{\text { 801-43-0 }}{L_{0-50}^{-30-001000}}$


Coplanarity .005". For Pin Counts >20 positions consult Technical Support.

Fig. 4



INTERCONNECTS
Series 800, 801
.100" Grid (.040" dia.) Pins, Headers and Sockets
802, 803


Fig. 1

- Series 800 and 802 single \& double row interconnects feature sturdy .040" Dia. leads (MM \#3077) and low profile (.071" thick) insulator. See page 182 for details.
- Series 801 and 803 single and double row sockets use MM \#1313 receptacles. See page 151 for details.

- Insulators are high temp. thermoplastic.


## Ordering Information

Series 801 and 803 receptacles use Hi-Rel, 6 -finger BeCu \#18 contacts rated at 8 amps . Receptacles accept .037 "-. 043 " diameter pins. See page 222 for details.

Fig. 2


Fig. 3


Fig. 4

INTERCONNECTS

- 834/835 Series Pass Through Sockets have a low .130" profile and will accept Ø.030" round pin, as well as industry standard .025 " square pin headers.
- They are typically used to interconnect two or more parallel circuit boards.
- Sockets are designed for hand, wave or reflow* soldering. The high temp. insulator is compatible with all solder processes.
- Unique ORGANIC FIBRE PLUG ${ }^{\circledR}$ barriers prevent solder, paste or flux from contaminating the internal spring contacts. After soldering, the OFP ${ }^{\circledR}$ barriers are pushed out of the socket when the mating header is inserted.
- Mill-Max sockets use a precision-machined brass sleeve with a press-fit beryllium copper "multi-finger" spring contact.
- Recommended mounting holes are $\emptyset .046$ $\pm .003$ " PTH ( $1,2 \mathrm{~mm}$ drilled prior to plating). *Intrusive reflow (also called "pin-in-paste") is a technique of using conventional through-hole components in a reflow soldering process. The pass through socket is placed into plated through-holes in the circuit board (solder paste has previously been screen printed on pads adjacent to the holes) and the board is reflowed in the same pass as other SMT components. Solder will fill the plated through-holes and achieve solder joints as reliable as wave soldering. The OFP ${ }^{\circledR}$ barrier prevents solder paste from being picked-up inside the contact during assembly.


Fig. 1


INTERCONNECTS
Series 800, 801
.200" Grid (.030" dia.) Pins, Straight and Right Angle Single Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4

SINGLE-IN-LINE SOCKETS
.100" Grid Solder Tail Single Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4

- SIP sockets accept .015-.025" diameter pins and standard IC leads.
- Various solder tails available: standard length, long for multi-layer boards, very low and ultra low profile. See Mill-Max \#1001, 0134, 0501 or 1534 pins (See pages 132, 133, 136) for details.
- Hi-Rel, 4-finger BeCu \#12 \& \#30 contacts are rated at 3 amps . See pages 218 for details.
- Insulators are high temp. thermoplastic.

Ordering Information

| Fig. 1 | Series 310... 001 Standard Solder Tail |
| :---: | :---: |
|  | $\begin{gathered} 310-\mathrm{XX}-1-1--41-001000 \\ \text { Specify \# of pins } \\ \longrightarrow \end{gathered}$ |
| Fig. 2 | Series 311... 001 Long Solder Tail |
|  |  |
| Fig. 3 | Series 315... 001 Very Low Profile |
|  | $\begin{array}{c}\text { 412 } 9 \text { Platings } \\ \text { Non-Standard } \\ \text { Specify }\end{array}$ \# of pins <br>  |
| Fig. 4 | Series 315... $003 \quad$ Ultra Low Profile |
|  |  |


| For Electrical, <br> Mechanical \& Enviromental <br> Data, See pg. 4 |  | $X X=$ | $n g \mathrm{Co}$ |  | For RoHS compliance select $\diamond$ plating code. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SPECIFY PLATING CODE XX= | $13 \diamond$ | 91 | 93 | 99 | $41 \diamond$ | $43 \diamond$ | $44 \diamond$ |
| Sleeve (Pin) (0) $) \square$ | $10 \mu " \mathrm{Au}$ | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu$ " Sn/Pb | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu$ "Sn | $200 \mu$ "Sn | $200 \mu$ "Sn |
| Contact (Clip) 0 | $30 \mu " \mathrm{Au}$ | $10 \mu^{\prime \prime} \mathrm{Au}$ | $30 \mu " \mathrm{Au}$ | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ | $10 \mu " \mathrm{Au}$ | $30 \mu " \mathrm{Au}$ | 2004"Sn |

SINGLE-IN-LINE SOCKETS
.100" Grid Solder Tail Double Row


Fig. 2


Fig. 3


Fig. 4

- Series 41 X double row strip sockets are on .100" grid.
- Various solder tails available: standard length, long for multi-layer boards, very low and ultra low profile. Using Mill-Max \#1001, 0134, 0501 or 1534 pins (See pages 132, 133, 136) for details.
- Hi-Rel, 4-finger BeCu \#12 \& \#30 contacts are rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.

Ordering Information

| Fig. 1 | Series 410... 001 | Standard Solder Tail |
| :---: | :---: | :---: |
|  | 410-XX-2_ _-41-001000 |  |
|  | Specify \# of pins | $\longrightarrow$ 02-64 |
|  | Series 411... 001 | Long Solder Tail |

Fig. 2
411-13-2_ _-41-001000
Specify \# of pins
Series 415... $001 \quad$ Very Low Profile
Fig. 3
415-XX-2_ _-41-001000
Specify \# of pins $\quad$ — 02-64
Series 415... $003 \quad$ Ultra Low Profile
Fig. 4


|  |  |  | For RoHS complian select $\diamond$ plating $c$ | ode. |
| :---: | :---: | :---: | :---: | :---: |
| SPECIFY PLATING CODE XX= | $13 \diamond$ | 93 | $43 \diamond$ |  |
| Sleeve (Pin) (0)) | $10 \mu^{\prime \prime} \mathrm{Au}$ | $200 \mu$ " Sn/Pb | $200 \mu$ " Sn |  |
| Contact (Clip) $\bigcirc$ ) | $30 \mu^{\prime \prime} \mathrm{Au}$ | $30 \mu^{\prime \prime} \mathrm{Au}$ | $30 \mu^{\prime \prime} \mathrm{Au}$ |  |

SINGLE-IN-LINE SOCKETS
.100" Grid Elevated Single Row


Fig. 1


Fig. 2
$1-)^{-015-025} 0$


Fig. 3

- $-010 \times 0.018$ ®


Fig. 4


Fig. 5

- Elevated socket strips are available in 5 different heights:
316... 006 uses pin \# 0153-1
316... 003 uses pin \# 0153-2
316... 007 uses pin \# 0153-3
316... 008 uses pin \# 0153-4
316... 001 uses pin \# 0153-5 See page 138 for details.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.



## Ordering Information

| Fig. 1 | Series 316...006 | Standoff Height $=.236$ |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $316-X X-1$ <br> Specify \# of pins | $-41-006000$ |  |  |
|  | Series 316...003 | Standoff Height $=.315$ |  |  |
|  |  |  |  |  |

Fig. 2
$316-X X-1_{-}$
Specify \# of pins
$\longrightarrow \quad 01-64$

Series 316... 007
Standoff Height = . 402
Fig. 3
316-XX-1_ _-41-007000
Specify \# of pins $\quad$ 01-64
Series 316... $008 \quad$ Standoff Height $=.472$
Fig. 4

Fig. 5
Series 316... $001 \quad$ Standoff Height $=.594$

| For Electrical, <br> Mechanical \& Enviromental <br> Data, See pg. 4 |
| :--- |
| SPECIFY PLATING CODE XX= |

SINGLE-IN-LINE SOCKETS
.100" Grid Elevated Double Row


Fig. 1


Fig. 3


Fig. 4


Fig. 5

- Elevated socket strips are available in 5 different standoff heights:
416... 006 uses pin \# 0153-1
416... 003 uses pin \# 0153-2
416... 007 uses pin \# 0153-3
416... 008 uses pin \# 0153-4
416... 001 uses pin \# 0153-5

See page 138 for details.

- Hi-Rel, 4 -finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.


## Ordering Information

| Fig. 1 | Series 416... 006 | Standoff Height = .236" |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  | Series 416... 003 | Standoff Height = .315" |

Fig. 2 416-XX-2_ -41-003000
Specify \# of pins $\quad$ 02-64

| Fig. 3 | Series 416... 007 | Standoff Height = .402" |
| :---: | :---: | :---: |
|  | 416-XX-2_ _-41-007000 |  |
|  | Specify \# of pi | 02-64 |
|  | Series 416... 008 | Standoff Height = .472" |

Fig. 4 416-XX-2_ -41-008000
Specify \# of pins $\quad$ 02-64
Series 416... $001 \quad$ Standoff Height $=.594$ "
Fig. 5
416-XX-2_ _-41-001000
Specify \# of pins $\quad$ - 02-64

SINGLE-IN-LINE SOCKETS
.100" Grid Wrapost
323, 324


Fig. 1


Fig. 2


Fig. 3


Fig. 4

- Wraposts available in 1-4 levels using MM pin numbers:

1-Level uses pin \# 0040-1
2-Level uses pin \# 0089-2
3-Level uses pin \# 0088-3
4-Level uses pin \# 0086-4
See page 166 for details.

- Hi-Rel, 4 -finger $\mathrm{BeCu} \# 30$ contact is rated at 3 amps. See page 218 for details.
- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 321... 001 | 1 Level Wrapost |
| :---: | :---: | :---: |
|  | $321-$ <br> Specify \# of pin | $\begin{aligned} & -41-001000 \\ & \longrightarrow \quad 01-64 \end{aligned}$ |
| Fig. 2 | Series 322... 001 | 2 Level Wrapost |
|  | Specify \# of pin | $\begin{aligned} & -41-001000 \\ & \longrightarrow \quad 01-64 \end{aligned}$ |
| Fig. 3 | Series 323... 001 | 3 Level Wrapost |
|  | Specify \# of pin | $\begin{aligned} & -41-001000 \\ & \longrightarrow \quad 01-64 \end{aligned}$ |
| Fig. 4 | Series 324... 002 | 4 Level Wrapost |
|  | Specify \# of pin | $\begin{aligned} & -41-002000 \\ & \longrightarrow \quad 01-64 \end{aligned}$ |

Fig. 4


SINGLE-IN-LINE SOCKETS
Series 421, 422
.100" Grid Wrapost
423, 424
Double Row


Fig. 2


Fig. 3


| For Electrical, |
| :---: |
| Mechanical \& Enviromental |
| Data, See pg. 4 |

SINGLE-IN-LINE SOCKETS

## Single Row



Fig. 1


Fig. 2


Fig. 3

- Wrapost / Solder tail combinations are available in 3 lengths using MM pin numbers:
326... 001 uses pin \# 2601
326... 002 uses pin \# 2602
326... 003 uses pin \# 2603

See page 167 for details.

- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.

Ordering Information

| Fig. 1 | Series 326...001 |
| :---: | :---: |
|  |  |
|  |  |

Fig. 1

- Or

|  | Specify \# of pins $\longrightarrow$ 01-64 |
| :---: | :---: |
| Fig. 2 | Series 326...002 |
|  | $\begin{gathered} 326-\mathrm{XX}-1-1---41-002000 \\ \text { Specify \# of pins } \\ \longrightarrow \end{gathered}$ |
| Fig. 3 | Series 326...003 |
|  | $\begin{gathered} 326-X X-1--41-003000 \\ \text { Specify \# of pins } \quad \longleftrightarrow \quad 01-64 \end{gathered}$ |



SINGLE-IN-LINE SOCKETS Double Row


Fig. 1


Fig. 2

Fig. 3


- Wrapost / Solder tail combination for interconnect purposes are available in 3 lengths using pin numbers:
426... 001 uses pin \# 2601
426... 002 uses pin \# 2602
426... 003 uses pin \# 2603

See page 167 for details.

- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.
Ordering Information

| Fig. 1 | Series 426... 001 | 1 Level Wrapost |
| :---: | :---: | :---: |
|  | 426-X | 41-001000 |
|  | Specify \# of pin | 02-64 |

Fig. 2

| Fig. 2 | Series 426... 002 | 2 Level Wrapost |
| :---: | :---: | :---: |
|  | Specify \# of pin | $\begin{aligned} & -41-002000 \\ & \longrightarrow \quad 02-64 \end{aligned}$ |
| Fig. 3 | Series 426... 003 | 3 Level Wrapost |
|  | Specify \# of pin | $\begin{gathered} -41-003000 \\ \longrightarrow \quad 02-64 \end{gathered}$ |




| For Electrical, <br> Mechanical \& Enviromental <br> Data, See pg. 4 |
| :--- | :---: | :--- | :---: | :--- | :--- | :--- | :--- |

SINGLE-IN-LINE SOCKETS

## Single Row



Fig. 1


Fig. 2


Fig. 3


Fig. 4

- Unique compliant tail pins conform to the plated through-hole without stressing the inner layers of a multilayer board.
- Recommended plated through-hole for 304 series: . $036^{\prime \prime}-.041^{\prime \prime}$ use a 1.1 mm drill prior to plating. Using MM \#0477 \& \#0478 pins, see page 133 for details.
- For 346 series: $.040 " \pm .003$ " finished plated through-hole. Using MM \#4612 \& \#4613 pins, see page 133 for details. Patent No. 4,799,904.
- Hi-Rel, 4 finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.


Ordering Information
Series 304... 770
SOLDERLESS PRESS-FIT
(For .062" Thick Boards)
Fig. 1
304-13-1_ _-41-770000
Specify \# of pins
01-64

|  | Series 304... 780 | SOLDERLESS PRESS-FIT |
| :---: | :---: | :---: |
| Fig. 2 | (For .125" Thick Boards) |  |
|  |  | 13-1_ _-41-780000 |
|  | Specify | - 01-64 |

Mill-Max recommends plating Code 13 for Series 304... 770 and 304... 780

## Series 346... 012 COMPLIANT SOLDERLESS PRESS-FIT

(For .060-.100" Thick Boards)
Fig. 3
346-XX-1_ --41-012000
Specify \# of pins $\quad \longrightarrow \quad 01-64$
Series 346... 013 COMPLIANT SOLDERLESS PRESS-FIT

| Fig. 4 | (For .090-130" Thick Boards) |
| :--- | :---: |
|  | $346-\mathrm{XX}-1$ <br> Specify \# of pins$-41-013000$   <br>   $01-64$ |


| For Electrical, <br> Mechanical \& Enviromental <br> Data, See pg. 4 |
| :--- |
| SPECIFY PLATING CODE XX= |

SINGLE-IN-LINE SOCKETS
Series 446
.100" Grid Compliant Tail Double Row


- Compliant tail solderless press-fit: MM \#4612 or \#4613 pins. Use series 446... 012 for .060 "-. 120" thick boards, and series $446 . . .013$ for .090 "-. 130 " thick boards. See Page 133 for details.
- Compliant tail receptacles can be inserted and removed without any degradation of the plated through-hole.
- Hi-Rel, 4 finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.



## APPLICATION OF COMPLIANT TAIL PINS

Mill-Max's patented* compliant tail features precision-machined pins that are hollow and slotted to conform to a $.040 " \pm .003^{\prime \prime}$ diameter PTH. As the pin is inserted, the slot compresses to fit the PTH, thus avoiding damage (see illustration at left). The pin's tail has fine serrations that form a perfect "gas tight" connection that doesn't require soldering. And since the pin doesn't damage the hole, compliant tail sockets and connectors can be easily replaced.
*Patent No. 4,799,904.

| Fig. 1 | Ordering Information |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Series 446... 012 |  |  |  |  |  |
|  | Fig. 1 | Specify \# of pins $\longrightarrow$ 02-64 |  |  |  |  |
|  | Series 446... 013 |  |  |  |  |  |
|  | Fig. 2 | $446-X X-2 \_--41-013000$ <br> Specify \# of pins 02-64 |  |  |  |  |
| Fig. 2 |  |  |  |  |  |  |
|  | SPECIFY PLATING CODE XX= | $13 \diamond$ | 93 | 99 | $43 \diamond$ | $44 \diamond$ |
|  | Sleeve (Pin) (0)) D | $10 \mu " \mathrm{Au}$ | $200 \mu$ " Sn/Pb | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | 200^"Sn | $200 \mu " S n$ |
|  | Contact (Clip) $\bigcirc \otimes$ | $30 \mu^{\prime \prime} \mathrm{Au}$ | $30{ }^{\prime \prime} \mathrm{Au}$ | 2004"Sn/Pb | $30{ }^{\prime \prime} \mathrm{Au}$ | 200h"Sn |

SINGLE-IN-LINE SOCKETS

## Single and Double Row



Fig. 1


Ordering Information
Standard solder tail receptacles can be mounted as a low profile receptacle or by the solder tail for use in smaller diameter holes.

- Series 712 uses MM \#0255 pins. See page 136 for details.
- Hi-Rel, 4-finger BeCu \#30 contact is rated at 3 amps . See page 218 for details.
- Insulators are high temp. thermoplastic.


Fig. 1
Fig. 2
Single Row (. 028 or .055 min. mounting holes)

Fig. 2

| SPECIFY PLATING CODE XX= | $13 \diamond$ | 93 | $43 \diamond$ |  |
| :---: | :---: | :---: | :---: | :---: |
| Sleeve (Pin) (0)) D | $10 \mu^{\prime \prime} \mathrm{Au}$ | $200 \mu$ " Sn/Pb | $200 \mu$ "Sn |  |
| Contact (Clip) 0 ) | $30 \mu \mathrm{Au}$ | $30 \mu^{\prime \prime} \mathrm{Au}$ | $30 \mu^{\prime \prime} \mathrm{Au}$ |  |

SINGLE-IN-LINE SOCKETS

## .100" Grid Low Profile Carriers

Single and Double Row

- Low profile receptacles sit .031" above the board.
- Series 714 uses MM \#1401 \& MM \# 1407 pin receptacles. See pages 128 and 141 for details.
- Hi-Rel, 4-finger BeCu \#30 contact is used in the \#1401 receptacle and a BeCu \#11 contact is used in the \#1407. Both contacts are rated at 3 amps . See pages 217 \& 218 for details.
- Insulators are high temp. thermoplastic.


Fig. 1


Fig. 2


Fig. 2
Ordering Information

| Fig. 1 | Single Row ( 055 min . mounting hole) |
| :---: | :---: |
|  |  |
| Fig. 2 | Single Row (. 039 min . mounting hole) |
|  | $\begin{gathered} \text { 714-XX-1-1--31-007000 } \\ \text { Specify \# of pins } \\ \longleftrightarrow \end{gathered}$ |
|  | Double Row (. 055 min . mounting hole) |



Fig. 3


Fig. 4


## Single and Double Row



Fig. 1


Fig. 2


Fig. 3


Fig. 4

| For Electrical, <br> Mechanical \& Enviromental <br> Data, See pg. 4 |
| :--- |
| SPECIFY PLATING CODE XX= |

HEADER STRIPS
Series 335, 364
.100" Grid (.018" dia.) Pins, Low Profile
435, 464
Single and Double Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4

- Series 335 and 435 single and double row PCB interconnects offer the lowest profile available $.070^{\prime \prime}$.
- Series 364 and 464 single and double row PCB interconnects offer .085" profile above board.
- Series 335 and 435 use MM \#3516 pins. See page 179 for details.
- Series 364 and 464 use MM \#6458 pins. See page 180 for details.
- Insulators are high temp. thermoplastic.


Ordering Information


Fig. 3

Fig. 4

| Single Row | $.085 "$ Profile Pin Header |
| :---: | :---: |
| 364-10-1_--00-580000 |  |
| Specify \# of pins $\longleftrightarrow 01-32$ |  |

Double Row
.085" Profile Pin Header
$464-10-2$
Specify \# of pins
$\longrightarrow \quad 02-72$

|  |  |  | For RoHS compliance select $\diamond$ plating code. |  |
| :---: | :---: | :---: | :---: | :---: |
| SPECIFY PLATING CODE XX= | $10 \diamond$ | 90 | $40 \diamond$ |  |
| Pin Plating $\Longleftarrow$ | $10 \mu \mathrm{Au}$ | $200 \mu^{\prime \prime} \mathrm{Sn} / \mathrm{Pb}$ | 200 ${ }^{\prime \prime}$ " Sn |  |

HEADER STRIPS

Single Row


Fig. 1


Fig. 2


Fig. 3

- Series 351 Interconnect header strips come in three lengths with .018 " dia. pluggable solder tails at one end and .025" dia. pins at the other, see series:
351... 003 uses pin \#5503
351... 004 uses pin \#5504
351... 005 uses pin \#5505
- . 018 " pluggable solder tails are available at both ends, please see series:
351... 009 uses pin \#5509
351... 010 uses pin \#5510
351... 011 uses pin \#5511

See pages 179 \& 181 for details.

- Insulators are high temp. thermoplastic.


Ordering Information


Fig. 2

| Series 351...009 $\quad .018 / .018$ Solder Tails |
| :---: | :---: |
| $351-10-1 \_-00-009000$ |

Specify \# of pins $\quad$ - 01-64
Series 351... $004 \quad .018 / .025$ Solder Tails
351-10-1_ _-00-004000
Specify \# of pins $\quad$ 01-64

| Series 351...010 $\quad .018 / .018$ Solder Tails |
| :---: | :---: |
| $351-10-1 \_-00-010000$ |

Specify \# of pins $\quad$ 01-64

|  | Series 351... 005 | $.018 / .025$ Solder Tails |
| :--- | :--- | :--- |
|  |  | $351-10$ |

Fig. 3
351-10-1_ _-00-005000
Specify \# of pins $\quad$ 01-64
Series 351... 011 . 018 /. 018 Solder Tails
351-10-1_ _-00-011000

For RoHS compliance select $\diamond$ plating code.

HEADER STRIPS

## Double Row



Fig. 1


Fig. 2


Fig. 3

- Series 451 Interconnect header strips come in three lengths with .018 " dia. pluggable solder tails at one end and .025" dia. pins at the other, see series:
451... 003 uses pin \#5503
451... 004 uses pin \#5504
451... 005 uses pin \#5505
- . 018" pluggable solder tails are available at both ends, please see series:
451... 009 uses pin \#5509
451... 010 uses pin \#5510
451... 011 uses pin \#5511

See pages 179 \& 181 for details.

- Insulators are high temp. thermoplastic.



## Ordering Information

| Fig. 1 | Series 451...003 | $.018 / .025$ Solder Tails |
| :---: | :---: | :---: |
|  | Specify \# of pins | $\longrightarrow 02-64$ |
|  |  |  |

Series 451... 009 . 018 / . 018 Solder Tails

451-10-2_ _-00-009000
Specify \# of pins $\quad \longrightarrow \quad 02-64$
Series 451... $004 \quad .018$ / . 025 Solder Tails

Fig. 2
Specify \# of pins $\quad$ 02-64

| Series 451... 010 | $.018 / .018$ Solder Tails |
| :---: | :---: |
| $451-10-2$ | $-00-010000$ |
| Specify \# of pins | $\longrightarrow$ |
| Series 451... 005 | $.018 / .025$ Solder Tails |

Fig. 3
$451-10-2,--00-005000$
Specify \# of pins
$\longrightarrow 02-64$
Series 451... $011 \quad .018 / .018$ Solder Tails
451-10-2_ _-00-011000

Specify \# of pins $\quad \longrightarrow \quad 02-64$


| PLATING CODE $=$ | $10 \diamond$ |  |  |  |
| :--- | :---: | :--- | :--- | :--- |
| Pin Plating चacčఒ | $10 \mu " \mathrm{Au}$ |  |  |  |

HEADER STRIPS
.100" Grid Interconnects
Single Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4


Fig. 5

- Series 334 Interconnect header strips are available in 5 lengths:
334... 020 uses pin \#3402 ( $L=.190^{\prime \prime}$ )
334... 010 uses pin \#3401 ( $L=.236$ ")
334...050 uses pin \#3405 ( $L=.315^{\prime \prime}$ )
334...000 uses pin \#3400 ( $L=.606$ ")
334... 100 uses pin \#3410 ( $L=1.070$ ")

See pages 182 for details.

- Strips come with .020 " pluggable solder tails at one end and .030 " tails at the other.
- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 334... 020 | . 020 / 030 Solder Tails |
| :---: | :---: | :---: |
|  | $\begin{gathered} 334-\mathrm{XX}-1---00-020000 \\ \text { Specify \# of pins } \quad{ }^{\longrightarrow} 01-64 \end{gathered}$ |  |
|  |  |  |
| Fig. 2 | Series 334... 010 | . 020 / 030 Solder Tails |
|  | 334-XX-1_ -00-010000 |  |
|  | Specify \# of pins $\qquad$ 01-64 |  |
| Fig. 3 | Series 334... 050 | . 020 / 030 Solder Tails |
|  | 334-XX-1_ _-00-050000 |  |

Specify \# of pins $\quad$ 01-64

| Fig. 4 | Series 334... 000 | . 020 / 030 Solder Tails |
| :---: | :---: | :---: |
|  | 334-XX-1_ -00-000000 |  |
|  | Specify \# of pins $\quad$ - 01-64 |  |
| Fig. 5 | Series 334... 100 | . 020 / 030 Solder Tails |
|  | 334-XX-1- -00-100000 |  |
|  | Specify \# of pins $\longrightarrow$ 01-64 |  |



| SPECIFY PLATING CODE XX= | $10 \diamond$ | 90 | $40 \diamond$ |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Pin Plating 匹accr | $10 \mu " \mathrm{Au}$ | $200 \mu " \mathrm{Sn} / \mathrm{Pb}$ | $200 \mu " \mathrm{Sn}$ |  |

HEADER STRIPS
.100" Grid Board Stacking Headers Single Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4

- Series 342 Interconnect Header strips come in four heights with .018 " dia. pluggable solder tails at both ends.

$$
\begin{aligned}
& 342 \ldots . .591 \text { uses pin \#4259-1 }\left(\mathrm{L}=.210^{\prime \prime}\right) \\
& 342 \ldots 592 \text { uses pin \#4259-2 }(\mathrm{L}=.335 \text { " }) \\
& 342 \ldots . .593 \text { uses pin \#4259-3 }\left(\mathrm{L}=.585^{\prime \prime}\right) \\
& 342 \ldots 594 \text { uses pin \#4259-4 }(\mathrm{L}=.835 \text { " }) \\
& \text { See pages } 179 \text { for details. }
\end{aligned}
$$

- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 342... 591 | . 018 /. 018 Solder Tails |
| :---: | :---: | :---: |
|  | 342-XX-1- - 00-591000 |  |
|  | Specify \# of pins $\longrightarrow$ 01-64 |  |
| Fig. 2 | Series 342... 592 | . $018 / .018$ Solder Tails |
|  | 342-XX-1_ - $00-592000$ |  |
|  | Specify \# of pins ${ }^{\text {a }}$ |  |
| Fig. 3 | Series 342... 593 | .018/.018 Solder Tails |
|  | 342-XX-1_ _-00-593000 |  |
|  | Specify \# of pins $\quad$ - 01-64 |  |
| Fig. 4 | Series 342... 594 | .018/.018 Solder Tails |
|  | 342-XX-1_ -00-594000 |  |
|  | Specify \# of pins $\quad$ - 01-64 |  |

$\square$


For RoHS compliance select $\diamond$ plating code.

HEADER STRIPS
Series 442
.100" Grid Board Stacking Headers Double Row


HEADER STRIPS
Series 350, 360
.100" Grid Solder Tail
370, 380 Single Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4

- Series $350,360,370 \& 380$ single row Header strips come with various styles (pin, slotted head, turret and solder cup) with pluggable solder tails.
350... 001 uses pin \#0290
360... 001 uses pin \#0282
370... 001 uses pin \#0700
380... 001 uses pin \#8000

See pages 182 \& 183 for details.

- Insulators are high temp. thermoplastic.

Ordering Information

| Fig. 1 | Series 350... 001 . 025 Pin / . 018 Solder Tail |  |
| :---: | :---: | :---: |
|  | $\begin{gathered} 350-X X-1---00-001000 \\ \text { Specify \# of pins } \quad \stackrel{01-64}{\longrightarrow} \end{gathered}$ |  |
|  |  |  |
| Fig. 2 | Series 360... 001 Slotted Head / Solder Tail |  |
|  | 360-XX-1_ _-00-001000 |  |
|  | Specify \# of pins $\longrightarrow$ 01-64 |  |
| Fig. 3 | Series 370... 001 Turret / Solder Tail |  |
|  | 370-XX-1_ -00-001000 |  |
|  | Specify \# of pins $\quad$ L 01-64 |  |
| Fig. 4 | Series 380... 001 Solder Cup / Solder Tail |  |
|  | 380-XX-1_ _-00-001000 |  |
|  | Specify \# of pins $\quad$ - 01-64 |  |

$\square$

|  |  |  | For RoHS complianceselect $\diamond$ plating code. |  |
| :---: | :---: | :---: | :---: | :---: |
| SPECIFY PLATING CODE XX= | $10 \diamond$ | 90 | $40 \diamond$ |  |
| Pin Plating $¢$ cccre | $10 \mu$ " Au | 200 ${ }^{\prime \prime}$ Sn/Pb | 200, " Sn |  |

HEADER STRIPS
Series 450, 460
.100" Grid Solder Tail
470, 480
Double Row


Fig. 1


Fig. 2


Fig. 3


Fig. 4

- Series 450, 460, 470 \& 480 double row Header strips come with various styles (pin, slotted head, turret and solder cup) with pluggable solder tails.
450... 001 uses pin \#0290
460... 001 uses pin \#0282
470... 001 uses pin \#0700
480... 001 uses pin \#8000

See pages 182 \& 183 for details.

- Insulators are high temp. thermoplastic.



## Ordering Information

| Fig. 1 | Series 450... 001 | Pin / Solder Tail |
| :---: | :---: | :---: |
|  | $\begin{gathered} 450-X X-2_{-}--00-001000 \\ \text { Specify \# of pins } \\ \longrightarrow 02-64 \end{gathered}$ |  |
|  |  |  |
| Fig. 2 | Series 460... 001 | Slotted Head / Solder Tail |
|  | 460-10-2_ - 00-001000 |  |
|  | Specify \# of pins $\longrightarrow$ 02-64 |  |
| Fig. 3 | Series 470... 001 Turret / Solder Tail |  |
|  | 470-XX-2_-00-001000 |  |
|  | Specify \# of pins $\quad \longrightarrow$ 02-64 |  |
| Fig. 4 | Series 480... 001 Solder Cup / Solder Tail |  |
|  | 480-10-2 -00-001000 |  |
|  | Specify \# of pins $\longrightarrow$ 02-64 |  |

HEADER STRIPS
Series 353, 362, 363
.100" Grid Wrapost
373, 382, 383
Single Row


Fig. 1


Fig. 3


Fig. 5

Fig. 2

Fig. 4

Fig. 6

- Series 353, 362, 363, 373, 382 \& 383 single row Header strips come with various styles (pin, slotted head, turret and solder cup) with wrapost tails.
353... 001 uses pin \#5301
362... 001 uses pin \#1106-2
363... 001 uses pin \#1106-3
373... 001 uses pin \#0730-3
382... 001 uses pin \#8301-2
383... 001 uses pin \#8301-3

See pages 194 \& 195 for details.

- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 353...001 |
| :---: | :---: |
|  | 353-XX-1 $1--00-001000$ |
|  | Specify \# of pins $\longrightarrow 01-64$ |

Fig. 2
Series 362... 001 Slotted Head / 2 Level Wrapost
362-XX-1_ _-00-001000
Specify \# of pins $\quad \longrightarrow \quad 01-64$
Series 363... 001 Slotted Head / 3 Level Wrapost
Fig. 3
363-XX-1_ _-00-001000
Specify \# of pins $\quad$ 01-64
Series 373.. 001 Turret / 3 Level Wrapost
Fig. 4


HEADER STRIPS
.100" Grid Wrapost
473, 483
Double Row


Fig. 2


Fig. 3


- Series $453,463,473$, and 483 double row Header strips come with various styles (pin, slotted head, turret and solder cup) with wrapost tails.
453... 001 uses pin \#5301
463... 001 uses pin \#1106-3
473... 001 uses pin \#0730-3
483... 001 uses pin \#8301-3

See pages 194 \& 195 for details.

- Insulators are high temp. thermoplastic.


Ordering Information

| Fig. 1 | Series 453... 001 Pin / 3 Level Wrapost |  |
| :---: | :---: | :---: |
|  | $\begin{gathered} \hline 453-10-2-2^{-00-001000} \\ \text { Specify \# of pins } \quad{ }^{\longrightarrow} 02-64 \end{gathered}$ |  |
|  |  |  |
| Fig. 2 | Series 463... 001 Slotted Head / 3 Level Wrapost |  |
|  | Specify \# of pins $\quad{ }^{463-X X-2--00-001000}$ |  |
|  |  |  |
| Fig. 3 | Series 473... 001 Turret / 3 Level Wrapost |  |
|  | 473-XX-2_ -00-001000 |  |
|  | Specify \# of pins $\quad$ ¢ 02-64 |  |
| Fig. 4 | Series 483... 001 Solder Cup / 3 Level Wrapost |  |
|  | 483-XX-2 - -00-001000 |  |
|  | Specify \# of pins $\longrightarrow$ 02-64 |  |



## PIN GRID ARRAY SOCKETS <br> Technical Specifications

Pin grid array sockets are designed to accept high pin count IC's. They use low force 6 -finger contacts to ease insertion/extraction of the device. Standard low force (M-M \#32) contact is used for pin counts up to 150, ultra-low force (M-M \#35) contact is recommended for 150 pins or more but less than 250 pins. The "ultra lite" (M-M \#43) is recommended for 250 pins or more.

CONTACT DETAIL

PGA sockets all have precision-machined pins, this offers the lowest possible profile. The closed bottom design also eliminates flux and solder contamination, and the pins are in-line with contact entry.


Insulator bodies are molded from high temp. PCT polyester suitable for all forms of soldering including wave, infra-red reflow and vapor phase.


## TECHNICAL SPECIFICATIONS

Materials

## Insulator body:

High Temp. glass-filled thermoplastic polyester (PCT)
Heat deflection temperature (HDT @ 264 PSI ) $=255^{\circ} \mathrm{C}\left(490^{\circ} \mathrm{F}\right)$
Self-extinguishing, rated UL94V-0
Receptacle (Sleeve):
Screw machined brass (ASTM-B16-00), plated 10 " gold, $200 \mu$ " tin or $200 \mu$ " tin-lead (SnPb 90/10) over $100 \mu$ " nickel.

Pin:
Screw machined brass (ASTM-B16-00), plated 10 " gold, $200 \mu$ " tin or $200 \mu$ " tin-lead (SnPb 90/10) over $100 \mu$ " nickel.
Contact (clip):
Stamped beryllium-copper (ASTM-B194-01), plated
$10 \mu$ " or $30 \mu$ " gold over $50 \mu$ " nickel.

## Mechanical Data

-Insertion characteristics:
Measured with a polished steel gauge . 018 diameter Low force M-M\#32 (01 suffix) typ. insertion force 50 grams typ. extraction force 30 grams Ultra-low force M-M\#35 (02 suffix) typ. insertion force 25 grams typ. extraction force 15 grams
"Ultra lite" M-M\#43 (03 suffix) typ. insertion force 12.5 grams typ. extraction force 7.5 grams
-Mechanical life: 100 cycles min.
Electrical \& Environmental Data
-See general specifications on page 4.

DIMENSIONS OF PGA SOCKET INSULATORS


DIMENSIONS A, B, and $\mathbf{C}$ can be calculated as follows:

```
N1 = GRID SIZE (# of pins per side, outer most row only
    for interstitial patterns)
N2 = WINDOW SIZE
A = N1X.100"
B = (N1-1) X.100"
C = (N2 X.100")-.016"
```


## TECHNICAL SPECIFICATIONS FOR 540 SERIES PLCC SOCKETS

## MATERIALS:

- Insulator: Glass filled thermoplastic, self-extinguishing rated, UL94V-0, color black.
- Contact: Plated copper alloy overall nickel underplating, tin finish.


## MECHANICAL DATA:

- Contact pressure (per contact):
- Mechanical data (cycles):

ELECTRICAL DATA:

- Rated current: SMD types:

Thru-hole types:

- Contact resistance:
- Insulation resistance:
- Dielectric strength:
- Capacitance:


## ENVIRONMENTAL DATA:

- Operating temperature: $\quad-55 /+125^{\circ} \mathrm{C}$
- Vibration (No electrical discontinuity greater than $1 \mu \mathrm{~s}): \quad 10-2000 \mathrm{HZ}, 15 \mathrm{~g}$
- Climactic category (EIA): 365-17A


## TECHNICAL SPECIFICATIONS FOR 940 SERIES PLCC SOCKETS

## MATERIALS:

- Insulator: PPS Polyphenylene Sulfide,Rated UL94V-0.
- Contact: Phosphor Bronze with a tin finish and nickel underplate.


## MECHANICAL DATA:

- Contact pressure (per contact):
- Mechanical data (cycles): 25 cycles min.


## ELECTRICAL DATA:

- Rated current: SMD types:

Thru-hole types:

- Contact resistance:
- Insulation resistance:
- Dielectric strength:
- Capacitance:


## ENVIRONMENTAL DATA:

- Operating temperature: $\quad-55 /+105{ }^{\circ} \mathrm{C}$
- Vibration (No electrical discontinuity greater than $1 \mu \mathrm{~s}): \quad 10-2000 \mathrm{HZ}, 15 \mathrm{~g}$
- Climactic category (EIA): 365-17A


## TECHNICAL SPECIFICATIONS FOR BGA ADAPTER SYSTEM

## Materials:

- Socket contact: Three finger, stamped beryllium
copper alloy 172, HT (Mill-Max type \#04 or \#05); plated $10 \mu$ " gold over $50 \mu$ " nickel.
- Socket shell and adapter pins: Precision machined brass alloy; plated $10 \mu$ " gold over $100 \mu$ " nickel.
- Insulator material: .047" or .062" thick glass-epoxy type FR-4, rated UL94V-0. TCE $=10-13 p p m /{ }^{\circ} \mathrm{C}$, $\varepsilon_{r}=5.0$
Mechanical:
- Insertion and withdrawal forces (using .010" dia. polished steel gage pin): Insertion: .36N typ. per pin

Withdrawal: . 20 N typ. per pin

- Insertion force of an actual 225 pin device: 90N
- Durability: 100 cycles
- Coplanarity: $\leq .005$ "


## Electrical:

- Current rating (per pin): 1 A
- Working voltage: 100 VRMS/150 VDC max.
- Low level contact resistance: $10 \mathrm{~m} \Omega$ max.
- Insulation resistance @ 500 VRMS:
- Dielectric withstanding voltage: $500 \mathrm{~V}_{\mathrm{RMS}}$
- Capacitance between adjacent contacts: 1 pF max.
- Self inductance per pin: 2 nH max.
- Electrical length: 31 pS

Environmental:

- Operating temperature range: $-55^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$ BGA adapter/socket systems have withstood the following environmental tests without mechanical or electrical failure:
- Damp heat, steady state: $40^{\circ} \mathrm{C}, 93 \% \mathrm{rH}, 21$ days
- Damp heat, cyclic: $25 / 55^{\circ} \mathrm{C}, 6$ days
- Dry heat: $100^{\circ} \mathrm{C}, 1,000$ hours
- Thermal shock: -55 to $+125{ }^{\circ} \mathrm{C}$, 5 cycles
- Random vibration: 50 to $500 \mathrm{~Hz}, 8 \mathrm{~g}, 20 \mathrm{~min}$. per axis
- Shock: 50 g per axis
- Solderability: $235^{\circ} \mathrm{C}$, 2 seconds
- Resistance to soldering heat: $270^{\circ} \mathrm{C}$, 10 seconds
- Resistance to corrosion:

Salt spray: 48 hours
Sulphur dioxide: 96 hours @ 25 ppm $\mathrm{SO}_{2}, 25^{\circ} \mathrm{C}, 75 \% \mathrm{rH}$ Hydrogen sulphide: 96 hours @ 12 ppm $\mathrm{H}_{2} \mathrm{~S}, 25^{\circ} \mathrm{C}, 75 \% \mathrm{rH}$

PIN GRID ARRAY SOCKETS
.100" and Interstitial Grid
Series 510, 511, 513,
514, 515, 518, 522, 523

## Surface Mount and Through Hole

- Series 510, 511, 514, 515, 522 \& 523 PGA sockets are available on .100" centers.
- Series 513 and 518 PGA sockets are available for Interstitial patterns.
- Choice of three low force clips to cover all applications.
- Hi-Temp PCT polyester insulator material suitable for all forms of soldering.

| $\begin{array}{l}\text { For RoHS compliance } \\ \text { select } \diamond \text { plating code. }\end{array}$ |
| :---: |


STANDARD SOLDER TAIL
SERIES 510

SOLDER TAIL (With Heatsink Tabs)
SERIES 518

LONG SOLDER TAIL
SERIES 511

## SERIES 518

Q . $015-.025$ - -


Interstitial Patterns Only

Visit www.mill-max.com/pga To configure a formal Part Number


PIN GRID ARRAY HEADERS
Series 507, 550, 551, 599
.100" and Interstitial Grid Surface Mount and Through Hole

- Series 551 and 599 headers are available on .100" centers.

Series 507 \& 550 PGA sockets are available for Interstitial patterns.

- Hi-Temp PCT polyester insulator material suitable for all forms of soldering.



PIN GRID ARRAY SOCKETS
Series 614, 605
.100" and Interstitial Grid Carrier Type

- Series 614 \& 605 PGA carrier sockets offer 4 receptacle styles.
- Many combinations of receptacles and clips to cover all applications.
- Hi-Temp PCT polyester insulator material suitable for all forms of soldering.
- Carrier sockets provide a convenient way of loading groups of receptacles onto a PC board.


BALL GRID ARRAYS
Series 540, 579, 582, 587, 599
For 0,8mm Grid, 1 mm Grid and .050 "Grid Male Pin Adapters \& Female Sockets

- BGA adapter/socket systems are a reliable way to make BGAs pluggable. They may also be used as a high density board-to-board interconnect.
- The BGA device for a $0,8 \mathrm{~mm}$ or 1 mm grid is soldered to a 9929 adapter (or a 7929 adapter is soldered to a PCB), then either one can be plugged into a 9942 ( 0.8 mm grid) or 9928 ( 1 mm grid) surface mount socket.
- The BGA device for a .050" grid is soldered to a 8737/4048 adapter (or a 4098/4054 adapter is soldered to a PCB), then either one can be plugged into a 8214 surface mount socket.
- Both socket and adapter have the same footprint as the BGA device.
- Insertion force is .4 N per pin for standard pins 7929/9929, 8737/4098. Tapered EZ-IN pins $4048 / 4054$ reduce insertion force to only .08 N , and are recommended for pin counts greater than 500.
- Insulator material is FR-4 epoxy having a TCE to match the BGA device and circuit board.



For $0,8 \mathrm{~mm} \& 1 \mathrm{~mm}$ Grid Only

SERIES 540... 448



EZ-IN BGA MOUNT TYPE 4048
For $0,8 \mathrm{~mm}$ Grid Only


For $0,8 \mathrm{~mm} \& 1 \mathrm{~mm}$ Grid Only

SERIES 540... 498


For . 050 " Grid Only
SURFACE MOUNT TYPE 9928 SERIES 599... 428

BGA MOUNT TYPE 8737
SERIES 587... 437


For . 050" Grid Only
EZ-IN PCB MOUNT TYPE 4054 SERIES 540... 454

For . 050" Grid Only
SURFACE MOUNT TYPE 8214 SERIES 582... 414

For 1mm Grid Only

| SPECIFY PLATING CODE XX= | $11 \diamond$ | PLATING CODE XX= | $10 \diamond$ |
| :---: | :---: | :---: | :---: |
| Sleeve (Receptacle) (0)) $\rightleftharpoons$ | $10 \mu " \mathrm{Au}$ | Pin Plating चcecce | $10 \mu " \mathrm{Au}$ |
| Contact (Internal Clip) $0 \otimes$ | $10 \mu^{\prime \prime} \mathrm{Au}$ |  |  |

STANDARD PLCC SOCKETS

## Surface Mount



STANDARD PLCC SOCKETS
Through Board Mount



| No. of <br> Contacts | Ordering Information | - A - | - B - | - C - | Quantity <br> per Tube |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | $940-44-020-24-000000$ | 0.613 | 0.200 | 0.400 | 38 |
| 28 | $940-44-028-24-000000$ | 0.713 | 0.300 | 0.500 | 33 |
| $32^{*}$ | $940-44-032-24-000000^{*}$ | $.813 / .713$ | $.400 / .300$ | $.600 / .500$ | 29 |
| 44 | $940-44-044-24-000000$ | 0.913 | 0.500 | 0.700 | 26 |
| 52 | $940-44-052-24-000000$ | 1.013 | 0.600 | 0.800 | 23 |
| 68 | $940-44-068-24-000000$ | 1.213 | 0.800 | 1.000 | 19 |
| 84 | $940-44-084-24-000000$ | 1.413 | 1.000 | 1.200 | 16 |
| 100 | $940-44-100-24-000000$ | 1.603 | 1.200 | 1.400 | 25 |
|  | Plating Code $44 \diamond=150 \mu^{\prime \prime}$ Sn *RECTANGULAR |  |  |  |  |

COMPACT PLCC SOCKETS


- Note: End stackable.
- Designed for JEDEC type devices.
- Open frame design in solder area improves results of IR soldering and facilitates visual inspection of solder pads.
- Contacts are plated with $150 \mu$ " tin.
- The insulator is molded PPS (Ryton R-4).


PCB LAYOUT FOR SURFACE MOUNT


RECTANGULAR

| No. of Contacts | Ordering Information | - A1 - | - A2 - | - C1- | - C2- | - E- | - H- | $\begin{aligned} & \text { Oty. } \\ & \text { per } \\ & \text { Tube } \end{aligned}$ | Tape Wm mm | $\begin{aligned} & \text { Qty. } \\ & \text { per } \\ & \text { Reel } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | 540-44-020-17-40000X | 0.200 | 0.200 | 0.585 | 0.585 | 0.657 | 0.180 | 34 | 24 | 490 |
| 28 | 540-44-028-17-40000X | 0.300 | 0.300 | 0.685 | 0.685 | 0.799 | 0.180 | 29 | 32 | 400 |
| $32^{*}$ | 540-44-032-17-40000X* | 0.300 | 0.400 | 0.670 | 0.770 | 0.885 | 0.148 | 26 | 32 | 400 |
| 44 | 540-44-044-17-40000X | 0.500 | 0.500 | 0.885 | 0.885 | 1.082 | 0.180 | 22 | 44 | 250 |
| 52 | 540-44-052-17-40000X | 0.600 | 0.600 | 1.000 | 1.000 | 1.224 | 0.180 | 20 | 44 | 250 |
| 68 | 540-44-068-17-40000X | 0.800 | 0.800 | 1.202 | 1.202 | 1.507 | 0.180 | 16 | 44 | 220 |
| 84 | $\begin{aligned} & 540-44-084-17-40000 X \\ & \text { Packaging Codes: } \begin{array}{l} \text { X } \end{array}=0 \text { (Tubes) } \\ & X=4 \text { (Tape \& Reel) } \end{aligned}$ | 1.000 | 1.000 | 1.400 | 1.400 | 1.791 | 0.180 | 14 | 56 | 200 |

MISCELLANEOUS CONNECTORS
Mini Universal Serial Bus
Surface Mount Sockets


Fig. 1

Fig. 2

## Applications:

- Cell phones
- Digital still cameras
- Digital video cameras
- PDAs
- MP3 Players
- Other portable and hand-held devices




## Features

- Mini USB receptacles for surface mount.
- 5 Pin (one ID Pin), 0.8 mm pitch, mini USB connector.
- Reduced mounting space.
- Fully Shielded.
- Fully compliant with current USB 2.0 specifications.
- Smaller and lighter than existing USB connectors for portable and handheld devices.
- Packaged on Tape \& Reel - 700 parts per reel.


## Ordering Information:

Figure 1: Mini Type A Recep., Single,Surface Mount 896-43-005-00-100001
Figure 2: Mini Type B Recep., Single,Surface Mount 897-43-005-00-100001

## Specifications

Materials:
Terminals: Copper Alloy, Tin Plated
Contacts: Copper Alloy, $30 \mu$ " Gold Plated
Casing \& Shield: Stainless Steel
Insulator material: High temp. thermoplastic rated UL94V-0
Ratings:
Voltage: 30VAC (rms)
Current: 1A max. per contact for $30^{\circ} \mathrm{C}$ temperature rise All housing materials rated for "lead-free" soldering up to $260^{\circ} \mathrm{C}$
Electrical:
Contact resistance: $50 \mathrm{~m} \Omega$ max.
Insulation resistance: $100 \mathrm{M} \Omega \mathrm{min}$.
Dielectric withstanding voltage: 100VAC at sea level Capacitance: 2 pF max.
Mechanical:
Random vibration: No discontinuity $>1 \mu$ s per EIA 364-28, cond. V, letter A Physical shock: No discontinuity $>1 \mu$ s per EIA 364-27, condition H
Durability: 5000 cycles min. per EIA 364-09
Mating force: 35 Newtons max. per EIA 364-13
Unmating force: Initial - 7 Newtons min. per EIA 364-13
After test - 3 Newtons min. per EIA 364-13
Cable Pull-out force per EIA 364-38
Environmental:
Thermal shock per EIA 364-32, condition I
Humidity per EIA 364-31, method III, condition A
Temperature life per EIA 364-17, condition 3, method A
Solderability per EIA 364-52, category 2



Features

- USB receptacles for through-hole \& surface mount.
- Plug retention tabs.
- Kinked locating legs for secure PCB retention.
- Fully Shielded.
- Fully compatible with USB 1.0 \& 2.0 specifications.
- Passes 16MHz Signal Attentuation per ASTM-D-4566.
- Packaged in trays, 150 pieces per tray.

Ordering Information
Figure 1: Type A Receptacle, Single, Surface Mount 896-43-004-00-000000
Figure 2: Type A Receptacle, Single, Through Hole 896-43-004-90-000000
Figure 3: Type A Receptacle, Double, Through Hole 896-43-008-90-000000
Figure 4: Type B Receptacle, Single,Through Hole 897-43-004-90-000000

## Specifications

Materials:
Terminals: Copper Alloy, Tin Plated
Contacts: Copper Alloy, $30 \mu$ " Gold Plated
Casing \& Shield: Stainless Steel
Insulator material: High temp. thermoplastic rated UL94V-0
Ratings:
Voltage: 30VAC (rms)
Current: 1 A max. per contact for $30^{\circ} \mathrm{C}$ temperature rise
All housing materials rated for "lead-free" soldering up to $260^{\circ} \mathrm{C}$
Electrical:
Contact resistance: $30 \mathrm{~m} \Omega$ max.
Insulation resistance: $1000 \mathrm{M} \Omega \mathrm{min}$.
Dielectric withstanding voltage: 750VAC at sea level Capacitance: 2pF max.
Mechanical:
Random vibration: No discontinuity $>1 \mu$ s per EIA 364-28, cond. V, letter A
Physical shock: No discontinuity $>1 \mu$ s per EIA 364-27, condition H
Durability: 1500 cycles min. per EIA 364-09
Mating force: 35 Newtons max. per EIA 364-13
Unmating force: 10 Newtons min. per EIA 364-13
Environmental:
Thermal shock per EIA 364-32, condition I
Humidity per EIA 364-31, method II, condition A
Temperature life per EIA 364-17, condition 3, method A

TRANSISTOR SOCKETS


MISCELLANEOUS SOCKETS
Right Angle Socket Test Point


- Available to accept 3 pin sizes: 1, 1.5, \& 2 mm .
- Uses Hi-Temp PCT polyester insulator.
- Standard Insulator color is black.


| Pin Size | Ordering Information |
| :---: | :---: |
| 1.0 mm | $395-\mathrm{XX}-101-34-34 \mathrm{X000}$ |
| 1.5 mm | $395-\mathrm{XX}-101-03-38 \mathrm{X000}$ |
| 2.0 mm | $395-\mathrm{XX}-101-07-35 \mathrm{X000}$ |
|  |  |

Insulator Color Options
$X=0$ - Black

RECOMMENDED
mounting holes



MISCELLANEOUS CONNECTORS
Male Shorting Jumpers \&
Microphone Sockets

|  | Fig. 1 | - Male shorting jumpers are available with or without insulator and have 022" diameter pins with .100", . 200" or . 300 " center spacing. <br> - Insulator materials are not high temperature. |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |
|  |  | Ordering Information |  |  |  |  |  |
|  |  | Fig. 1 | Male Shorting Jumper .100" Spacing |  |  |  |  |
|  |  | Color / Style | Plating $10 \mu$ " $\mathrm{Au} \diamond$ |  |  |  |
|  |  |  | Black <br> Not Insulated | $999-11-210-10-000000$$999-11-110-10-000000$ |  |  |  |
|  |  |  |  | Male Shor | Jumper | . 20 |  |  |
|  |  | Fig. 2 | Color / Style | Platin | g 10 |  |  |
|  |  |  | Black Not Insulated | 999-11 <br> 999-11 | 1-220-112-010 |  |  |
| 157 |  |  | Male Shor | ng Jumper | . 30 |  |  |
|  |  | Fi | Color / Style | Platin | ng |  |  |
|  | Fig. 3 |  | Black <br> Not Insulated | $\begin{aligned} & 999-11- \\ & 999-11 \end{aligned}$ | 1-230-113-1 |  |  |
|  |  | microphon entry socke ing. <br> o be surface high temp. V-0. use MM \#8 30 for deta | cket <br> micro <br> on <br> ount and <br> n 46, <br> pins. |  |  |  |  |
|  |  |  | Microphon | Socket |  |  |  |
| $\stackrel{.067}{.067}$ |  |  | Ordering Inf | ormation |  |  |  |
|  | $\underbrace{\substack{\text { xXePlae }}}_{\text {Supplied }}$ |  | $\stackrel{38-X X-102-11}{\longrightarrow} P$ <br> 8-XX-102-1 <br> de carrier tape | -740800 (Dis <br> ating Code <br> -740799 <br> per EIA-481: 6 |  |  |  |
|  | SPECIFY PLA | CODE $\mathrm{XX=}$ |  | 99 |  |  | 44 |
|  | Sleeve (Pin) | (1) $=$ |  | $200{ }^{\text {P SNPb }}$ |  |  | 200 |
|  | Contact (Clip) | 09 |  | 2004"SNPb |  |  | 2004 sm |

## THE BASIC RECEPTACLE

The basic conducting element used in printed circuit board (PCB) connections is the pin receptacle. The Mill-Max pin receptacle is typically used to make devices on the PC board pluggable while maintaining a low profile, or as the contact in a cable assembly. The machined shell or housing of pin receptacles is available in various styles depending on the application. The terminal end of pin receptacles has many variations: a round solder tail, a press-fit tail, a surface mount tail, crimp tail, solder-cup tail, swage tail or no tail.

Inside every Mill-Max receptacle is a contact clip. A contact clip is a conductive, multi-finger, progressivedie stamping that engages, scores and holds the mated pin, making an electrical and gas-tight connection at 3, 4 or 6 points of contact (depending upon the selected contact).

Mill-Max currently offers 34 styles of contacts to engage pins from .008 " to .102 " in diameter. A convenient contact selector chart is located on page
 214 showing the different specifications of each contact.

Pin receptacles can be utilized as discrete connectors for the plugging and unplugging of components on pc boards. They can be utilized individually or in random arrays where the usage is small. They can be handled and loaded manually in preparation for soldering or, with a different style shell, for press-fitting. When a customer requires volume placement of Mill-Max receptacles, socket carriers or tape and reel packaging are tremendous labor-saving solutions for our customer.

In addition to the products found on the following pages, Mill-Max offers the following stock materials and diameters available for manufacture:

BRASS Alloy 360, 1/2 hard: .062/.072/.078/.093/.125/.156/.187/.250 diameters
BRASS Alloy 360, 1/4 hard: .072/.078 diameters
BRASS TUBING: . 072 O.D.x. 020 I.D./ . 072 O.D.x. 025 I.D.
PHOSPHOR BRONZE Alloy 544 .062/.072/.078 diameters
TELLURIUM COPPER Alloy 145 .079/.093/.125/.156 diameters
Mill-Max will gladly quote application specific products. Please complete the specification sheet on page 213 or send us your own drawings. We assure you of a fast response.

PIN RECEPTACLES for .008" - .013" diameter pins (\#04 contact) and .012" - .017" diameter pins (\#10 contact) (see specific contact range on page 216)
8210



0464-X-15-XX-10-XX-04-0
Solder mount in .016 min . mounting hole


9225

9225-0-15-XX-10-XX-10-0
Press-fit in .039 mounting hole

0529


0529-0-15-XX-10-XX-10-0 .040 min. mounting hole

## 8947

| 8947-0-15-XX-10-XX-10-0 <br> Solder mount in .040 min . mounting hole |  |
| :---: | :---: |
| SPECIFICATIONS <br> SHELL MATERIAL: <br> Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HT |  |

## SELECT CONTACT

 TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:\#04 or \#10 CONTACT (DATA ON PAGE 216)
(CONTACTS \#04 \& \#10 NOT INTERCHANGEABLE)
for .015" - .020" diameter pins (\#11 contact) and .015" - .022" diameter pins (\#21 contact) (see specific contact range on page 217)

| 0548 | 8975 | 3016 | 9548 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0548-0-15-XX-21-XX-10-0 Solder mount in .036 min . mounting hole | 8975-0-15-XX-21-XX-10-0 <br> Solder mount in . 036 min . mounting hole | 3016-0-15-XX-21-XX-10-0 <br> Solder mount in . 036 min. mounting hole |  |  |  |
| 8637 | 1407 | 0553/8553 |  |  |  |
|  | 1407-0-15-XX-11-XX-10-0 Solder mount in .040 min . mounting hole | X553-X-15-XX-X1-XX-10-0 | Basic Part <br> Number  <br> $0553-1$  <br> $0053-2$  <br> $0553-3$  <br> $8553-0$  | Length <br> L <br> .140 <br> .280 <br> .245 | Depth N |
| 0566 |  | 0442 | 0554 |  |  |

0566-X-15-XX-21-XX-10-0
Solder mount in 039 min . mounting hole

## SPECIFICATIONS

SHELL MATERIAL:
Brass Alloy 360, $1 / 2$ Hard
CONTACT MATERIAL:
Beryllium Copper Alloy 172, HT
dimension in inches TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X-15-XX - XX - XX - 10-0
BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)


## SELECT CONTACT

\#11 or \#21 CONTACT (DATA ON PAGE 217)

## PIN RECEPTACLES

for .015" - .018" diameter pins (\#09 contact)
for .015 " - .020" diameter pins (\#11 contact) and .015" - .022" diameter pins (\#21 contact) (see specific contact range on pages 216 \& 217)


0569-0-15-XX-X1-XX-10-0
Solder mount in .040 min mounting hole
 Solder mount in .040 min mounting hole


Solder mount in .040 min mounting hole


2086-0-15-XX-21-XX-04-0 Press-fit in .040 mounting hole

0461
8579

| $\frac{.041 \text { DIA. }}{\text { MAX }}$ | 14 | Basic Part Number | Length A |
| :---: | :---: | :---: | :---: |
|  | . 075 | 0461-0 | . 400 |
|  | 1 | 0461-1 | . 275 |
| $\xrightarrow{.038 \text { DIA. }}$ | . 150.175 | 0461-2 | . 180 |
|  |  | 0461-3 | . 125 |
|  | 1 | 0461-4 | . 060 |
|  | 1 | 0461-5 | . 440 |
|  | 1 |  |  |



8579-0-15-XX-X1-XX-10-0
Solder mount in .040 min mounting hole

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - 15-XX - XX - XX - XX - 0 BASIC PART \# SPECIFY SHELL FINISH:
$01200 \mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS) for .015" - .020" diameter pins (\#11 contact) and .015" - .022" diameter pins (\#21 contact) (see specific contact range on page 217)

| 8467 | 6192 | 9553 | 5531 |
| :---: | :---: | :---: | :---: |
| 8467-0-15-XX-21-XX-04-0 <br> Hex press-fit in . 036 plated thru hole | Square press-fit in . 032 plated thru hole |  |  |
| 7553 | 9407 | 9462 | 1147 |
|  |  |  |  |
| 3061 | 0579 | 8874 | 0613 |

## SPECIFICATIONS

SHELL MATERIAL:
Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL:
Beryllium Copper Alloy 172, HT
DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

0579


0579-0-15-XX-X1-XX-10-0
Press-fit in .040 mounting hole

8874


8874-0-15-XX-11-XX-10-0 Bottom entry Surface mount

0613


0613-0-15-XX-21-XX-10-0 Press-fit in .047 mounting hole

ORDER CODE: XXXX - X - $1 \mathrm{X}-\underline{\mathrm{XX}}-\mathbf{X X}-\underline{X X}-\mathrm{XX}-\mathbf{0}$

## BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)

RoHS
SELECT CONTACT
\#11 or \#21 CONTACT (DATA ON PAGE 217)
for .015" - .020" diameter pins (\#11 contact) and .015" - .022" diameter pins (\#05 \& \#21 contacts) (see specific contact range on page 217)


4890


| Basic Part <br> Number | Length <br> $\mathbf{A}$ |
| :---: | :---: |
| $4890-0$ | .102 |
| $4890-1$ | .199 |
| $4890-2$ | .299 |

4890-X-15-XX-11-XX-04-0
Octagonal press-fit in . 041 mounting hole.

## SPECIFICATIONS

```
SHELL MATERIAL:
    Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL:
    Beryllium Copper Alloy 172, HT
DIMENSION IN INCHES
    TOLERANCES ON:
    LENGTHS: }\pm.00
    DIAMETERS: }\pm.00
    ANGLES: }\pm\mp@subsup{2}{}{\circ
```

ORDER CODE: XXXX - X - $1 \mathrm{X}-\mathrm{XX}-\underline{X X}-\underline{X X}-\mathrm{XX}-0$
BASIC PART \#
SPECIFY SHELL FINISH:
$01200 \mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)

RoHS
2002/95/EC

## SELECT CONTACT

\#05, \#11 or \#21 CONTACT (DATA ON PAGE 217)

PIN RECEPTACLES for .015"-.022" diameter pins

0512


0512-0-15-XX-12-XX-04-0
Press-fit in .057 mounting hole


0468-0-15-XX-12-XX-04-0
Press-fit in .057 mounting hole


5739-0-18-XX-12-XX-10-0 Surface mount
Also available on 16 mm wide carrier tape: 3,000 parts per 13" reel.
Order as: 5739-0-58-XX-12-XX-10-0

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

## DIMENSION IN INCHES

 TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:0703


0703-0-15-XX-12-XX-04-0
Press-fit in .057 mounting hole

0574

## 0550



0550-0-15-XX-22-XX-10-0 Solder mount in . 052 min . mounting hole


06710707


0671-0-15-XX-12-XX-10-0
Solder mount in . 063 min . mounting hole


0707-0-15-XX-12-XX-10-0
Solder mount in .051 min . mounting hole

| 5739 | $8894$ | 1534 |  |
| :---: | :---: | :---: | :---: |
| 5739-0-18-XX-12-XX-10-0 <br> Surface mount <br> Also available on 16 mm wide carrier tape: 3,000 parts per 13" reel. <br> Order as: 5739-0-58-XX-12-XX-10-0 | Hex press-fit in . 059 plated thru hole | 1534-0-15-XX-12-XX-04-0 <br> Press-fit in . 056 mounting hole |  |
| SPECIFICATIONS <br> SHELL MATERIAL: <br> Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: <br> Beryllium Copper Alloy 172, HT <br> DIMENSION IN INCHES <br> TOLERANCES ON: <br> LENGTHS: $\pm .005$ <br> DIAMETERS: $\pm .002$ <br> ANGLES: $\pm 2^{\circ}$ |  |  |  |

PIN RECEPTACLES for .015" - . 025" diameter pins



5970-X-15-XX-32-XX-04-0
Square press-fit for . 032 or $.039 \pm .002$ plated thru hole

4612-0-31-XX-30-XX-04-0
Compliant press-fit in $.040 \pm .003$ plated hole. For $.060 \rightarrow .100$ thick board

## SPECIFICATIONS

## SHELL MATERIAL:

 Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HTDIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:


047X-0-18-XX-30-XX-04-0
Solderless press-fit in $.038+.003 /-.002$
plated thru hole (use 1.1 mm drill prior to plating)


ORDER CODE: XXXX - X - XX - XX - XX - XX - XX - 0


BASIC PART \#
SPECIFY SHELL FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)

RoHS

## SELECT CONTACT

\#30 or \#32 CONTACT (DATA ON PAGES 218 \& 219)

PIN RECEPTACLES for .015" - . 025" diameter pins



067X-0-15-XX-30-XX-10-0
Solder mount in .054 min . mounting hole

206X-0-15-XX-30-XX-10-0
Solder mount in .055 min . mounting hole

| Basic Part <br> Number | Length <br> L |
| :---: | :---: |
| $1065-0$ | .190 |
| $1066-0$ | .160 |
| $7065-0$ | .181 |



4286-0-15-XX-30-XX-10-0
Hex press-fit in . 055 plated thru hole

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES: $\pm .002^{\circ}$

## 0665 <br> 4286



ORDER CODE: $\underline{X X X X}-\mathrm{X}-15-\underline{X X}-\underline{X X}-\underline{X X}-10-0$
BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$1510 \mu$ " GOLD OVER NICKEL (RoHS)

RoHS
SELECT CONTACT
\#30 or \#32 CONTACT (DATA ON PAGES 218 \& 219)

PIN RECEPTACLES for .015"-.025" diameter pins


0697-0-15-XX-30-XX-10-0 Press-fit in . 057 mounting hole


PIN RECEPTACLES for .015" - . 025" diameter pins


PIN RECEPTACLES for .015 " - . 025 " diameter pins

1005/1013/8898
0145/0146


XXXX-0-15-XX-3X-XX-04-0
Press-fit in .057 mounting hole 1/4 hard brass shell for auto-clinching

4378-0-15-XX-30-XX-10-0
Press-fit in . 057 mounting hole

| Basic Part <br> Number | Length <br> $\mathbf{A}$ |
| :---: | :---: |
| $1005-0$ | .138 |
| $1013-0$ | .165 |
| $8898-0$ | .224 |

NOTE: 8898 is not annealed \& not suitable for auto-clinching

| $\mathbf{4 3 7 8} \mathbf{0 5 5 6}$ |
| :--- |




01XX-0-15-XX-30-XX-04-0
Press-fit in .057 mounting hole

| Basic Part <br> Number | Length <br> A |
| :---: | :---: |
| $0136-0$ | 1.215 |
| $0137-0$ | .560 |
| $0138-0$ | .210 |
| $0139-0$ | .635 |
| $0141-0$ | .700 |
| $0148-0$ | .455 |
| $0152-0$ | .410 |

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - 15-XX - XX - XX - XX - 0 BASIC PART \# SPECIFY SHELL FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$1510 \mu "$ GOLD OVER NICKEL (RoHS)

SPECIFY CONTACT FINISH:
02 100 ${ }^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 84100 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)

PIN RECEPTACLES for .015" - . 025" diameter pins

| 7132 | 8445 |  | 1261 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 7132-0-15-XX-30-XX-04-0 <br> Square press-fit for $.032 \pm .002$ plated thru hole | 8445-0-15-XX-30-XX-04-0 <br> Square press-fit for $.039 \pm .002$ plated thru hole |  | 1038-0-15-XX-30-XX-04-0 <br> Press-fit in .059 mounting hole |  | 30-XX-04-0 <br> unting hole |
| 0153 | $1602 / 1610$ |  |  |  |  |
| 0153-X-15-XX-30-XX-04-0 <br> Press-fit in .057 mounting hole | Basic Part <br> Number Height <br> A <br> $0153-1$ .236 <br> $0153-2$ .315 <br> $0153-3$ .402 <br> $0153-4$ .472 <br> $0153-5$ .594 <br> $0153-6$ .699 |  | 16XX-0-15-XX-30-XX-04-0 <br> Press-fit in .057 mounting hole | Basic Part Number 1602-0 1610-0 | Height <br> A <br> .441 <br> .642 |
| 0903/0904 |  |  | 8252 | 4078 |  |
| 090X-0-15-XX-30-XX-04-0 <br> Press-fit in .057 mounting hole | $\begin{aligned} & \begin{array}{l} \text { Basic Part } \\ \text { Number } \end{array} \\ & \hline 0903-0 \\ & 0904-0 \end{aligned}$ | Height <br> A <br> 841 <br> 1.141 | 8252-0-15-XX-30-XX-10-0 <br> Press-fit in .057 plated thru hole |  | 1 $\stackrel{1}{.046}$ 1 <br> 0-XX-40-0 <br> unting hole |
| ```SPECIFICATIONS SHELL MATERIAL: Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HT DIMENSION IN INCHES TOLERANCES ON: LENGTHS: \(\pm .005\) DIAMETERS: \(\pm .002\) ANGLES: \(\pm 2^{\circ}\)``` |  |  |  |  |  |

PIN RECEPTACLES for .015" - . 025" diameter pins


1707-0-19-XX-30-XX-10-0
Press-fit in .061 mounting hole


0240-0-15-XX-30-XX-04-0
Press-fit in . 059 mounting hole

0307


0307-0-15-XX-30-XX-04-0
Press-fit in .059 mounting hole

1753


1753-0-15-XX-30-XX-04-0 Press-fit in .057 mounting hole

## 1705/1706/1762

## 0672



17XX-0-15-XX-3X-XX-04-0
Press-fit in .057 mounting hole

| Basic Part <br> Number | Height <br> $\mathbf{A}$ |
| :---: | :---: |
| $1705-0$ | .165 |
| $1706-0$ | .218 |
| $1762-0$ | .300 |

1024/1104


1XX4-0-18-XX-30-XX-10-0
Press-fit in . 059 mounting hole


0672-X-15-XX-30-XX-10-0
Swage mount in .049 hole

PIN RECEPTACLES for .015" - . 025 " diameter pins


XXXX-0-15-XX-43-XX-04-0
Press-fit in .057 mounting hole

| Basic Part <br> Number | Length <br> A |
| :---: | :---: |
| $1802-0$ | .125 |
| $3802-0$ | .165 |
| $8866-0$ | .775 |
| $4030-0$ | .815 |

## 1804/1806



180X-0-15-XX-43-XX-04-0
Press-fit in .057 mounting hole



3805-0-15-XX-43-XX-04-0 Press-fit in .057 mounting hole

## SPECIFICATIONS

SHELL MATERIAL:
Brass Alloy $360,1 / 2$ Hard
CONTACT MATERIAL:
Beryllium Copper Alloy 172, HT
dimension in inches TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: ${ }^{ \pm .002}$ ANGLES:


8830-0-15-XX-22-XX-10-0 Solder mount in .057 min . mounting hole

4622


| Basic Part <br> Number | Length <br> A |
| :---: | :---: |
| $1803-0$ | .145 |
| $1805-0$ | .213 |

180X-0-15-XX-43-XX-04-0
Press-fit in .057 mounting hole

1808


1808-0-15-XX-43-XX-04-0
Press-fit in .057 mounting hole


6252-0-15-XX-32-XX-10-0 Hex press-fit in . 057 plated thru hole

PIN RECEPTACLES for .015" - . 025" diameter pins


PIN RECEPTACLES for .015" - . 025" diameter pins

| 8964 | 5342 |  | 8857 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 8857-X-15-XX-32-XX-04-0 Press-fit in .057 mounting hole | Basic Part <br> Number <br> $8857-0$ <br> $8857-1$ <br> $8857-2$ <br> $885-3$ <br> $8857-4$ | Length $A$ |
| 8862/88 |  |  | 1334 | 8855 |  |
| 88XX-0-15-XX-30-XX-04-0 <br> Press-fit in .056 mounting hole | Basic PartNumber $\|$$8862-0$ <br> $8877-0$ | Length A |  | 8855-0-15-XX-30-XX-34-0 Press-fit in .057 mounting hole |  |
| 2954 | 9363 |  | 1023 | 1701 |  |
| Press-fit in .057 mounting hole | 9363-0-15-XX-35-XX-10-0 <br> Solder mount in . 057 min. mounting hole |  | 1023-0-15-XX-30-XX-04-0 <br> Press-fit in .061 mounting hole |  |  |
| SPECIFICATIONS <br> SHELL MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> CONTACT MATERIAL: <br> Beryllium Copper Alloy 172, HT <br> DIMENSION IN INCHES TOLERANCES ON: <br> LENGTHS: $\pm .005$ <br> DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$ <br> ANGLES: $\pm 2^{\circ}$ |  | E: $\mathrm{xxxx}-\mathrm{x}$ <br> HELL FINISH: LEAD OVER NIC OVER NICKEL OVER NICKEL <br> \#30, \#32 or \#3 |  <br> SELECT CONTACT <br> 5 CONTACT (DATA ON PAGES | CIFY CONTAC $00 \mu^{\prime \prime}$ TIN/LEAD $00 \mu$ " TIN OVER $30 \mu "$ GOLD OVER <br> 218 \& 219) | FINISH: <br> ER NICKEL CKEL (RoHS) ICKEL (RoHS) |

PIN RECEPTACLES
for .020" - . 032" diameter pins


PIN RECEPTACLES for .022" - .032" diameter pins


9019/9039

| Basic Part <br> Number | Head Dia. <br> C |
| :---: | :---: |
| $9019-0$ | .125 |
| $9039-0$ | .100 |

90X9-X-19-XX-06-XX-10-0
Press-fit in .075 mounting hole

## SPECIFICATIONS

SHELL MATERIAL Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - 1X - XX - $06-\mathrm{XX}-\mathrm{XX}-\mathbf{0}$ BASIC PART \# SPECIFY SHELL FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)
CONTACT
\#06 CONTACT (DATA ON PAGE 220)

PIN RECEPTACLES for .022" - . 032" diameter pins


0664

| Basic <br> Part <br> Number | Board <br> Thick- <br> ness | Length <br> V |
| :--- | :---: | :---: |
| $0664-1$ | .094 | .125 |
| $0664-2$ | .125 | .156 |
| $0664-3$ | .188 | .219 |

0664-X-15-XX-06-XX-10-0
Swage mount in .096 hole

## SPECIFICATIONS

shell material: Brass Alloy $360,1 / 2$ Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HT
dimension in inches TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: ${ }^{ \pm .002}$ ANGLES:

PIN RECEPTACLES for .022" - .034" diameter pins and $.025 "$ square pins

|  | 0293 | 0287 | 285 |
| :---: | :---: | :---: | :---: |
|  | 0293-0-15-XX-16-XX-10-0 <br> Press-fit in. 067 mounting hole |  |  |
| 0 |  | 0407 | 415 |
| 0284-0-15-XX-16-XX-10-0 Solder mount in .070 min. mounting hole | 8114-0-15-XX-16-XX-04-0 Press-fit from underside of pc board into .065 mounting hole | 0407-0-15-XX-16-XX-04-0 Press-fit in . 066 mounting hole | 0415-0-15-XX-16-XX-10-0 <br> Solder mount in .063 min . mounting hole Also available on 24 mm wide carrier tape. 1,500 parts per 13 reel Order as: 0415-0-57-XX-16-XX-10-0 |
| 0303 | 0306 | 0273 | 520 |
|  |  |  | Press-fit in . 066 mounting hole |
| SPECIFICATIONS <br> SHELL MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> CONTACT MATERIAL: <br> Beryllium Copper Alloy 172, HT <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ <br> ANGLES: $\pm 2^{\circ}$ |  |  |  |

PIN RECEPTACLES
for .022" - . 034" diameter pins and $.025 "$ square pins


9808-0-15-XX-16-XX-04-0
Press-fit in .067 mounting hole
8827


8827-0-15-XX-16-XX-04-0
Press-fit in . 061 mounting hole


Press-fit in .067 mounting hole
6021


6021-0-15-XX-16-XX-10-0
Solder mount in . 062 min . mounting hole mounting hole

8679


Press-fit in .067 mounting hole


8679-0-15-XX-16-XX-10-0 Solder mount in .071 min. mounting hole
$\square$ 1873


1873-0-15-XX-16-XX-04-0
Press-fit in .066 mounting hole


PIN RECEPTACLES
for .025" - .037" diameter pins
and $.025 "$ square pins

0305

0279


0279-0-15-XX-47-XX-10-0
Hex press-fit in . 062 plated thru hole
0301


0301-1-15-XX-47-XX-10-0
Solder mount in .042 min .
mounting hole

0330


0330-0-15-XX-47-XX-10-0 Hex press-fit in . 079 plated thru hole
0309


X300-X-15-XX-47-XX-10-0
Solder mount in .042 min . mounting hole

| Basic Part <br> Number | Length <br> $\mathbf{A}$ |
| :---: | :---: |
| $0300-1$ | .110 |
| $0300-2$ | .187 |
| $8300-0$ | .140 |

0399


0399-X-15-XX-47-XX-04-0
Press-fit in .061 mounting hole

| Basic Part <br> Number | Length <br> $\mathbf{A}$ |
| :---: | :---: |
| $0399-0$ | .230 |
| $0399-1$ | .180 |

1304


1304-0-15-XX-47-XX-04-0
Press-fit in . 061 mounting hole

## SPECIFICATIONS

SHELL MATERIAL Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL:
Beryllium Copper Alloy 172, HT
DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES:

ORDER CODE: XXXX - X - $15-\underline{X X}-\underline{47}-\underline{X X}-X X-0$


## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)
RoHS
2002/95/EC

SPECIFY CONTACT FINISH:
01 200 $\mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)

PIN RECEPTACLES for .025" - . 037" diameter pins and $.025 "$ square pins


1305-0-15-XX-47-XX-04-0
Press-fit in .061 mounting hole.
0335


0335-0-15-XX-47-XX-04-0
Hex press-fit in . 064 plated thru hole

1306


1306-0-15-XX-47-XX-04-0
Press-fit in .061 mounting hole.

7305


7305-0-15-XX-47-XX-10-0 Solder mount in .060 min . mounting hole.


4614-0-31-XX-47-XX-04-0
Compliant press-fit in $.040 \pm .003$ plated hole. For $.060 \rightarrow .100$ thick board.

4615


4615-0-31-XX-47-XX-04-0
Compliant press-fit in $.040 \pm .003$ plated hole. For $.090 \rightarrow .130$ thick board.

0400

0400-0-15-XX-47-XX-04-0 Press-fit in .067 mounting hole.


## 7614



7614-0-31-XX-47-XX-04-0
Compliant press-fit in $.040 \pm .003$ plated hole. For $.060 \rightarrow .100$ thick board.


8401-0-15-XX-47-XX-04-0
Hex press-fit in . 063 plated thru hole

## SPECIFICATIONS

SHELL MATERIAL:
Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL:
Beryllium Copper Alloy 172, HT
DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:


2400-0-15-XX-47-XX-04-0
Press-fit in .066 mounting hole.

## 6857



6857-0-15-XX-47-XX-10-0 Press-fit in .061 mounting hole.

9393


9393-0-15-XX-47-XX-10-0 Press-fit in .067 mounting hole.

0401/6401
PIN RECEPTACLES
for .025" - . 037" diameter pins
and .025" square pins
1303/8303

| Basic Part <br> Number | Length <br> A |
| :---: | :---: |
| $0401-0$ | .340 |
| $6401-0$ | .540 |

X401-0-15-XX-47-XX-04-0
Press-fit in . 064 mounting hole


| Basic Part <br> Number | Length <br> A |
| :---: | :---: |
| $1303-0$ | .125 |
| $8303-0$ | .800 |



409X-0-15-XX-47-XX-04-0
Press-fit in . 061 mounting hole


## X303-0-15-XX-47-XX-04-0

Press-fit in .061 mounting hole

## 8806



8806-0-18-XX-47-XX-40-0 Surface mount
Also available on 12 mm wide carrier
tape: 4,000 parts per 13 " reel.
Order as: 8806-0-58-XX-47-XX-40-0

|  |  |
| :---: | :---: |
| SPECIFICATIONS <br> SHELL MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> CONTACT MATERIAL: <br> Beryllium Copper Alloy 172, HT <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$ |  |

PIN RECEPTACLES for .037" - .043" diameter pins


## 9354/7406



XXXX-0-15-XX-18-XX-10-0
Solder mount in .071 min .
mounting hole

| Basic Part <br> Number | Length <br> L |
| :---: | :---: |
| $7406-0$ | .120 |
| $9354-0$ | .170 |



7405-0-18-XX-18-XX-10-0
Press-fit in .084 mounting hole


3450-0-15-XX-18-XX-04-0 Solder mount in .043 min . mounting hole

## 0319



0319-X-15-XX-18-XX-04-0
Solder mount in .042 min .
mounting hole


PIN RECEPTACLES for .032" - . 046" diameter pins

## 0344

0349


0323/0324


0323-X-15-XX-34-XX-10-0
Swage mount in .094 hole


| Basic Part <br> Number | Board <br> Thickness | Length <br> V |
| :---: | :---: | :---: |
| 032X-1 | .031 | .062 |
| 032X-2 | .062 | .094 |
| 032X-3 | .094 | .125 |
| 032X-4 | .125 | .156 |
| 032X-5 | .188 | .219 |

0348

0324-X-15-XX-34-XX-10-0
Swage mount in .094 hole


0348-0-33-XX-34-XX-10-0 \#20A Crimp Barrel
0405

PIN RECEPTACLES for .032" - . 046" diameter pins

0327/0351/0373


| Basic Part <br> Number | Length <br> L | Depth <br> N |
| :---: | :---: | :---: |
| $0327-0$ | .206 | .180 |
| $0351-0$ | .226 | .200 |
| $0373-0$ | .270 | .241 |



0328-0-15-XX-34-XX-10-0
Hex press-fit in . 079 plated thru hole

## 0357 <br> 0317



## 0334



0334-0-15-XX-34-XX-10-0 Hex press-fit in . 079 plated thru hole


0340-0-15-XX-34-XX-10-0
Solder mount in .087 min.
mounting hole
Solder mount in .087 min .
mounting hole


0316
0314

Press-fit in .089 mounting hole

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - XX - XX - $34-\underline{X X}-10-0$


## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)
SPECIFY CONTACT FINISH:
01 200 ${ }^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)

RoHS
CONTACT
\#34 CONTACT (DATA ON PAGE 222)

PIN RECEPTACLES for .032" - .046" diameter pins

| 0359 | 0358 | 0360 | 03 |
| :---: | :---: | :---: | :---: |
| 0359-0-15-XX-34-XX-10-0 | 0358-0-15-XX-34-XX-10-0 |  |  |
| 0356 | 6 | 0347 | 0329 |
|  | 6659-0-15-XX-34-XX-10-0 Solder mount in .102 min . mounting hole | 0347-0-15-XX-34-XX-10-0 <br> Solder mount in .120 min . mounting hole | 0329-0-15-XX-34-XX-10-0 Solder mount in . 075 min. mounting hole. "knock out" bottom. |
| 0814 | 5059 | 8360 | g359 |
| 0814-0-15-XX-34-XX-04-0 Solder mount in . 082 min mounting hole | 5059-0-15-XX-34-XX-04-0 <br> Press-fit in .090 mounting hole | Press-fit in .087 mounting hole | Press-fit in .090 mounting hole |
| SPECIFICATIONS <br> SHELL MATERIAL: <br> Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: <br> Beryllium Copper Alloy 172, HT <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$ |  |  |  |


| 8838 | 3100 | 8853 | 6800 |
| :---: | :---: | :---: | :---: |
| 8838-0-15-XX-34-XX-10-0 <br> Solder mount in .086 min . mounting hole |  | 8853-0-15-XX-34-XX-10-0 Press-fit in . 071 mounting hole | $6800-0-15-\mathrm{xX}-34-\mathrm{XX}-04-0$ Solder mount in .080 min mounting hole |
| 8206 | 0739 |  |  |
| 8206-0-15-XX-34-XX-40-0 Surface mount | $\xrightarrow{.082 \mathrm{DIA} .}$ <br> 0739-0-15-XX-34-XX-10-0 Hex press-fit in $.078 \pm .00$ plated thru hole |  |  |
|  |  |  |  |
|  |  |  |  |
| SPECIFICATIONS <br> SHELL MATERIAL: Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: DIMENSION IN INCHES TOLERANCES ON: DIAMETERS: ${ }^{ \pm .000}$ ANGLES |  |  |  |

PIN RECEPTACLES for .040" - . 050" diameter pins
0355

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL:
Beryllium Copper Alloy 172, HT
DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$

ORDER CODE: $\underline{X X X X}-\mathrm{X}-15-\underline{X X}-\underline{02}-\underline{X X}-X X-0$

## BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
15 10 $\mu$ " GOLD OVER NICKEL (RoHS)


SPECIFY CONTACT FINISH:
$01200 \mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)

2002/95/EC

CONTACT
\#02 CONTACT (DATA ON PAGE 223)

PIN RECEPTACLES
for .040" - .060" diameter pins (\#03 contact) and .059" - .063" diameter pins (\#42 contact)
0433/8433
0435/0436


X433-0-15-XX-03-XX-04-0
Press-fit in .106 mounting hole


0435-0-15-XX-03-XX-10-0
Solder mount in . 102 min . mounting hole Also available on 24 mm wide carrier tape: 950 parts per $13^{\prime \prime}$ reel.
Order as: 0435-0-57-XX-03-XX-10-0

## 0342



0342-0-15-XX-42-XX-10-0
Hex press-fit in $.090 \pm .002$ plated thru hole

- 0342 receptacle uses Mill-Max's new \#42 Contact. This receptacle will accept the $0.061 \pm .002$ power pins of $1 / 4$ brick DC/DC converters.
- \#42 contact can be ordered in standard receptacles that use \#03 contact; or it can be specified as the spring element inside custom made receptacles.

Mechanical Data \#42 Contact:
Insertion/Extraction Force with a $\varnothing .061$ (nominal) pin:

| First Cycle |  | 2nd \& Subsequent Cycles |  |
| :---: | :---: | :---: | :---: |
| Insertion Force | Extraction Force | Insertion Force | Extraction Force |
| 20 N | 6 N | 10 N | 6 N |

Compliancy Test (the "spring back" characteristic of the contact to accept $\varnothing .059$ small pin after insertion of a $\varnothing .063$ large pin) :

| Initial Cycle with $\varnothing .059$ pin |  | Second Cycle with $\varnothing .063$ pin |  | Third Cycle with $\varnothing .059$ pin |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Ins. Force | Ext. Force | Ins. Force | Ext. Force | Ins. Force | Ext. Force |
| 18 N | 6 N | 22 N | 7 N | 3 N | 2 N |

(Insertion/Extraction Forces are in Newtons and measured with polished steel gage pins having elliptical shaped tips).

## SPECIFICATIONS

## SHELL MATERIAL:

 Brass Alloy 360, 1/2 HardCONTACT MATERIAL: Beryllium Copper Alloy 172, HT
dimension in inches TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm{ }^{\circ}$

ORDER CODE: XXXX - X - $1 \mathrm{X}-\underline{X X}-\underline{X X}-\underline{X X}-\mathrm{XX}-\mathbf{0}$
BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL 80 200 $\mu$ " TIN OVER NICKEL (RoHS) 15 10u" GOLD OVER NICKEL (RoHS)

PIN RECEPTACLES
for .048" - .064" diameter pins (\#13 contact) and .045" - .065" diameter pins (\#23 contact)
0364

0492-0-15-XX-13-XX-04-0
Press-fit in . 106 mounting hole

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

0381


0381-0-15-XX-23-XX-10-0
Press-fit in .104 mounting hole


4034-0-15-XX-23-XX-04-0
Press-fit in .109 mounting hole


3044-0-15-XX-23-XX-04-0 Solder mount in .104 min . mounting hole

## PIN RECEPTACLES

for .048" - .064" diameter pins (\#13 contact) and .045" - .065" diameter pins (\#23 contact)

| 0496 | 0368 | 8067 | 1105 |
| :---: | :---: | :---: | :---: |
|  |  | 8067-0-19-XX-13-XX-10-0 | 1105-0-15-XX-13-XX-04-0 |
| 8730 | 3667 | 9372 | 4582 |
|  |  |  |  |
| 5834 | 9401 | 9801 | 8829 |

5834-0-15-XX-23-XX-10-0 Press-fit in .107 mounting hole


9401-0-15-XX-23-XX-10-0
Solder mount in .102 min . mounting hole Also available on 24 mm wide carrier tape: 1,100 parts per 13" reel Order as: 9401-0-57-XX-23-XX-10-0

9801


9801-0-15-XX-23-XX-10-0
Solder mount in .102 min . mounting hole Also available on 16 mm wide carrier tape: 1,200 parts per 13" reel Order as: 9801-0-57-XX-23-XX-10-0

8829

8829-0-15-XX-23-XX-10-0
Solder mount in .102 min . mounting hole

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: $\underline{X X X X}-\mathbf{X}-\mathbf{X X}-\underline{X X}-\underline{X X}-\underline{X X}-X X-0$
BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu^{\prime \prime}$ GOLD OVER NICKEL (RoHS)

RoHS
2002/95/EC

SELECT CONTACT

\#13 or \#23 CONTACT (DATA ON PAGES 224 \& 225)

PIN RECEPTACLES
for .048" - .064" diameter pins (\#13 contact) for . 045 " - . 065 " diameter pins (\#23 contact)


## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES:
$\pm 2^{\circ}$
ORDER CODE: $\underline{X X X X}-\mathbf{X}-X X-\underline{X X}-\underline{X X}-\underline{X X}-X X-0$ BASIC PART \# SPECIFY SHELL FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$1510 \mu "$ GOLD OVER NICKEL (RoHS)
SPECIFY CONTACT FINISH:
$01200 \mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)

PIN RECEPTACLES for .065" - .082" diameter pins


PIN RECEPTACLES

0395 8016


## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

## DIMENSION IN INCHES

 TOLERANCES ON:LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: $X$ XXX - $\mathrm{X}-15-\underline{X X}-\mathrm{XX}-\underline{X X}-10$ - 0

BASIC PART \#

## SPECIFY SHELL FINISH:

$01200 \mu$ " TIN/LEAD OVER NICKEL
$80200 \mu$ " TIN OVER NICKEL (RoHS)
15 10 $\mu$ " GOLD OVER NICKEL (RoHS)

SELECT CONTACT
\#07 or \#14 CONTACT (DATA ON PAGES 225 \& 226)

PIN RECEPTACLES for .084" - .102" diameter pins

| 0388 | 0390 | 0389 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0388-0-15-XX-08-XX-10-0 Press-fit in. 138 mounting ho |  | 0389-X-15-XX-08-XX-10-0 Swage mount in . 094 ho | Basic Part <br> Number Board <br> Thickness <br> $0389-2$ .062 <br> $0389-3$ .094 <br> $0389-4$ .125 |  | $\begin{gathered} \begin{array}{c} \text { Length } \\ \mathrm{V} \end{array} \\ \hline .094 \\ .125 \\ .156 \end{gathered}$ |
| 8963 |  |  |  |  |  |
|  |  |  |  |  |  |

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - XX - XX - 08-XX - XX - 0

## BASIC PART \#

SPECIFY SHELL FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$1510 \mu "$ GOLD OVER NICKEL (RoHS)


- SPECIFY CONTACT FINISH:

01 200 ${ }^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)
CONTACT
\#08 CONTACT (DATA ON PAGE 226)

## PIN RECEPTACLES <br> With Organic Fibre Plug ${ }^{\circledR}$ Solder Barrier (see specific contact range on pages 216, 217, 218 \& 221)

- These through-hole (tubular) receptacles are designed for hand, wave or reflow* soldering. The ORGANIC FIBRE PLUG ${ }^{\circledR}$ barrier prevents solder, paste or flux from contaminating the spring contact.
- After soldering, the $O F P^{\circledR}$ barrier is pushed out of the receptacle when the device is plugged in.
- All parts are available as discrete receptacles; but for SMT assembly, certain receptacles are supplied on carrier tape per EIA-481 to feed industry standard pick and place machines.
*Intrusive reflow (also called "pin-in-paste") is a technique of using conventional through-hole components in a reflow soldering process. The receptacles are placed into plated through-holes in the circuit board (solder paste has previous-
 ly been screen printed on pads adjacent to the holes) and the board is reflowed in the same pass as other SMT components. Solder will fill the plated through-holes and achieve solder joints as reliable as wave soldering. The OFP ${ }^{\circledR}$ barrier prevents solder paste from being picked-up inside the contact during pick 'n place assembly. "Overprinting" paste on the solder mask can be used to adjust the volume of paste required to fill each hole.

| 5359 | 0577 | 4015 | 3435 |
| :---: | :---: | :---: | :---: |
| 5359-0-XX-XX-10-XX-10-0 Solder mount in $\varnothing .043 \pm .003 \mathrm{PTH}$. \#10 Contact for $\varnothing .012-017$ pins. Also available on 16 mm wide carrie tape: 3,000 parts per 13 " reel. | 0577-0-XX-XX-21-XX-10-0 Solder mount in $\varnothing .045 \pm .003$ PTH. \#21 Contact for $0.015-.022$ pins. Also available on 12 mm wide carrie tape: 3,000 parts per 13 " reel. | 4015-0-XX-XX-30-XX-10-0 Solder mount in $\varnothing .057 \pm .003$ PTH. \#30 Contact for $0.015-025$ pins. Also avaliable on 8 mm wide carrier tape: 5,500 parts per $13^{\prime \prime}$ reel. | 3435-0-XX-XX-47-XX-04-0 Solder mount in $\varnothing .046 \pm .003$ PTH. \#47 Contact for $\varnothing .025-.036$ and .025 " square pins. 25 square pins. |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

PIN RECEPTACLES
With Organic Fibre Plug ${ }^{\circledR}$ Solder Barrier (see specific contact range on pages 221-226)


4280-0-XX-XX-16-XX-10-0 Solder mount in $\varnothing .067 \pm .003$ PTH. \#16 Contact for Ø.022-. 034 pins. Also available on 8 mm wide carrier tape: 6,000 parts per 13" reel.


9873-0-XX-XX-02-XX-10-0 Solder mount in $\varnothing .083 \pm .003$ PTH. \#02 Contact for $0.040-050$ pins. Also available on 12 mm wide carrier tape: 4,500 parts per $13^{\prime \prime}$ reel.


5280-0-XX-XX-16-XX-40-0
Solder mount in $\varnothing .067 \pm .003$ PTH. \#16 Contact for $\varnothing .022$-. 034 pins. Also available on 16 mm wide carrier tape: 2,200 parts per 13" reel.

0479


5364-0-XX-XX-23-XX-10-0
Solder mount in $\varnothing .103 \pm .003$ PTH. \#23 Contact for $\varnothing .045-065$ pins. Also available on 12 mm wide carrier tape: 2,000 parts per 13" reel.


0479-0-XX-XX-34-XX-10-0 Solder mount in $\varnothing .077 \pm .003 \mathrm{PTH}$. \#34 Contact for Ø.032-. 046 pins.
Also available on 16 mm wide carrier tape: 2,000 parts per 13 " reel.

## 5291



5291-0-XX-XX-08-XX-40-0
Solder mount in $\varnothing .139 \pm .003$ PTH \#08 Contact for Ø.084-. 102 pins. Also available on 16 mm wide carrier tape: 1,700 parts per 13 " reel.


WRAPOST RECEPTACLES

1702/1703
$0038 \Rightarrow 0040 / 0066 \Rightarrow 0068$

|  | Basic Part Number | $\begin{gathered} \text { \# of } \\ \text { Wraps } \end{gathered}$ | $\begin{gathered} \text { Length } \\ \mathbf{A} \end{gathered}$ |  | $\begin{aligned} & \text { Basic } \\ & \text { Part \# } \\ & \hline \end{aligned}$ | \# of Wraps | $\begin{gathered} \text { Length } \\ \mathbf{A} \\ \hline \end{gathered}$ | $\begin{gathered} \text { Dia. } \\ \text { C } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 030 DIA -1-1.145.165 | 1702-2 | 2 | . 370 | -1-1- ${ }^{162} .200$ | 0040-1 | 1 | . 260 |  |
| $\substack{\text { H0LE } \\ \hline 045 \text { DIA. }}$ 1  | 1703-3 | 3 | . 510 | - $\left.\right\|^{200}$ | 0039-2 | 2 | . 360 | . 072 |
| . 045 DIA. |  |  |  | . 052 DIA. | 0038-3 | 3 | . 500 |  |
|  |  |  |  |  | 0068-7 | 1 | . 260 |  |
|  |  |  |  |  | 0066-3 | 3 | . 500 |  |
| . 025 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| SQUARE |  |  |  | SQUARE $y$ |  |  |  |  |
| 170X-X-17-XX-30-XX-02-0 |  |  |  | 00XX-X-17-XX-30-XX-02-0 |  |  |  |  |
| Press-fit in . 057 mounting hole |  |  |  | Press-fit in . 055 mounting hole |  |  |  |  |
| 0086/0088/008 |  |  |  | $1030 \Rightarrow 1036$ |  |  |  |  |



008X-X-17-XX-3X-XX-02-0
Press-fit in .057 mounting hole


| Basic <br> Part \# | \# of <br> Wraps | Length <br> A | Dia. <br> C |
| :---: | :---: | :---: | :---: |
| $1032-1$ | 1 | .260 |  |
| $1031-2$ | 2 | .360 | .072 |
| $1030-3$ | 3 | .510 |  |
| $1036-1$ | 1 | .260 |  |
| $1035-2$ | 2 | .360 | .062 |
| $1034-3$ | 3 | .510 |  |



103X-X-17-XX-3X-XX-02-0
Press-fit in .057 mounting hole


WRAPOST RECEPTACLES

0444
0445


## SPECIFICATIONS

SHELL MATERIAL Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - 17- XX - 30-XX - 02-0

## BASIC PART \#

SPECIFY SHELL FINISH: $\qquad$ SPECIFY CONTACT FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
15 10 " " GOLD OVER NICKEL (RoHS)


02 100 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 84100 \mu$ " TIN OVER NICKEL (RoHS) $\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)

WRAPOST RECEPTACLES
for .022" - .032" diameter pins (\#06 contact)
and .022" - .034" diameter pins (\#16 contact)
2297
0280


2297-X-17-XX-16-XX-02-0
Press-fit in .067 mounting hole


0280-X-17-XX-06-XX-02-0
Press-fit in .081 mounting hole

## 0281



0281-3-17-XX-06-XX-02-0 Press-fit in . 080 mounting hole

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X-17-XX - XX - XX - 02-0

BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$1510 \mu "$ GOLD OVER NICKEL (RoHS)
\#06 or \#16 CONTACT (DATA ON PAGES 220 \& 221)

WRAPOST RECEPTACLES

1052/1053
0383

|  | Basic Part Number | $\begin{gathered} \text { \# of } \\ \text { Wraps } \\ \hline \end{gathered}$ | $\begin{gathered} \text { Length } \\ \mathrm{A} \end{gathered}$ |  | Basic Part Number | $\begin{array}{c}\text { Board } \\ \text { Thickness }\end{array}$ | $\begin{gathered} \text { Length } \\ \mathrm{V} \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| . 079 DIA. 41.220 .250 | 1053-2 | 2 | . 360 | 1.200 .205 .250 | 0383-1 | . 062 | . 094 |
| $\underline{.079 \text { DIA. }}$ - | 1052-3 | 3 | . 515 | 115 DIA. | 0383-2 | . 094 | . 125 |
|  |  |  |  | . 091 DIA. -1 | 0383-3 | . 125 | . 156 |
|  |  |  |  | . 066 DIA. |  |  |  |
| L |  |  |  |  |  |  |  |
| $\xrightarrow{.025}$ |  |  |  | 0 5 . 810 . 870 |  |  |  |
| SQUARE |  |  |  | $\frac{.045}{\text { SQUARE }}$ - U] |  |  |  |
|  |  |  |  |  |  |  |  |
| 105X-X-17-XX-34-XX-02-0 |  |  |  | 0383-X-17-XX-34-XX-02-0 |  |  |  |
| Press-fit in . 083 mounting hole |  |  |  | Swage mount in . 094 hole |  |  |  |



0382-3-17-XX-34-XX-02-0
Press-fit in . 089 mounting hole

## SPECIFICATIONS

SHELL MATERIAL: Brass Alloy 360, 1/2 Hard
CONTACT MATERIAL: Beryllium Copper Alloy 172, HT

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - 17- XX - $34-\underline{X X}-02-0$
BASIC PART \#

## SPECIFY SHELL FINISH:

01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$1510 \mu "$ GOLD OVER NICKEL (RoHS)

SPECIFY CONTACT FINISH:
01 200 $\mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS) $\diamond 2730 \mu "$ GOLD OVER NICKEL (RoHS)

## THE BASIC PIN

Mill-Max printed circuit pins are machined individual pins used for various plug-in applications and are functionally the dynamic building blocks within an interconnect system. Turret, slotted, wrapost and pin types are available. They are commonly fastened to printed circuit boards by being press-fit, swaged (riveted) or soldered.

PCB pins serve not only as a conductive path for an electrical circuit, but provide strength to an assembly module as a mechanical interface. Mill-Max Mfg. Corp. has developed thousands of state-of-the-art "basic pin" designs, featuring pin barrel geometries for our customers who
 require outside-the-box solutions to their interconnect needs.


In addition to the products found on the following pages Mill-Max offers the following stock materials and diameters available for manufacture:

BRASS Alloy 360, 1/2 hard: .062/.072/.078/.093/.125/ .156/.187/.250 diameters BRASS Alloy 360, 1/4 hard: .072/.078 diameters BRASS TUBING: . 072 O.D.x. 020 I.D./ . 072 O.D.x. 025 I.D. PHOSPHOR BRONZE Alloy 544: .062/.072/.078 diameters TELLURIUM COPPER Alloy 145: .079/.093/.125/ .156 diameters

Mill-Max will gladly quote application specific products. Please complete the specification sheet on page 213 or send us your own drawings. We assure you a fast response.


PRINTED CIRCUIT PINS
Nail Head Type

| 4184 | 9050 | 4353 | 9083 |
| :---: | :---: | :---: | :---: |
| 4184-0-00-XX-00-00-33-0 <br> Solder mount in .014 mounting hole | 9050-0-00-XX-00-00-33-0 <br> Solder mount in 016 mounting hole | 4353-0-00-XX-00-00-33-0 Solder mount in . 016 mounting hole | 9083-0-00-XX-00-00-38-0 <br> Solder mount in . 016 mounting hole |
| 4825 | 4689 | 4361 | 4288 |
| 4825-0-00-XX-00-00-33-0 <br> Solder mount in .019 mounting hole | 4689-0-00-XX-00-00-33-0 <br> Solder mount in .019 mounting hole |  <br> 4361-0-00-XX-00-00-33-0 <br> Solder mount in . 022 mounting hole | 4288-0-00-XX-00-00-33-0 <br> Solder mount in .022 mounting hole |
| 4068 | 9113 | 9137 | 5137 |
| 4068-0-00-XX-00-00-33-0 <br> Solder mount in . 022 mounting hole | 9113-0-00-XX-00-00-38-0 Solder mount in . 022 mounting hole | 9137-0-00-XX-00-00-38-0 <br> Solder mount in . 022 mounting hole | 5137-0-00-XX-00-00-38-0 Solder mount in . 022 mounting hole |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard (Except where noted) <br> DIMENSION IN INCHES TOLERANCES ON: $\begin{array}{ll}\text { DIAMETERS: } \\ & \pm .005 \\ \text { ANGIES. }\end{array}$ ANGLES: | ORDER CODE: XxXX - <br> BASIC PART \# |  | PIN FINISH: <br> TIN/LEAD OVER NICKEL TIN OVER NICKEL (RoHS) OLD OVER NICKEL (RoHS) OLD OVER NICKEL (RoHS) OLD OVER NICKEL (RoHS) |

PRINTED CIRCUIT PINS
Nail Head Type

| 42 | 50 | 496 | 654 |
| :---: | :---: | :---: | :---: |
| 4209-0-00-XX-00-00-33-0 <br> Solder mount in . 022 mounting hole | 5063-0-00-XX-00-00-33-0 <br> Solder mount in . 024 mounting hole | 4965-0-00-XX-00-00-33-0 Solder mount in . 024 mounting hole | 6547-0-00-XX-00-00-33-0 <br> Solder mount in . 024 mounting hole |
|  |  |  | 9185 |
| 4071-0-00-XX-00-00-33-0 <br> Solder mount in . 024 mounting hole |  |  | 9185-0-00-XX-00-00-33-0 <br> Solder mount in . 026 mounting hole |
| 825 | 5035 | 5240 | 2650 |
|  |  |  |  |
| 8257-0-00-XX-00-00-33-0 <br> Solder mount in . 026 mounting hole | 5035-0-00-XX-00-00-33-0 Solder mount in . 029 mounting hole | 5240-0-00-XX-00-00-33-0 <br> Solder mount in . 029 mounting hole | 2650-0-00-XX-00-00-33-0 <br> Solder mount in .029 mounting hole |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> (Except where noted) <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ <br> DIAMETERS: $\pm .002$ <br> ANGLES: $\pm 2^{\circ}$ |  |  |  |

PRINTED CIRCUIT PINS
Nail Head Type

| 5062 | 8451 | 6477 | 4477 |
| :---: | :---: | :---: | :---: |
|  | 8451-0-00-XX-00-00-33-0 <br> Solder mount in . 029 mounting hole | 6477-0-00-XX-00-00-38-0 <br> Solder mount in . 034 mounting hole | 4477-0-00-XX-00-00-33-0 <br> Solder mount in . 034 mounting hole |
| 4268 | 9086 | 8330 | 9228 |
| 4268-0-00-XX-00-00-33-0 <br> Solder mount in . 039 mounting hole | 9086-0-00-XX-00-00-33-0 <br> Solder mount in . 040 mounting hole |  | 9228-0-00-XX-00-00-38-0 <br> Solder mount in .044 mounting hole |
| 6095 |  | 6092 |  |
|  | Basic Part <br> Number Pin Length <br> Lu <br> $6095-0$ .580 <br> $6095-1$ .475 |  |  |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> (Except where noted) <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\quad \pm .005$ ANGLES: $\pm 2^{\circ}$ |  |  |  |

PRINTED CIRCUIT PINS
Nail Head Type

| 1179 | 9872 | 2381 | 9265 |
| :---: | :---: | :---: | :---: |
| 1179-0-00-XX-00-00-33-0 Solder mount in . 044 mounting hole | 9872-0-00-XX-00-00-33-0 <br> Solder mount in .049 mounting hole | 2381-0-00-XX-00-00-33-0 <br> Solder mount in . 054 mounting hole | 9265-0-00-XX-00-00-38-0 Solder mount in . 063 mounting hole |
| 6142 | 9022 | 8086 |  |
| 6142-0-00-XX-00-00-33-0 Solder mount in . 064 mounting hole | 9022-0-00-XX-00-00-33-0 <br> Solder mount in . 066 mounting hole | 8086-0-00-XX-00-00-33-0 <br> Solder mount in .079 mounting hole |  |
|  |  |  |  |
|  |  |  |  |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> (Except where noted) <br> DIMENSION IN INCHES <br> TOLERANCES ON: <br> LENGTHS: $\pm .005$ <br> $\begin{array}{ll}\text { DIAMETERS: } & \pm .002 \\ \text { ANGLES: } & \pm 2^{\circ}\end{array}$ | ORDER CODE: XXXX - <br> BASIC PART \# |  | PIN FINISH: TIN/LEAD OVER NICKEL TIN OVER NICKEL (RoHS) OLD OVER NICKEL (RoHS) OLD OVER NICKEL (RoHS) OLD OVER NICKEL (RoHS) |

PRINTED CIRCUIT PINS

## 4006

3121


4006-X-00-XX-00-00-03-0 Hex Press-fit in .034 mounting hole

3128-X-00-XX-00-00-08-0 Solder mount in . 024 min. mounting hole


6218-0-00-XX-00-00-03-0 Press-fit in .057 mounting hole

| Basic Part <br> Number | Length <br> $\mathbf{A}$ |
| :---: | :---: |
| $3128-1$ | .250 |
| $3128-2$ | .425 |
| $3128-3$ | .525 |
| $3128-4$ | .550 |
| $3128-5$ | .930 |



3121-X-00-XX-00-00-08-0
Solder mount in . 023 mounting hole Material is annealed.


3006-0-00-XX-00-00-03-0
Press-fit in . 034 mounting hole

5012


5012-0-00-XX-00-00-03-0
Press-fit in .057 mounting hole

0508


0508-0-00-XX-00-00-03-0
Surface Mount

| Basic Part <br> Number | Substrate <br> Thickness | Length <br> V |
| :---: | :---: | :---: |
| $3121-1$ | .025 | .061 |
| $3121-2$ | .040 | .075 |

8885


8885-0-00-XX-00-00-03-0 Press-fit in .057 mounting hole 9081


9081-0-00-XX-00-00-08-0
Solder mount in . 024 mounting hole

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard (Except where noted)

## DIMENSION IN INCHES

TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES: $\pm 2^{\circ}$

PRINTED CIRCUIT PINS
$8685 / 9036$

PRINTED CIRCUIT PINS

| 3116 | 5435 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3116-X-00-XX-00-00-08-0 | Basic <br> Part <br> Number <br> 3116-1 <br> 3116-2 <br> 3116-3 <br> 3116-4 | Board <br> Thick- <br> Tess <br> .031 <br> .062 <br> .094 <br> .125 | $\substack{\text { Length } \\ \mathrm{V}}$ <br> .051 <br> .802 <br> .113 <br> .145 | Length <br> D <br> .035 <br> .062 <br> .062 <br> .062 |  | Basic Part <br> Number <br> $5435-0$ <br> $543-1$ <br> $5435-2$ | Length <br> L <br> .303 <br> .413 |
| 3135 |  |  |  |  | 3129 | 3147 |  |
| 3135-1-00-XX-00-00-08-0 Swage mount in .040 hole. For . 031 thick board. | .018 .028 .051 .020 3210 s |  |  | 1 <br> .085 <br> 1 <br> 1 <br> 1220 <br> 1 <br> 1 <br> 08 | 3129-1-00-XX-00-00-08-0 |  | X-00-00-08-0 <br> in . 043 hole. <br> ick board. |
| 4366 |  |  |  |  | 7827 | 1130 |  |
|  | $\qquad$ <br> . 038 DI <br> KNURL <br> .032 DI <br> .018 DI <br> 1267- <br> Press |  | $\square$ <br> 1 <br> 010 | -03-0 <br> hole |  | 060 DIA. .053 DIA. .018 DIA. | -00-00-03-0 mounting hole Br. 544 (B2) |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> (Except Swage pins which are annealed) <br> are annealed) <br> DIMENSION IN INCHES <br> TOLERANCES ON: <br> LENGTHS: $\pm .005$ <br> $\begin{array}{ll}\text { DIAMETERS: } & \pm .002 \\ \text { ANGLES: } & \pm 2^{\circ}\end{array}$ |  | $\mathrm{COI}$ | E: | xX - |  | PIN FINISH: TIN/LEAD OVER TIN OVER NIC GOLD OVER NI GOLD OVER NI GOLD OVER N | R NICKEL <br> KEL (RoHS) <br> CKEL (RoHS) <br> CKEL (RoHS) <br> CKEL (RoHS) |

PRINTED CIRCUIT PINS


PRINTED CIRCUIT PINS


| $6585$ | $3404$ | $3769$ |  |
| :---: | :---: | :---: | :---: |
| 6585-0-00-XX-00-00-03-0 <br> Press-fit in . 057 mounting hole Pin material is Ph Br 544 (B2) | 3404-0-00-XX-00-00-03-0 <br> Press-fit in . 057 mounting hole | 3169-0-00-15-00-00-03-0 <br> V-Groove Header Pin <br> Also available on Kapton Tape |  |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> (Except where noted) <br> DIMENSION IN INCHES <br> TOLERANCES ON: <br> LENGTHS: $\pm .005$ <br> DIAMETERS: $\pm .002$ <br> ANGLES: $\pm 2^{\circ}$ | ORDER CODE: XXXX - <br> BASIC PART \# | $\begin{array}{r} -00-\frac{\text { XX }}{\text { - }}-00-00-03-0 \\ \\ \text { SPECIFY } \\ 01200 \mu^{\prime \prime} \\ \\ \diamond 80200 \mu^{\prime \prime} \\ \diamond 1510 \mu^{\prime \prime} \\ \\ \diamond 2120 \mu^{\prime \prime} \\ \\ \diamond 3450 \mu^{\prime \prime} \end{array}$ | Y PIN FINISH: <br> " TIN/LEAD OVER NICKEL <br> " TIN OVER NICKEL (RoHS) GOLD OVER NICKEL (RoHS) GOLD OVER NICKEL (RoHS) GOLD OVER NICKEL (RoHS) |

PRINTED CIRCUIT PINS


XXXX-0-00-XX-00-00-03-0
Press-fit in .057 mounting hole



PRINTED CIRCUIT PINS


PRINTED CIRCUIT PINS


PRINTED CIRCUIT PINS
3408

PRINTED CIRCUIT PINS

| 3117 | $3114 / 3115$ |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3117-X-00-XX-00-00-08-0 <br> Swage mount in . 035 hole | Basic Part <br> Number Board <br> Thickness Length <br> Lun <br> $3117-1$ .031 .047 <br> $3117-2$ .062 .078 <br> $3117-3$ .094 .110 <br> $3117-4$ .125 .141 | 311X-X-00-XX-00-00-08-0 <br> Swage mount in . 035 mounting hole | Basic <br> Part <br> Number <br> $3114-1$ <br> $3114-2$ <br> $315-1$ <br> $3115-2$ | Board <br> Thick- <br> ness$\|$ | Length <br> A | Length <br> V <br> .051 <br> .082 <br> .051 <br> .082 |
| 3112 |  | 3118/3119 |  |  |  |  |
| 3112-X-00-XX-00-00-08-0 Swage mount in . 043 hole | Basic Part <br> Number Board <br> Thickness Length <br> V <br> $3112-1$ .031 .051 <br> $312-2$ .062 .082 <br> $3112-3$ .094 .113 | 311X-X-00-XX-00-00-08-0 Swage mount in .035 hole | Basic <br> Part <br> Number <br> $3118-1$ <br> $318-2$ <br> $3119-1$ <br> $3119-2$ | Board <br> Thick- <br> ness <br> .031 <br> .062 <br> .031 <br> .062 | Length <br> $\mathbf{s}$ <br> .170 <br> .170 <br> .420 <br> .420 | Length <br> V <br> .051 <br> .082 <br> .051 <br> .082 |
| 3139 | 3602 | 3131 | 09 |  |  |  |
|  |  |  | $\begin{aligned} & .072 \mathrm{DIA} \\ & \hline .060 \mathrm{DIA} \\ & \hline .053 \mathrm{DIA} \\ & \hline \\ & \begin{array}{r} \text { 0912- } \\ \text { Press } \end{array} \end{aligned}$ | $\square$ | 1 <br> .031 <br> $-\quad 4$ | $\square$ <br> -03-0 <br> hole |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, $1 / 2$ Hard <br> Except Swage pins which are annealed ) <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ $\begin{array}{ll}\text { DIAMETERS: } & \pm .002 \\ \text { ANGLES: } & \pm 2^{\circ}\end{array}$ <br> ANGLES: $\pm 2$ | ORDER CODE: XXXX - <br> BASIC PART \# |  | PIN FI TIN/LEAD TIN OV OLD O GOLD O OLD | ISH: <br> OVE <br> R NIC <br> ER NIC <br> ER NI <br> ER NI |  | L <br> S) <br> HS) <br> ohs) <br> HS) |


| 5102 | 1502 | 2956-0 |  |  | 2956-1 |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Press-fit in . 057 mounting hole | 2956-0-00-XX <br> Surface |  |  |  |
| 8876 | 0259/0286/1941 |  |  |  | 938 |
| 8876-0-00-XX-00-00-03-0 <br> Press-fit in .057 mounting hole | Basic <br> Part <br> Number Length <br> L Barb <br> Dia. <br> E Mount- <br> ing <br> Hole <br> $0259-0$ .173 .062 .059 <br> $0286-0$ .115 .060 .057 <br> $1941-0$ .169 .058 .05702XX-0-00-XX-00-00-03-0 <br> Press-fit in .057/.059 mounting hole |  |  |  | 1938-0-00-XX-00-00-03-0 <br> Press-fit in .057 mounting hole |
| 1940 | 1942 | 3024 |  |  | 3000 |
| 1940-0-00-XX-00-00-03-0 <br> Press-fit in .057 mounting hole | 1942-0-00-XX-00-00-03-0 | 3024-0-01-XX-00-00-03-0 <br> Press-fit in .057 mounting hole |  |  | Press-fit in .061 mounting hole |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> (Except Swage pins which are annealed) <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$ | ORDER CODE: XXXX - X <br> BASIC PART \# |  | $\begin{gathered} -00- \\ \\ \hline \\ \diamond \\ \diamond \\ \diamond \\ \diamond \end{gathered}$ | $x X-0$ <br> SPECIF <br> 1 200 <br> 3000 <br> 5 10 $\mu^{\prime \prime}$ <br> $120 \mu^{\prime \prime}$ <br> $450 \mu^{\prime \prime}$ | PIN FINISH: <br> TIN/LEAD OVER NICKEL TIN OVER NICKEL (RoHS) GOLD OVER NICKEL (RoHS) GOLD OVER NICKEL (RoHS) GOLD OVER NICKEL (RoHS) |

PRINTED CIRCUIT PINS

## 3130/3134/3151 <br> 3113




3360-X-14-XX-00-00-08-0
Shorting Jumper

$3301 \Rightarrow 3304$


330X-X-14-XX-00-00-08-0
Specify board thickness
Swage mount in .043 hole

0940


| Basic Part <br> Number | Pin Centers <br> A |
| :---: | :---: |
| $3301-\mathrm{X}$ | .257 |
| $3302-\mathrm{X}$ | .357 |
| $3303-\mathrm{X}$ | .375 |
| $3304-\mathrm{X}$ | .562 |


| $-\mathbf{X}-$ | Board <br> Thickness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .051 |
| 2 | .062 | .082 |
| 3 | .094 | .113 |

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard ( Except Swage pins which are annealed )

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: $\underline{X X X X}-\mathbf{X}-X X-\underline{X X}-00-00-X X-0$


SPECIFY PIN FINISH:
01 200 $\mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu "$ TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu$ " GOLD OVER NICKEL (RoHS)
$\diamond 2120 \mu$ " GOLD OVER NICKEL (RoHS)
$\diamond 3450 \mu "$ GOLD OVER NICKEL (RoHS)

PRINTED CIRCUIT PINS

## 3110/3111

3150


311X-X-00-XX-00-00-08-0
Swage mount in .043 hole

| Basic <br> Part <br> Number | Board <br> Thick- <br> ness | Length <br> $\mathbf{A}$ | Length <br> $\mathbf{V}$ |
| :--- | :---: | :---: | :---: |
| $3110-1$ | .031 | .150 | .051 |
| $3110-2$ | .062 | .150 | .082 |
| $3110-3$ | .094 | .150 | .113 |
| $3111-1$ | .031 | .300 | .051 |
| $3111-2$ | .062 | .300 | .082 |
| $3111-3$ | .094 | .300 | .113 |



Swage mount in . 043 mounting hole

3148


3148-3-00-XX-00-00-08-0
Swage mount in .062 hole for .094 thick board
5601


5601-0-01-XX-00-00-03-0
Compliant press-fit in $.040 \pm .003$ plated
5601-0-01-XX-00-00-03-0
Compliant press-fit in .040 $\pm .003$ plated hole. For $.060 \rightarrow .100$ thick board.

## 8815

5602


## SPECIFICATIONS

## PIN MATERIAL:

Brass Alloy 360, 1/2 Hard
( Except Swage pins which are annealed)

DIMENSION IN INCHES
TOLERANCES ON:
LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

3132


3132-0-00-XX-00-00-08-0
Wire Termination
Material is annealed


5602-0-01-XX-00-00-03-0 hole. For $.090 \rightarrow .130$ thick board.

PRINTED CIRCUIT PINS
$3122 \Rightarrow 3153$

$3120-X-00-X X-00-00-08-0$
Swage mount in . 034 mounting hole
$3101 \Rightarrow 3106$


310X-X-00-XX-00-00-08-0
Swage mount in .043 hole


| Basic Part <br> Number | Pin Length <br> A |
| :---: | :---: |
| $3101-X$ | .150 |
| $3102-X$ | .188 |
| $3103-X$ | .300 |
| $3104-X$ | .500 |
| $3105-X$ | .750 |
| $3106-X$ | 1.000 |


| $-\mathrm{X}-$ | Board <br> Thickness | Length <br> V |
| :---: | :---: | :---: |
| 1 | .031 | .051 |
| 2 | .062 | .082 |
| 3 | .094 | .113 |


$31 X X-X-00-X X-00-00-08-0$
Swage mount in .043 hole

| Basic Part <br> Number | Pin Length <br> A |
| :---: | :---: |
| $3153-\mathrm{X}$ | .180 |
| $3141-\mathrm{X}$ | .230 |
| $3122-\mathrm{X}$ | .280 |
| $3149-\mathrm{X}$ | .380 |
| $3123-\mathrm{X}$ | .580 |
| $3140-\mathrm{X}$ | .780 |
| $3124-\mathrm{X}$ | .880 |


| $-\mathbf{x}-$ | Board <br> Thickness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .051 |
| 2 | .062 | .082 |

## $3221 \Rightarrow 3223$



322X-X-00-XX-00-00-08-0
Swage mount in .043 hole

3125/3126


312X-X-00-XX-00-00-08-0
Swage mount in .043 hole

| Basic Part <br> Number | Pin Length <br> S |
| :---: | :---: |
| $3125-\mathrm{X}$ | .170 |
| $3126-\mathrm{X}$ | .420 |


| $-\mathbf{X}-$ | Board <br> Thickness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .051 |
| 2 | .062 | .082 |
| 3 | .094 | .113 |

0995


0995-0-00-XX-00-00-03-0
Press-fit in .057 mounting hole

## 4526



4526-0-00-XX-00-00-03-0 Press-fit in .040 mounting hole

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard ( Except Swage pins which are annealed )

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - 00-XX - 00-00-xX - 0


SPECIFY PIN FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)
$\diamond 2120 \mu$ " GOLD OVER NICKEL (RoHs)
$\diamond 3450 \mu$ " GOLD OVER NICKEL (RoHS)

PRINTED CIRCUIT PINS


PRINTED CIRCUIT PINS

| 3231 |  |  |  | 3609 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3231-X-00-XX-00-00-08-0 | Basic Part  <br> Number T <br> $3231-2$  <br> $3231-3$  <br> $3231-4$  | Board <br> Thickness <br> .062 <br> .994 <br> .125 | $\begin{gathered} \text { Length } \\ \hline .094 \\ .125 \\ .156 \end{gathered}$ |  | Basic Part <br> Number <br> $3609-1$ <br> $3609-2$ <br> $3609-3$ | $\substack{\text { Pin Length } \\ \mathbf{A}}$ .200 .375 .500 |
| 3601 |  |  |  | 3133/3138/315 |  |  |
|  | Basic Part <br> Number <br> $3601-1$ <br> $3601-2$ <br> $3601-3$ | Pin Le $\mathbf{A}$ |  | 31XX-X-00-XX-00-00-08-0 <br> Specify board thickness Swage mount in . 064 hole | Basic Part <br> Number <br> $3152-\mathrm{X}$ <br> $3133-\mathrm{X}$ <br> $3138-\mathrm{X}$$-\mathrm{X}-$ T <br> 1  <br> 2  <br> 3  <br> 4  |  |
| 3144 |  |  |  | 3233 | 0520 |  |
|  | Basic Part  <br> Number T <br> $3144-1$  <br> $3144-2$  <br> $3144-3$  | Board <br> Thickness <br> .031 <br> .062 <br> .094 | Length <br> V <br> .053 <br> .084 <br> .115 |  |  |  |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> are annealed pins which are annealed) <br> DIMENSION IN INCHES TOLERANCES ON: <br> LENGTHS: $\pm .005$ <br> ANGLES: $\pm 2^{\circ}$ | ORDER <br> BASIC PA | CODE: <br> ART \# | xxx - |  | PIN FINISH: <br> TIN/LEAD OV TIN OVER NIC GOLD OVER N GOLD OVER N GOLD OVER N | R NICKEL <br> KEL (RoHS) <br> CKEL (RoHS) <br> CKEL (RoHS) <br> CKEL (RoHS) |



5231-0-00-XX-00-00-38-0
Swage mount in .094 hole. For . 125 thick board. 90927310

## 7937

|  |  |  |  |
| :--- | :--- | :--- | :--- |
|  |  |  |  |

## SPECIFICATIONS

## PIN MATERIAL:

Brass Alloy 360, 1/2 Hard ( Except Swage pins which are annealed )

DIMENSION IN INCHES
TOLERANCES ON:
LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$

ORDER CODE: XXXX - X - OX - XX - 00-00-XX - 0

$01200 \mu$ " TIN/LEAD OVER NICKEL
$\diamond 80$ 200 $\mu^{\prime \prime}$ TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)
$\diamond 2120 \mu$ " GOLD OVER NICKEL (RoHS)
$\diamond 3450 \mu "$ GOLD OVER NICKEL (RoHS)

WRAPOST TERMINALS

## 5275

$1010 \Rightarrow 1012 / 1020 \Rightarrow 1022$


10XX-X-05-XX-00-00-01-0
Press-fit in .057 mounting hole


1215-3-05-XX-00-00-01-0
Press-fit in . 043 mounting hole


1210-0-05-XX-00-00-01-0
Press-fit in . 053 mounting hole

| Basic <br> Part <br> Number | $\#$ <br> of <br> Wraps | Wrapost <br> Length <br> A | Head <br> Dia. <br> C |
| :--- | :---: | :---: | :---: |
| $1012-1$ | 1 | .260 |  |
| $1011-2$ | 2 | .360 | .072 |
| $1010-3$ | 3 | .500 |  |
| $1022-1$ | 1 | .260 |  |
| $1021-2$ | 2 | .360 | .062 |
| $1020-3$ | 3 | .500 |  |

1094


1221

1110-3-05-XX-00-00-01-0
Press-fit in .057 mounting hole


1110

## SPECIFICATIONS

## PIN MATERIAL:

Brass Alloy 360, 1/2 Hard
DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: XXXX - X - 05- XX - 00-00-01-0


SPECIFY PIN FINISH:
01 200 $\mu^{\prime \prime}$ TIN/LEAD OVER NICKEL
$\diamond 80$ 200 $\mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS) $\diamond 2120 \mu$ " GOLD OVER NICKEL (RoHS)
$1030 \Rightarrow 1032$


103X-X-05-XX-00-00-01-0
Press-fit in .057 mounting hole


1214-0-05-XX-00-00-01-0
Press-fit in . 059 mounting hole

## 1302



1302-0-05-XX-00-00-01-0
Press-fit in .057 mounting hole

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES
TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$ ANGLES:

| Basic <br> Part <br> Number | $\#$ <br> of <br> Wraps | Wrapost <br> Length <br> A |
| :--- | :---: | :---: |
| $1032-1$ | 1 | .260 |
| $1031-2$ | 2 | .360 |
| $1030-3$ | 3 | .500 |



1216-0-05-XX-00-00-01-0
Press-fit in . 056 mounting hole
1213


1213-0-05-XX-00-00-01-0 Press-fit in . 061 mounting hole


1095-0-05-XX-00-00-01-0 Swage mount in .094 hole For . 062 thick board

## 0318



0318-3-05-XX-00-00-01-0 Press-fit in .057 mounting hole

1212-0-05-XX-00-00-01-0
Press-fit in . 061 mounting hole

## 1097



1097-0-05-XX-00-00-01-0
Swage mount in .094 hole for . 062 thick board

ORDER CODE: $\underline{X X X X}-\mathrm{X}-05-\underline{X X}-00-00-01-0$


01 200 $\mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)
$\diamond 2120 \mu$ " GOLD OVER NICKEL (RoHS)

| $8307$ |  | $1083$ | 5301 |
| :---: | :---: | :---: | :---: |
| 8301-X-24-XX-00-00-01-0 <br> Press-fit in .057 mounting hole | Basic <br> Part <br> Number \# <br> of <br> Wraps Wrapost <br> Length <br> A <br> $8301-2$ 2 .370 <br> $8301-3$ 3 .510 | Press-fit in . 059 mounting hole | 5301-0-05-XX-00-00-01-0 <br> Press-fit in . 057 mounting hole |
| 70908808 | $8608$ |  |  |
| 1090-0-05-XX-00-00-01-0 <br> Press-fit in .059 mounting hole | 8608-0-05-XX-00-00-01-0 <br> Press-fit in . 056 mounting hole |  |  |

## SPECIFICATIONS

## PIN MATERIAL:

Brass Alloy 360, 1/2 Hard
DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES:
$\pm 2^{\circ}$
ORDER CODE: XXXX - X - XX - XX - 00-00-01-0


SPECIFY PIN FINISH:
01 200 $\mu$ " TIN/LEAD OVER NICKEL
$\diamond 80200 \mu "$ TIN OVER NICKEL (RoHS)
$\diamond 1510 \mu "$ GOLD OVER NICKEL (RoHS)
$\diamond 2120 \mu "$ GOLD OVER NICKEL (RoHS)

WRAPOST TERMINALS

1096


1096-X-05-XX-00-00-01-0
Press-fit in .057 mounting hole
$\frac{1093}{.053 \mathrm{DIA} .}$
Press-fit in . 056 mounting hole

## 1092



| Basic  <br> Part <br> Number $\#$ <br> of <br> WrapsWrapost <br> Length <br> A |  |  |
| :--- | :---: | :---: |
| $1096-2$ | 2 | .381 |
| $1096-3$ | 3 | .527 |

0730


0730-3-05-XX-00-00-01-0
Press-fit in . 057 mounting hole

## 1068



1068-0-23-XX-00-00-01-0
Press-fit in .057 mounting hole

1106


1106-X-23-XX-00-00-01-0
Press-fit in .057 mounting hole
1122


1122-0-22-XX-00-00-01-0
Press-fit in . 053 mounting hole
$1070 \Rightarrow 1072$


107X-X-23-XX-00-00-01-0
Press-fit in .057 mounting hole

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$

ORDER CODE: $X X X X-X-X X-X X-00-00-01-0$
BASIC PART \#

$\underset{2002 / 95 / \mathrm{EC}}{\mathrm{RoHS}}$

| Basic <br> Part <br> Number | $\#$ <br> of <br> Wraps | Wrapost <br> Length <br> A |
| :--- | :---: | :---: |
| $1072-1$ | 1 | .260 |
| $1071-2$ | 2 | .370 |
| $1070-3$ | 3 | .510 |

SOLDER TERMINALS
TURRETS


SOLDER TERMINALS
TURRETS



2312-X-00-XX-00-00-07-0
Swage mount in .064 hole
2707


2707-X-00-XX-00-00-07-0
Swage mount in .120 hole

## 2308

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .053 |
| 2 | .062 | .094 |
| 3 | .094 | .115 |
| 4 | .125 | .147 |



| - X - | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ | Depth <br> $\mathbf{D}$ |
| :---: | :---: | :---: | :---: |
| 1 | .031 | .054 | .036 |
| 2 | .062 | .084 | .066 |
| 3 | .094 | .115 | .096 |
| 4 | .125 | .147 | .126 |

Swage in .064 mount hole
2329


## 2510/2513



2510-X-00-XX-00-00-07-0
Swage mount in .064 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .062 |
| 2 | .062 | .094 |
| 3 | .094 | .125 |
| 4 | .125 | .156 |

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:


2513-X-00-XX-00-00-07-0
Swage mount in .064 hole

2329-X-00-XX-00-00-07-0
Swage mount in .067 hole

SOLDER TERMINALS
TURRETS


SOLDER TERMINALS
TURRETS

## 2348/2301/2506



2348-X-00-XX-00-00-07-0
Swage mount in .064 hole


2301-X-00-XX-00-00-07-0
Swage mount in .067 hole


2506-X-00-XX-00-00-07-0 Swage mount in .067 hole

## 2505

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .062 |
| 2 | .062 | .093 |
| 3 | .094 | .125 |
| 4 | .125 | .156 |

2505-X-00-XX-00-00-07-0
Swage mount in .076 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .053 |
| 2 | .062 | .084 |
| 3 | .094 | .115 |
| 4 | .125 | .147 |

2325/2355/2365


SOLDER TERMINALS
TURRETS

## 2304/2305



2305-X-00-XX-00-00-07-0
Swage mount in .076 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .051 |
| 2 | .062 | .082 |
| 3 | .094 | .113 |
| 4 | .125 | .145 |

2304-X-00-XX-00-00-07-0
Swage mount in .076 hole


2503-X-00-XX-00-00-07-0
Swage mount in .082 hole

| $-\mathbf{X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ | Depth <br> $\mathbf{D}$ |
| :---: | :---: | :---: | :---: |
| 1 | .031 | .078 | .068 |
| 2 | .062 | .109 |  |
| 3 | .094 | .141 | .098 |
| 4 | .125 | .172 |  |



2704-X-00-XX-00-00-07-0
Swage mount in .082 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .075 |
| 2 | .062 | .105 |
| 3 | .094 | .135 |
| 4 | .125 | .165 |

## 2306/2307/2311



2306-X-00-XX-00-00-07-0
Swage mount in .076 hole

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

2307-X-00-XX-00-00-07-0
Swage mount in .076 hole


2311-X-00-XX-00-00-07-0
Swage mount in .076 hole

$\square$

ORDER CODE: $\underline{x x x x}-\mathrm{X}-00-\underline{x X}-00-00-07-0$


SPECIFY PIN FINISH:
01 200 $\mu$ " TIN/LEAD OVER NICKEL $\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS) $\diamond 44300 \mu "$ SILVER OVER COPPER (RoHS) $\diamond 50300 \mu$ " ELECTRO-SOLDER (RoHS) (60/40 SnPb)

SOLDER TERMINALS
TURRETS


2810-X-00-XX-00-00-07-0
Swage mount in .118 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 2 | .062 | .105 |
| 3 | .094 | .135 |
| 4 | .125 | .165 |

## 2524



| - X - | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .075 |
| 2 | .062 | .105 |
| 3 | .094 | .135 |
| 4 | .125 | .165 |

2524-X-00-XX-00-00-07-0
Swage mount in .092 hole

## 2561/2508



2561-X-00-XX-00-00-07-0
Swage mount in . 094 hole


2508-X-00-XX-00-00-07-0
Swage mount in .094 hole


2551-X-00-XX-00-00-07-0
Swage mount in .094 hole

2812


## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES
TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES: $+2^{\circ}$

ORDER CODE: $X$ XXX - X - 00- XX - 00-00-07-0


SPECIFY PIN FINISH:
01 200 $\mu$ " TIN/LEAD OVER NICKEL $\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS) $\diamond 44300 \mu "$ SILVER OVER COPPER (RoHS) $\diamond 50300 \mu$ " ELECTRO-SOLDER (RoHS) (60/40 SnPb)

SOLDER TERMINALS
TURRETS


2501-X-00-XX-00-00-07-0
Swage mount in .094 hole
2702


022 (TYP)
2702-X-00-XX-00-00-07-0
Swage mount in . 094 hole

2703

| $-\mathbf{X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .078 |
| 2 | .062 | .109 |
| 3 | .094 | .140 |
| 4 | .125 | .171 |

2710-X-00-XX-00-00-07-0
Swage mount in . 094 hole


2703-X-00-XX-00-00-07-0
Swage mount in .094 hole
2710


| - X - | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .077 |
| 2 | .062 | .107 |
| 3 | .094 | .137 |
| 4 | .125 | .167 |

## 2717/2713



2717-X-00-XX-00-00-07-0
Swage mount in .094 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .062 |
| 2 | .062 | .094 |
| 3 | .094 | .125 |
| 4 | .125 | .156 |

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES:


2713-X-00-XX-00-00-07-0

SOLDER TERMINALS
TURRETS

| 2512 | $2705$ |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2512-X-00-XX-00-00-07-0 <br> Swage mount in . 094 hole | $\begin{gathered} -\mathrm{X}- \\ \hline 1 \\ 2 \\ 3 \\ 4 \end{gathered}$ | Board <br> Thick- <br> ness <br> .031 <br> .062 <br> .094 <br> .125 | Length <br> $\mathbf{V}$.062.094.125.156 | Swage mount in .129 hole | - x- $\begin{aligned} & 1 \\ & 2 \\ & 3 \\ & 4 \end{aligned}$ | Board <br> Thick- <br> ness <br> .031 <br> .062 <br> .094 <br> .125 | Length <br> V.075.105.135.165 |
| 2803 |  |  |  | $2815$ |  |  |  |
| 2803-X-00-XX-00-00-07-0 <br> Swage mount in . 113 hole | $\begin{gathered} -\mathrm{X}- \\ \hline 1 \\ 2 \\ 3 \\ 4 \end{gathered}$ | $\left\|\begin{array}{c}\text { Board } \\ \text { Thick- } \\ \text { ness }\end{array}\right\|$ | Length <br> V.078.109.140.171 | 2815-X-00-XX-00-00-07-0 <br> Swage mount in . 113 hole | $\begin{array}{r} -\mathrm{X}- \\ \hline 1 \\ 2 \\ 3 \\ 4 \end{array}$ | Board <br> Thick- <br> nes <br> .031 <br> .062 <br> .094 <br> .125 | Length <br> V.075.105.135.165 |
| $2816$ |  |  |  | 2817 |  |  |  |
| 2816-X-00-XX-00-00-07-0 <br> Swage mount in . 116 hole | $\begin{gathered} -\mathrm{X}- \\ \hline 1 \\ 2 \\ 3 \\ 4 \end{gathered}$ | Board <br> Thick- <br> ness <br> .031 <br> .062 <br> .094 <br> .125 | Length <br> V.078.109.141.172 | Swage mount in .116 hole | - x - $\begin{aligned} & 1 \\ & 2 \end{aligned}$ $\begin{aligned} & 2 \\ & 3 \end{aligned}$ $4$ | Board <br> Thick- <br> ness <br> .031 <br> .062 <br> .094 <br> .125 | Length <br> $\mathbf{V}$.075.105.135.165 |
| SPECIFICATIONS <br> PIN MATERIAL: <br> Brass Alloy 360, 1/2 Hard <br> Swage pins are annealed <br> DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES: $\pm 2^{\circ}$ | SIC | COD <br> ART \# |  |  | SH: <br> OV <br> R NIC <br> OVER <br> -SO <br> Pb) | R NICK EL (Ro COPPER DER (R | EL <br> HS) <br> R (RoHS) <br> oHS) |

SOLDER TERMINALS
TURRETS
2802/2804


2802-X-00-XX-00-00-07-0
Swage mount in .118 hole

## 2805



2805-X-00-XX-00-00-07-0
Swage mount in .116 hole

## 2806



2806-X-00-XX-00-00-07-0
Swage mount in .116 hole


2804-X-00-XX-00-00-07-0
Swage mount in .118 hole
2801

| $-\mathbf{X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ | Depth <br> $\mathbf{D}$ |
| :---: | :---: | :---: | :---: |
| 1 | .031 | .074 | .068 |
| 2 | .062 | .105 |  |
| 3 | .094 | .135 | .098 |
| 4 | .125 | .165 |  |



| - X - | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .078 |
| 2 | .062 | .109 |
| 3 | .094 | .141 |
| 4 | .125 | .172 |
| 5 | .188 | .234 |

2801-X-00-XX-00-00-07-0
Swage mount in .116 hole

## 2811

| - X - | Board <br> Thick- <br> ness | Length <br> V |
| :---: | :---: | :---: |
| 1 | .031 | .078 |
| 2 | .062 | .109 |
| 3 | .094 | .141 |
| 4 | .125 | .172 |



2811-X-00-XX-00-00-07-0
Swage mount in .116 hole

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\quad \pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: $\mathrm{Xxxx}-\mathrm{X}-00-\mathrm{xX}$-00-00-07-0

$01200 \mu$ " TIN/LEAD OVER NICKEL $\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS) $\diamond 44300 \mu$ " SILVER OVER COPPER (RoHS) $\diamond 50300 \mu$ " ELECTRO-SOLDER (RoHS) (60/40 SnPb)

SOLDER TERMINALS
SLOTTED


2303/2323/2322


2303-X-01-XX-00-00-07-0
Swage mount in .064 hole


2323-X-01-XX-00-00-07-0
Swage mount in .064 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .053 |
| 2 | .062 | .084 |
| 3 | .094 | .115 |
| 4 | .125 | .147 |

2322-X-01-XX-00-00-07-0
Swage mount in .064 hole


2320-X-01-XX-00-00-07-0
Swage mount in .064 hole

| $-\mathbf{X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .053 |
| 2 | .062 | .084 |
| 3 | .094 | .115 |

## 2328



2328-X-01-XX-00-00-07-0
Swage mount in .064 hole

## 2520/2517



SOLDER TERMINALS
SLOTTED


## 2302

| $-\mathbf{X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ | Depth <br> $\mathbf{D}$ |
| :---: | :---: | :---: | :---: |
| 1 | .031 | .045 | .040 |
| 2 | .062 | .094 |  |
| 3 | .094 | .125 | .062 |
| 4 | .125 | .156 |  |


| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .053 |
| 2 | .062 | .084 |
| 3 | .094 | .115 |
| 4 | .125 | .147 |

2302-X-01-XX-00-00-07-0
Swage mount in .067 hole.
2362


## 2507/2526

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:


2526-X-01-XX-00-00-07-0
Swage mount in .064 hole

| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .053 |
| 2 | .062 | .084 |
| 3 | .094 | .115 |
| 4 | .125 | .147 |

SOLDER TERMINALS
SLOTTED


SOLDER TERMINALS
SLOTTED


SOLDER TERMINALS
VARIOUS TYPES


## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard Swage pins are annealed

DIMENSION IN INCHES TOLERANCES ON: LENGTHS: $\pm .005$ DIAMETERS: $\pm .002$ ANGLES:

ORDER CODE: $\mathrm{XXXX}-\mathrm{x}-\mathrm{xX}-\mathrm{xX}-00-00-\mathrm{xX}-\mathrm{O}$


SPECIFY PIN FINISH:
01 200 $\mu$ " TIN/LEAD OVER NICKEL $\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS) $\diamond 44300 \mu "$ SILVER OVER COPPER (RoHS) $\diamond 50300 \mu$ " ELECTRO-SOLDER (RoHS) (60/40 SnPb)

SOLDER TERMINALS
PIN TYPE


2318-X-00-XX-00-00-07-0
Swage mount in .062 hole

## 2309

| $-\mathbf{X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .051 |
| 2 | .062 | .082 |
| 3 | .094 | .113 |



| $\mathbf{- X}-$ | Board <br> Thick- <br> ness | Length <br> $\mathbf{V}$ |
| :---: | :---: | :---: |
| 1 | .031 | .054 |
| 2 | .062 | .084 |
| 3 | .094 | .115 |
| 4 | .125 | .147 |

2514


2514-2-00-XX-00-00-07-0
Press-fit in .070 mounting hole

## SPECIFICATIONS

PIN MATERIAL:
Brass Alloy 360, 1/2 Hard
Swage pins are annealed
DIMENSION IN INCHES
TOLERANCES ON:
LENGTHS: $\pm .005$
DIAMETERS: $\pm .002$
ANGLES:
$\pm{ }^{\circ}$

ORDER CODE: $X X X X-X-00-X X-00-00-07-0$

$\diamond 80200 \mu$ " TIN OVER NICKEL (RoHS)
$\diamond 44300 \mu$ " SILVER OVER COPPER (RoHS) $\diamond 50300 \mu$ " ELECTRO-SOLDER (RoHS) (60/40 SnPb)

SOLDER TERMINALS
PIN TYPE


PHOTOCOPY THIS PAGE AND FAX, SCAN OR E-MAIL TO MILL-MAX FOR A PROMPT QUOTATION Mill-Max Mfg. Corp., P.O. Box 300, 190 Pine Hollow Road, Oyster Bay, NY 11771-0300. Fax: 516-922-9253

$\qquad$ TITLE: $\qquad$ COMPANY $\qquad$ DATE: $\qquad$


PHONE: $\qquad$
FAX: $\qquad$


IF YOU NEED ASSISTANCE, PLEASE CALL MILL-MAX AND ASK FOR AN APPLICATIONS ENGINEER

GENERAL CONTACT INFORMATION

## THE "MULTI-FINGER" CONTACT

Mill-Max makes pin receptacles by press-fitting a "multi-finger" spring contact into a machined shell. A selection of 34 contact types are pre-tooled for those who wish to design custom receptacles. This extensive family of contacts will accept round pins ranging from .008" to .102" diameter, as well as rectangular component leads and square wraposts, where the effective diameter is taken as the diagonal dimension of the lead.

Many contacts are interchangeable within a given shell, and so the contact selector chart has been organized by alternate contact groupings. Standard receptacles found in this catalog can be easily assembled with alternate contacts to suit special applications, for example: low insertion force or high operating temperature.

| Contact Groups | Contact Type | Accepts Minimum Pin Diameter | Accepts Maximum Pin Diameter | Contact Compliancy | Contact Length | Number of Fingers | Contact Material | Current Rating (For $10^{\circ} \mathrm{C} \Delta \mathrm{T}$ ) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No Alternate | \#04 | . 008 | . 013 | . 003 | . 053 | 3 | BeCu | 2 A |
| No Alternate | \#10 | . 012 | . 017 |  | . 060 | 6 |  |  |
| A | \#09 | . 015 | . 018 | . 002 | . 051 | 3 |  | 3A |
|  | \#11 |  | . 020 | . 003 | . 075 |  |  |  |
|  | \#21 |  | . 022 | 004 |  |  |  |  |
|  | \#05 |  |  | . 004 |  |  |  |  |
| B | \#12 |  |  | . 003 | . 062 | 4 |  |  |
| B | \#22 |  |  | . 005 |  | 6 |  |  |
| C | \#30 |  | . 025 |  | . 083 | 4 |  |  |
|  | \#38 |  |  | . 004 |  |  | BeNi |  |
|  | \#32 |  | . 026 | . 009 |  | 6 | BeCu |  |
|  | \#35 |  |  | 008 |  |  |  |  |
|  | \#43 |  |  | . 008 |  |  |  |  |
| No Alternate | \#15 | . 022 | . 032 | . 004 |  |  |  | 4.5A |
| D | \#06 |  |  | . 007 | . 113 | 4 |  |  |
|  | \#26 |  |  | . 005 |  |  | BeNi |  |
|  | \#16 |  | . 034 | . 006 | . 083 | 6 | BeCu |  |
|  | \#47 | . 025 | . 037 | . 011 |  |  |  |  |
| No Alternate | \#18 | . 037 | . 043 | . 004 | . 062 |  |  | 8A |
| E | \#36 | . 022 | . 042 | . 022 | . 120 | 4 |  |  |
|  | \#49 | . 032 | . 046 | . 006 | . 125 |  |  |  |
|  | \#34 |  |  | . 010 | . 120 |  |  |  |
|  | \#24 |  |  | . 009 |  |  | BeNi |  |
| F | \#02 | . 040 | . 050 | . 006 | . 084 | 6 | BeCu |  |
|  | \#28 | . 042 | . 052 | . 005 |  |  |  |  |
| J | \#42 | . 053 | . 063 | . 004 | . 150 | 4 |  | 20A |
|  | \#03 | . 040 | . 060 | . 010 |  |  |  | 11.2A |
| G | \#23 | . 045 | . 065 | . 008 | . 100 | 6 |  |  |
|  | \#13 | . 048 | . 064 | . 010 | . 127 | 4 |  |  |
|  | \#33 |  |  | . 008 |  |  | BeNi |  |
| H | \#07 | . 065 | . 082 | . 013 | . 150 |  | BeCu | 15A |
|  | \#27 |  |  | . 012 |  |  | BeNi |  |
|  | \#14 |  | . 085 | . 014 |  |  | BeCu |  |
|  |  |  |  |  |  |  |  |  |
| No Alternate | \#08 | . 084 | . 102 | . 011 | . 122 | 6 |  | 18A |

## CONTACT SPECIFICATIONS

## COMPLIANCY ( $\delta$ )

The Mill-Max "multi-finger" contact exhibits wide compliance, eg. the ability of any single contact to accept a broad range of round pins as well as rectangular or square component leads. This ability is referred to as the contact's "compliancy". The compliancy factor ( $\delta$ ) specifies the re-configured operating range after the initial insertion of the largest permissible mating pin. For example: the \# 34 contact has an initial operating range from .032" to $.047^{\prime \prime}$ diameter pins, and a compliancy of .010"; but after insertion of a .047" pin, the contact is sized, and the minimum pin acceptance becomes .047 " - .010" = .037". Thus, the new operating range becomes .037 " to .047 ".

The insertion/extraction/normal force characteristics that follow were derived using $30 \mu$ " gold plated contact and polished steel, gauge pins having a bullet-shaped tip. The curves represent typical average values. The charts only guide you in selecting a clip that is close to your specification. Your results may vary, so for your specification, log onto www.mill-max.com to obtain complimentary samples of a receptacle assembly for your evaluation.

## NORMAL FORCE

Normal force is the force with which each finger of the "multi-finger" contact grips the mating pin or component lead. For normal forces below 30 grams, gold on both the pin and contact is recommended. For normal forces above 100 grams, tin finish has proven to be very reliable.

## CURRENT RATING

Current rating for each contact group can be found in the contact selector chart on page 214. This current rating (for a $10^{\circ} \mathrm{C}$ temperature rise above ambient) is conservative since it rates an individual $\mathrm{pin} /$ receptacle pair in the free air. For all practical applications, the current rating will be higher because of the heat sinking ability of wires and circuit traces attached to the pin and receptacles.

CONTACT MATERIAL AND STRESS RELAXATION AT HIGH TEMPERATURE

Mill-Max contacts are made from either beryllium copper or beryllium nickel that has been heat treated to achieve ultimate spring properties. The graph illustrates how beryllium copper loses its spring properties over time at a high temperature $\left(225^{\circ} \mathrm{C}\right)$. Thus, for burn-in applications and continuous operation above $150^{\circ} \mathrm{C}$, beryllium nickel should be substituted for beryllium copper.


## CONTACT DATA

Insertion / Extraction Force Graphs

## \#04 CONTACT

FOR .008-. 013 DIAMETER PINS ( $\delta=.003$ ) 3-FINGER (see page 214) CONTACT



The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## \#10 CONTACT

FOR .012-. 017 DIAMETER PINS $(\delta=.003)$ 6-FINGER (see page 214)


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## \#09 CONTACT

FOR .015-. 018 DIAMETER PINS $(\delta=.002)$ 3-FINGER, GROUP A (see page 214)

| SHOULDER |  |
| :--- | :--- |
| PREFERED |  |
| TO ASSIST |  |
| ASSEMBLY |  |
| .038 | PONTACT |
| MINIMUM |  |
| DIAMETER |  |



CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## CONTACT DATA

## Insertion / Extraction Force Graphs

## \#11 CONTACT

FOR .015-. 020 DIAMETER PINS $(\delta=.003)$ 3-FINGER, GROUP A (see page 214)



CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated
The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

## \#21 CONTACT

FOR .015-. 022 DIAMETER PINS $(\delta=.004)$ 3-FINGER, GROUP A (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

俍LL
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## \#05 CONTACT

FOR .015-. 022 DIAMETER PINS $(\delta=.004)$ 3-FINGER, GROUP A (see page 214)


## CONTACT MATERIAL:

BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## CONTACT DATA

Insertion / Extraction Force Graphs

## \#12 CONTACT

FOR .015-.022 DIAMETER PINS ( $\delta=.003$ ) 4-FINGER, GROUP B (see page 214)

precision machined shell (CUSTOM DESIGNS WELCOME)
CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#22 CONTACT

FOR .015-. 022 DIAMETER PINS $(\delta=.005)$ 6-FINGER, GROUP B (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#30 CONTACT

FOR .015-. 025 DIAMETER PINS ( $\delta=.005$ ) 4-FINGER, GROUP C (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## CONTACT DATA

Insertion / Extraction Force Graphs

## \#38 CONTACT

FOR .015-.025 DIAMETER PINS ( $\delta=.004$ ) 4-FINGER, GROUP C (see page 214)
SHOULDER
PREFERED
TO ASSIST
ASSEMBLY

## CONTACT MATERIAL:

BERYLLIUM NICKELAlloy 360, Heat Treated

## \#32 CONTACT

FOR .015-.026 DIAMETER PINS ( $\delta=.009$ ) 6-FINGER, GROUP C (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#35 CONTACT

FOR .015-.026 DIAMETER PINS ( $\delta=.008$ ) 6-FINGER, GROUP C (see page 214)


## CONTACT MATERIAL:

BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## Insertion / Extraction Force Graphs

## \#43 CONTACT

FOR .015-. 026 DIAMETER PINS ( $\delta=.008$ ) 6-FINGER, GROUP C (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#15 CONTACT

FOR .022-. 032 DIAMETER PINS $(\delta=.004)$ 6-FINGER (see page 214)
SHOULDER
PREFERRED
TO ASSIST
ASSEMBLY
.056

CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#06 CONTACT

FOR .022-. 032 DIAMETER PINS ( $\delta=.007$ ) 4-FINGER, GROUP D (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## Insertion / Extraction Force Graphs

## \#26 CONTACT

FOR .022-. 032 DIAMETER PINS ( $\delta=.005$ ) 4-FINGER, GROUP D (see page 214)


## CONTACT MATERIAL:

BERYLLIUM NICKEL Alloy 360, Heat Treated

## \#16 CONTACT

FOR .022-. 034 DIA. \& . 025 SQ. $(\delta=.006$ ) 6-FINGER, GROUP D (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#47 CONTACT

FOR .025-. 037 DIA. \& . 025 SQ. $(\delta=.011)$ 6-FINGER, GROUP D (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## Insertion / Extraction Force Graphs

## \#18 CONTACT

FOR .037-. 043 DIAMETER PINS $(\delta=.004)$ 6-FINGER
(see page 214)
SHOULDER
PREFERRED
TO ASSIST
ASSEMBLY

PRECISION MACHINED SHELL (CUSTOM DESIGNS WELCOME)
CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#36 CONTACT

FOR .022-. 042 DIAMETER PINS $(\delta=.022)$ 4-FINGER, GROUP E (see page 214)


PRECISION MACHINED SHELL (CUSTOM DESIGNS WELCOME)
CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#34 CONTACT

FOR .032-. 046 DIAMETER PINS ( $\delta=.010$ ) 4-FINGER, GROUP E (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## CONTACT DATA

## Insertion / Extraction Force Graphs

## \#49 CONTACT

FOR .032-. 046 DIAMETER PINS ( $\delta=.006$ ) 4-FINGER, GROUP E (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#24 CONTACT

FOR .032-. 046 DIAMETER PINS $(\delta=.009)$ 4-FINGER, GROUP E (see page 214)


CONTACT MATERIAL:
BERYLLIUM NICKEL Alloy 360, Heat Treated

## \#02 CONTACT

FOR .040-. 050 DIAMETER PINS ( $\delta=.006$ ) 6-FINGER, GROUP F (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

CONTACT DATA
Insertion / Extraction Force Graphs

## \#28 CONTACT

FOR .042-. 052 DIAMETER PINS ( $\delta=.005$ ) 6-FINGER, GROUP F (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#03 CONTACT

FOR .040-. 060 DIAMETER PINS $(\delta=.010)$ 4-FINGER (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#23 CONTACT

FOR .045-. 065 DIAMETER PINS ( $\delta=.008$ ) 6-FINGER, GROUP G (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## CONTACT DATA

## Insertion / Extraction Force Graphs

## \#13 CONTACT

FOR .048-. 064 DIAMETER PINS $(\delta=.010)$ 4-FINGER, GROUP G (see page 214)
SHOULDER
PREFERRED
TO ASSIST
ASSEMBLY


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## \#33 CONTACT

FOR .048-. 064 DIAMETER PINS $(\delta=.008)$ 4-FINGER, GROUP G (see page 214)


CONTACT MATERIAL:
BERYLLIUM NICKELAlloy 360, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation

## \#07 CONTACT

FOR .065-. 082 DIAMETER PINS ( $\delta=.013$ ) 4-FINGER, GROUP H (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.
The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## CONTACT DATA

## Insertion / Extraction Force Graphs

## \#27 CONTACT

FOR .065-. 082 DIAMETER PINS ( $\delta=.012$ ) 4-FINGER, GROUP H (see page 214)


## CONTACT MATERIAL:

BERYLLIUM NICKELAlloy 360, Heat Treated

## \#14 CONTACT

FOR .065-. 082 DIAMETER PINS $(\delta=.014)$ 4-FINGER, GROUP H (see page 214)


CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated

## \#08 CONTACT



CONTACT MATERIAL:
BERYLLIUM COPPER Alloy 172, Heat Treated


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation


The insertion/extraction/normal force characteristics above were derived using 30 microinch gold plated contact and polished steel gauge pins having a bullet-shaped tip.

The curves represent typical average values; they are best used to compare the differences between similar size contacts and to guide you in selecting one that is suitable for your application. Your results may vary, so for your specification, we encourage you to obtain complimentary samples for your evaluation.

## DETAILED PROPERTIES OF MILL-MAX RAW MATERIALS (including RoHS 2002/95/EC requirements)

## PROPERTIES OF METALS USED BY MILL-MAX

Copper alloy rod and wire for precision-machined pins, receptacles \& solder terminals (Alloys C36000 \& C54400 contain 3 to 4\% lead to permit "free machining" and is permitted by EC Directive 2002/95 Annex 6; so all pin materials are RoHS compliant).
BRASS ALLOY 360 (UNS C36000) per ASTM B 16
PHOSPHOR BRONZE Alloy 544 (UNS C54400) per ASTM B 139
TELLURIUM COPPER Alloy 145 (UNS C14500) per ASTM B 301
Spring alloy strip for stamping "multi-finger" spring contacts
BERYLLIUM COPPER Alloy 172 (UNS C17200) per ASTM B 194
BERYLLIUM NICKEL Alloy 360 (UNS N03360)

## Properties of BRASS:

Stock diameters available: .062/.072/.078/.093/.125/.156/.187/.250"
Chemical composition: $\mathrm{Cu} 61.5 \%, \mathrm{Zn} 35.4 \%$, $\mathrm{Pb} 3.1 \%$
Temper as machined: H02/H04
Modulus of elasticity: $14 \times 10^{6} \mathrm{psi}$
Tensile strength: $70-90 \times 10^{3} \mathrm{psi}$
Hardness as machined: 80-90 Rockwell B
After machining, brass parts are often annealed (softened) for subsequent bending, swaging or crimping. A partial anneal down to $60 \pm 10 \mathrm{RB}$ is recommended for $90^{\circ}$ bends, a full anneal down to $35 \pm 15$ RB is recommended for pins or terminals that are swaged (riveted) to a circuit board or crimped to a wire.
Density: $.307 \mathrm{lbs} / \mathrm{in} 3$
Electrical conductivity: 26\% IACS*
Melting point: $900^{\circ} \mathrm{C} / 885^{\circ} \mathrm{C}$ (liquidus/solidus)

## Properties of PHOSPHOR BRONZE:

Used for pins requiring more durability than brass.
Stock diameters available: .072/.078"
Chemical composition: $\mathrm{Cu} 88 \%$, $\mathrm{Sn} 4 \%, \mathrm{Zn} 4 \%, \mathrm{~Pb} 4 \%$
Temper as machined: H04
Modulus of elasticity: $15 \times 10^{6} \mathrm{psi}$
Tensile strength: $70-80 \times 10^{3} \mathrm{psi}$
Hardness as machined: 83 Rockwell B
Density: . $321 \mathrm{lbs} / \mathrm{in} 3$
Electrical conductivity: 19\% IACS*
Melting point: $1000^{\circ} \mathrm{C} / 930^{\circ} \mathrm{C}$ (liquidus/solidus)
Properties of TELLURIUM COPPER:
Used for pins requiring a higher current carrying capacity than brass or phosphor bronze.
Stock diameters available: .079/.093/.125/.156"
Chemical composition: $\mathrm{Cu} 99.44 \%$, Te $.55 \%$, P .008\%
Temper as machined: H02
Modulus of elasticity: $17 \times 10^{6} \mathrm{psi}$
Tensile strength: $43 \times 10^{3} \mathrm{psi}$
Hardness as machined: 43 Rockwell B
Density: . $323 \mathrm{lbs} / \mathrm{in} 3$
Electrical conductivity: 93\% IACS*
Thermal conductivity: 91\% IACS*
Melting point: $1075^{\circ} \mathrm{C} / 1051^{\circ} \mathrm{C}$ (liquidus/solidus)

## Properties of BERYLLIUM COPPER:

Chemical composition: $\mathrm{Cu} 98.1 \%$, Be 1.9\%
Temper as stamped: TD01
Properties after heat treatment (TH01):
Modulus of Elasticity: $19 \times 10^{6} \mathrm{psi}$
Tensile Strength: $175-205 \times 10^{3} \mathrm{psi}$
Yield Strength ( $0.2 \%$ offset): $150-185 \times 10^{3} \mathrm{psi}$
Elongation: 3-10\%
Stress Relaxation $\dagger$ : $96 \%$ of stress remains after 1,000 hours @ $100^{\circ} \mathrm{C}$ $70 \%$ of stress remains after 1,000 hours @ $200^{\circ} \mathrm{C}$
Hardness: 36-43 Rockwell C
Density: . $298 \mathrm{lbs} / \mathrm{in} 3$
Electrical Conductivity: $22 \%$ IACS*
Melting point: $980^{\circ} \mathrm{C} / 865^{\circ} \mathrm{C}$ (liquidus/solidus)
$\dagger$ Since BeCu loses its spring properties over time at high temperatures; it is rated for continuous use up to $150^{\circ} \mathrm{C}$. For "down-hole" and "burn-in" applications up to $300^{\circ} \mathrm{C}$, Mill-Max offers four contacts (\#24, \#26, \#27 \& \#38) made from Beryllium Nickel Alloy 360 (UNS N03360)

## Properties of BERYLLIUM NICKEL:

Chemical composition: Ni 97.6\%, Be 1.9\%, Ti 0.5\%
Modulus of Elasticity: $27-30 \times 10^{6} \mathrm{psi}$

Tensile Strength: $245 \times 10^{3}$ psi min.
Yield Strength ( $0.2 \%$ offset): $200 \times 10^{3}$ psi min.
Elongation: 9\% min.
Hardness: 49 Rockwell C
Density: . $294 \mathrm{lbs} / \mathrm{in} 3$
Electrical Conductivity: 7\% IACS*
Melting point: $1,325^{\circ} \mathrm{C} / 1,195^{\circ} \mathrm{C}$ (liquidus/solidus)
*International Annealed Copper Standard, i.e.: as a \% of pure copper.

## PROPERTIES OF PLASTICS USED BY MILL-MAX

Standard plastics used for catalog products:

## Injection Molded

PCT Polyester, High Temp (Thermx CG933, black)
Nylon46, High Temp (Stanyl TE250F6 \{30\% glass\} or TE250F9 \{45\% glass\}, black)
PPS, High Temp (Ryton R-4-200)

## Machined

FR-4 Epoxy/Glass Laminate. Thicknesses available: .010", .020", .031", $.047 ", .062 ", .093 ", .125^{\prime \prime}$ (natural color, beige)
FR-4 Epoxy/Glass Laminate, .055" thick (black)
G-30 Polyimide/Glass Laminate, .062" thick (natural color, brown)

| MATERIAL | BRAND | GRADE | HEAT DEFLECTION TEMP. (per ASTM D 648) |
| :---: | :---: | :---: | :---: |
| PCT Polyester | Thermx | CG-933 | $529^{\circ} \mathrm{F}\left(276^{\circ} \mathrm{C}\right) @ 66 \mathrm{psi}$ |
| Nylon 46 | Stanyl | TE250-F6 or F9 | $554{ }^{\circ} \mathrm{F}\left(290^{\circ} \mathrm{C}\right) @ 264 \mathrm{psi}$ |
| PPS | Ryton | R-4-200 | $>500^{\circ} \mathrm{F}\left(>260^{\circ} \mathrm{C}\right) @ 264 \mathrm{psi}$ |

Note: Materials above $446^{\circ} \mathrm{F}\left(230^{\circ} \mathrm{C}\right)$ are considered suitable for "eutectic" reflow soldering, above $500^{\circ} \mathrm{F}\left(260^{\circ} \mathrm{C}\right)$ for "lead-free" reflow soldering.
PCT is the standard plastic used with RoHS "lead-free" plated pins.

## MILL-MAX STANDARD PLATINGS (FINISHES):

GOLD per ASTM B 488, Type 1 ( $99.7 \%$ min. gold),
Code C (130-200 HK \{Knoop hardness\}),
Class (thickness) per customer's requirements
SILVER per ASTM B 700, Type 1 ( $99.9 \%$ min. silver),
Grade B (Bright),
Class S (anti-tarnish treatment),
Thickness ( $7.5 \mu \mathrm{~m} / 300 \mu$ " used for solder terminals)
TIN/LEAD (93/7) per ASTM B 545 (Appendix X6.3.2.5 to eliminate
whisker growth) Class A $\left(2.5 \mu \mathrm{~m} / 100 \mu^{\prime \prime}\right)$ or Class B ( $5 \mu \mathrm{~m} / 200 \mu$ "), Bright finish (Matte available to order)
ELECTRO-SOLDER (60/40) per ASTM B 579, SC2 $(8 \mu \mathrm{~m} / 300 \mu ")$, Bright finish (Matte available to order)
Standard finishes available for RoHS "lead-free" applications:
GOLD per ASTM B 488, Type 1 ( $99.7 \%$ min. gold), Code C (130-200 HK \{Knoop hardness $\}$ ), Class (thickness) per customer's requirements
TIN ( $100 \%$ ) per ASTM B 545, Class A $(2.5 \mu \mathrm{~m} / 100 \mu$ ") or Class B ( $5 \mu \mathrm{~m} / 200 \mu$ " $)$,
Matte finish (With whisker and oxide inhibitors and a nickel underplate)

## ALL MILL-MAX PARTS REQUIRE AN UNDERPLATE:

Brass parts need a barrier plate to prevent zinc diffusion, $50 \mu$ " min. nickel or $100 \mu "$ min. copper is recommended by ASTM B $545 \& 579$. ASTM B 488 also recommends a $50 \mu$ " min. nickel barrier plate beneath gold to prevent copper diffusion inherent with all copper alloy products.

## MILL-MAX STANDARD UNDERPLATES:

NICKEL per ASTM B 689, Type 2 (Bright),
Class $1.25(1.25 \mu \mathrm{~m} / 50 \mu$ ") or Class $2.5(2.5 \mu \mathrm{~m} / 100 \mu$ ")
Also available for military \& "non-magnetic" applications:
COPPER per ASTM B 734, Class $2.5(2.5 \mu \mathrm{~m} / 100 \mu$ ")
or Class $5(5 \mu \mathrm{~m} / 200 \mu$ ')

Annealing - Refers to a brass pin that has been softened by heat treatment which makes the pin easier to crimp, rivet (swage) or bend.
Carrier - An assembly consisting of an insulator with male pins onto which receptacles are loaded. This assembly is employed as a fixture during the soldering operation and is then removed leaving a PC board populated with individual receptacles. Female carriers that load male pins are also available for special applications.
Clip - See Contact.
Closed Entry - Refers to female contacts where the front rim prevents the insertion of an oversize pin that would otherwise damage the contact.
Compliancy - Contact's ability to accept multiple insertions and extractions of a wide range of pin shapes and sizes while retaining its original configuration.
Compliant Press Fit - Method of mounting an interconnect component to a PC board where a drilled and slotted receptacle or pin is pressed into a plated-through-hole without damaging the hole.
Constant Usage Temperature (CUT) - Constant Usage
Temperature is a measure of the maximum temperature that a material may be exposed to for long periods of time, 1000 - 1500 hrs., before degradation of its electrical and mechanical properties occurs.
Contact (and Contact Clip) - Multi-finger spring insert of a receptacle which completes the electrical path between a male pin and a female receptacle. Also referred to as a clip. Contact Rating - Current carrying capability of a contact measured in amperes with respect to temperature rise above ambient.
Contact Resistance - The electrical resistance at the point of connection determined by the contact geometry, area of contact, plating and normal force.
Coplanarity - Refers to the measurement of multiple points and their distance from a respective plane. This is particularly useful for surface mount parts to determine the maximum amount of difference in the height of the surfaces that need to be soldered.

Electroplating - The electrodepositing of a metal coating on a conductive object such as a pin, shell, or contact clip. Electro-vibratory Plating - An electroplating system where the parts are processed in a vibrating basket which ensures uniform plating thickness and avoids damage to delicate parts.

End Stackable - The ability for connectors to be mounted end to end while maintaining grid or spacing.
Extraction Force (or Withdrawal Force) - The force required to remove a lead from a contact.
Epoxy - Woven glass cloth epoxy laminate. Classified as a thermoset, the woven fibers of these materials enable them to withstand high temperatures without being damaged. Cut from large sheets of material, the insulator is then machined on a high speed drill/router, the same way as printed circuit boards are fabricated.
Electrostatic Discharge (ESD) - The momentary electric current that flows between two objects that may cause damage to electronic equipment.
Flash (Plating) - A very thin plating, usually less than 10 micro inches, only enough metal to uniformly cover the surface of the base metal.
Flatness - Sometimes used in place of coplanarity, flatness refers to the amount of variation of a plane or surface.
Floating Contact - In surface mount sockets, a receptacle designed to move up and down freely in an insulator to compensate for unevenly dispensed solder paste.
Free Machining Alloy - An alloy which is easy to machine, e.g. brass alloy 360.

Fretting - A form of corrosion caused by vibration.
Gas Tight Connection - An electrical connection of sufficient pressure to prevent the intrusion of a corrosive atmosphere into the contact area.
Heat Deflection Temperature (HDT) - An industry recognized test for comparing the short term effects of high temperature on plastics.
Heat Treating - The process of using specific heating and cooling cycles to alter the mechanical properties of an alloy. Generally, heat treating can harden or soften a metal depending on the material, the parameters used and the desired physical property.
Hex Press Fit - A method of press-fitting either a pin or receptacle, using a hexagonal cross section, into a plated through-hole without causing damage to the hole while still maintaining a gas tight seal.
High Speed Turning - See Precision-Machined.
Injection Molding - A method of molding plastics by first heating granular plastic to its molten state and injecting it into the mold cavity where the plastic solidifies and is then ejected from the cavity.

Insertion Force - The force required to insert a male lead into a female socket.
Knurl - A vertical serration machined around the diameter of an interconnect pin providing a retention feature for press-fitting in a PC board or insulator and also preventing rotation of the pin.
LCP (Liquid Crystal Polymer) - Classified as a
thermoplastic, LCP is a hard, rigid material which exhibits outstanding strength at high temperatures and exceptional strength and toughness in its thin walls. Applications: LCP is used as an insulator material for tight grid (. 050 ", 2 mm ) connectors and extremely high temperature requirements.
Mating Pin - The pin used to interconnect two electronic devices by inserting it into the contact. Critical features are diameter, length, and shape (but not limited to.)
Machined - See Precision-Machined.
Migration - For a brass part plated with tin or gold, the migration of zinc from brass to the surface of the plating. This becomes zinc oxide and renders the part unsolderable. Zinc migration is prevented by using a copper or nickel underplate as a barrier.
Nylon 46 - Classified as thermoplastics. Nylon 46 offers superior heat resistance, good electrical properties and excellent toughness in its thin walls, which are desirable characteristics for connector insulators. Its superior strength in thin walls enables the press-fitting of pins in close proximity to each other without cracking or warping the material, making it ideal for molding 2 mm and .050 " grid insulators. Nylon 46 is suitable for high temperature applications including vapor phase, infra-red reflow and wave soldering operations.
Passive Device or Component - An electronic connector that consumes electrical energy, but does not produce electrical energy. Passive devices are not susceptible to significant ESD damage.
PCB - Printed Circuit Board.
PCT (Polycyclohexane Terephthalate) - Thermoplastic polyester is rated for higher temperatures. PCT is a standard material on DIP and SIP insulators for higher temperature operations. All PGA and surface mount products are molded from PCT and are suitable for infra-red, vapor phase and wave soldering.
Plating - A process in which metals (e.g. gold, tin-lead, nickel, silver) are electrically deposited onto a base metal in very thin and precise thicknesses.

Plated Through-Hole - A hole in a printed circuit board which has metallic walls connected to conductors on the surface or inside the board, in which the component lead is inserted and soldered.
Precision-Machined - Manufacturing process whereby a rapidly turning solid metal rod is cut to precise tolerances. Receptacle - Female contact consisting of an outer shell and inner spring contact (clip) designed for multiple mating/ unmating cycles with a male pin or component lead.
Screw-Machined - See Precision-Machined.
Secondary Machining - A process in which holes, slots, flats, squares or other special features may be machined onto a pin or receptacle after the basic shape of the part has been turned on a high speed lathe.
Shrink DIP Package - An IC which has a pin spacing of .070" on centers.
Skiving - The removal of a thin amount of plating when pins or contacts are press fit. For example, soft platings may yield some amount of skiving upon press fitting into an insulator or board. Skiving may also appear under a contact clip pressed into a receptacle shell.
Standoff - A protrusion at the bottom of the connector used to raise it off the PC board to aid in solder fillet formation, board inspection, flux removal and cleaning.
Swage Mount - A type of mounting commonly used with solder terminals and printed circuit pins where one end of the terminal is flared out (riveted) securing it to the PCB. Thermal Coefficient of Expansion (TCE) - Expansion of material caused by an increase in temperature.
Thermoset - Type of plastic which is heat cured into a permanent shape, and due to chemical reaction, cannot be remelted.
Thermoplastics - Type of plastic which is molded under heat and pressure and can be remelted \& reused many times.
Top Plate - Final surface plating over base metal and underplating.
Underplate - Plating between the base metal and the top plating.
Withdrawal Force (or Extraction Force) - The force required to remove a lead from a contact.
Wrapost (Terminal or Receptacle) - The length of square cross section of certain pins and receptacles which is used for making electrical connections via wire wrapping. Wire wrapping is a process in which wire is wrapped around the post to form a gas-tight connection without soldering.

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| 351-XX-1XX-00-011000 | 5511 | 103 | 451-XX-2XX-00-009000 | 5509 | 104 |
| 351-XX-1XX-40-002000 | 5102 | 77 | 451-XX-2XX-00-010000 | 5510 | 104 |
| 353-XX-1XX-00-001000 | 5301 | 110 | 451-XX-2XX-00-011000 | 5511 | 104 |
| 360-XX-1XX-00-001000 | 0282 | 108 | 453-XX-2XX-00-001000 | 5301 | 111 |
| 362-XX-1XX-00-001000 | 1106-2 | 110 | 460-XX-2XX-00-001000 | 0282 | 109 |
| 363-XX-1XX-00-001000 | 1106-3 | 110 | 463-XX-2XX-00-001000 | 1106-3 | 111 |
| 364-XX-1XX-00-580000 | 6458 | 102 | 464-XX-2XX-00-580000 | 6458 | 102 |
| 370-XX-1XX-00-001000 | 0700 | 108 | 470-XX-2XX-00-001000 | 0700 | 109 |
| 373-XX-1XX-00-001000 | 0730-3 | 110 | 473-XX-2XX-00-001000 | 0730-3 | 111 |
| 380-XX-1XX-00-001000 | 8000 | 75,108 | 480-XX-2XX-00-001000 | 8000 | 75,109 |
| 382-XX-1XX-00-001000 | 8301-2 | 110 | 483-XX-2XX-00-001000 | 8301-3 | 111 |
| 383-XX-1XX-00-001000 | 8301-3 | 110 | 499-XX-2XX-10-003000 | 1103/1602 | 74 |
| 388-XX-102-11-740799 | 8874 | 125 | 499-XX-2XX-10-008000 | 1938/1940 | 14 |
| 388-XX-102-11-740800 | 8874 | 125 | 499-XX-2XX-10-009000 | 5011/5113 | 74 |
| 395-XX-101-03-380000 | 8433 | 124 | 507-10-XXX-XX-XXX437 | 0737 | 115 |
| 395-XX-101-07-350000 | 8994 | 124 | 510-XX-XXX-XX-XXX00X | 1001 | 114 |
| 395-XX-101-34-340000 | 8993 | 124 | 511-XX-XXX-XX-XXX00X | 0134 | 114 |
| 399-XX-1XX-10-003000 | 1103 | 73 | 513-XX-XXX-XX-XXX085 | 1385 | 114 |
| 399-XX-1XX-10-008000 | 1940 | 13 | 514-XX-XXX-XX-XXX034 | 1434 | 114 |
| 399-XX-1XX-10-009000 | 5011 | 73 | 515-XX-XXX-XX-XXX00X | 0501 | 114 |
| 399-XX-0XX-21-300000 | 9930 | 69 | 518-XX-XXX-XX-XXX00X | 180X | 114 |
| 399-XX-0XX-00-310000 | 9931 | 69 | 522-XX-XXX-XX-XXX00X | 0089-2 | 114 |
| 410-XX-2XX-10-001000 | 1001 | 63 | 523-XX-XXX-XX-XXX00X | 0088-3 | 114 |
| 410-XX-2XX-10-002000 | 1001 | 63 | 540-10-XXX-XX-XXX448 | 4048 | 117 |
| 410-XX-2XX-41-001000 | 1001 | 74,90 | 540-10-XXX-XX-XXX454 | 4054 | 117 |
| 410-XX-2XX-41-105000 | 1005 | 78 | 540-10-XXX-XX-XXX498 | 4098 | 117 |
| 411-XX-2XX-41-001000 | 0134 | 90 | 540-44-XXX-17-40000X | N/A | 120 |
| 414-XX-2XX-41-117000 | 1434 | 76 | 550-XX-XXX-XX-XXX012 | 5012 | 115 |
| 415-XX-2XX-41-001000 | 0501 | 90 | 551-XX-XXX-XX-XXX003 | 5503 | 115 |
| 415-XX-2XX-41-003000 | 1534 | 90 | 551-XX-XXX-XX-XXX004 | 5504 | 115 |
| 416-XX-2XX-41-001000 | 0153-5 | 92 | 551-XX-XXX-XX-XXX005 | 5505 | 115 |
| 416-XX-2XX-41-003000 | 0153-2 | 92 | 579-10-XXX-XX-XXX429 | 7929 | 117 |
| 416-XX-2XX-41-006000 | 0153-1 | 92 | 582-11-XXX-XX-XXX414 | 8214 | 117 |
| 416-XX-2XX-41-007000 | 0153-3 | 92 | 587-10-XXX-XX-XXX437 | 8737 | 117 |
| 416-XX-2XX-41-008000 | 0153-4 | 92 | 594-XX-020-01-007032 | 8857-X | 62 |
| 419-XX-2XX-00-001000 | 1942 | 14 | 599-11-XXX-XX-XXX428 | 9928 | 117 |
| 419-XX-2XX-00-002000 | 1940 | 14 | 599-10-XXX-XX-XXX429 | 9929 | 117 |
| 419-XX-2XX-00-005000 | 1938 | 14 | 599-11-XXX-XX-XXX442 | 9942 | 117 |
| 419-XX-2XX-30-041000 | 1941 | 14 | 599-XX-XXX-XX-XXX476 | 9976 | 115 |
| 421-XX-2XX-41-001000 | 0040-1 | 94 | 605-XX-XXX-11-480000 | 0548 | 46 |
| 422-XX-2XX-41-001000 | 0089-2 | 94 | 605-XX-XXX-XX-XXX048 | 0548 | 116 |
| 423-XX-2XX-41-001000 | 0088-3 | 94 | 612-XX-XXX-41-001000 | 0255 | 44 |
| 424-XX-2XX-41-002000 | 0086-4 | 94 | 612-XX-XXX-41-002000 | 8855 | 44 |
| 426-XX-2XX-41-001000 | 2601 | 96 | 612-XX-XXX-41-003000 | 0135 | 44 |
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| ASSEMBLY NUMBER | PIN \# REF. | PAGE \# | ASSEMBLY NUMBER | PIN \# REF. | PAGE \# |
| 614-XX-XXX-31-002000 | 0442 | 47 | 816-22-0XX-10-00X-101 | 0908-X | 12 |
| 614-XX-XXX-31-007000 | 1407 | 46 | 818-22-0XX-10-00X-101 | 0908-X | 12 |
| 614-XX-XXX-31-012000 | 0552-1 | 47 | 819-22-0XX-30-001101 | 0913-0 | 7.1 |
| 614-XX-XXX-31-018000 | 0552-2 | 47 | 820-22-0XX-30-001101 | 0913-0 | 7.1 |
| 614-XX-XXX-41-001000 | 1401 | 45 | 821-22-0XX-10-00X-101 | 0906-X | 10 |
| 614-XX-XXX-XX-XXX007 | 1407 | 116 | 823-22-0XX-10-00X-101 | 0906-X | 10 |
| 614-XX-XXX-XX-XXX012 | 0552-1 | 116 | 825-22-0XX-10-001101 | 0914 | 11 |
| 614-XX-XXX-XX-XXX0XX | 1401 | 116 | 827-22-0XX-10-001101 | 0914 | 11 |
| 712-XX-XXX-41-001000 | 0255 | 99 | 830-XX-0XX-10-001000 | 5012 | 70 |
| 714-XX-XXX-31-007000 | 1407 | 100 | 830-XX-0XX-20-001000 | 3790 | 72 |
| 714-XX-XXX-31-012000 | 0552-1 | 101 | 830-XX-0XX-30-001000 | 6218 | 71 |
| 714-XX-XXX-31-018000 | 0552-2 | 101 | 830-XX-0XX-30-002000 | 6218 | 71 |
| 714-XX-XXX-41-001000 | 1401 | 100 | 831-XX-0XX-10-001000 | 1802 | 70 |
| 800-XX-0XX-10-001000 | 7007 | 81 | 831-XX-0XX-20-001000 | 1805 | 72 |
| 800-XX-0XX-10-002000 | 5016 | 80 | 831-XX-0XX-30-001000 | 1802 | 71 |
| 800-XX-0XX-10-004000 | 3077 | 86 | 831-XX-0XX-30-002000 | 1802 | 71 |
| 800-XX-0XX-20-001000 | 5005 | 81 | 832-XX-XXX-10-001000 | 5012 | 70 |
| 800-XX-0XX-20-201000 | 5005 | 88 | 832-XX-XXX-20-001000 | 3790/3796 | 72 |
| 800-XX-0XX-30-001000 | 7007 | 85 | 832-XX-XXX-30-001000 | 6218 | 71 |
| 800-XX-0XX-40-002000 | 1502 | 77 | 833-XX-XXX-10-001000 | 1802 | 70 |
| 800-XX-0XX-61-001000 | 5601 | 83 | 833-XX-XXX-20-001000 | 1805/3805 | 72 |
| 800-XX-0XX-62-001000 | 5602 | 83 | 833-XX-XXX-30-001000 | 1802 | 71 |
| 801-XX-0XX-10-004000 | 1313 | 86 | 834-XX-0XX-10-001000 | 3435 | 87 |
| 801-XX-0XX-10-001000 | 1304 | 81 | 835-XX-0XX-10-001000 | 3435 | 87 |
| 801-XX-0XX-10-002000 | 1303 | 80 | 850-XX-0XX-10-001000 | 4006-0 | 66 |
| 801-XX-0XX-10-003000 | 1303 | 79 | 850-XX-0XX-20-001000 | 4006-1 | 67 |
| 801-XX-0XX-10-012000 | 1303 | 80 | 850-XX-0XX-30-001000 | 4006-0 | 68 |
| 801-XX-0XX-10-013000 | 1303 | 79 | 850-XX-0XX-30-002000 | 4006-0 | 68 |
| 801-XX-0XX-10-201000 | 1304 | 88 | 851-XX-0XX-10-001000 | 4890-0 | 66 |
| 801-XX-0XX-10-212000 | 1303 | 88 | 851-XX-0XX-10-002000 | 0467 | 66 |
| 801-XX-0XX-20-001000 | 1305 | 81 | 851-XX-0XX-10-011000 | 4890-1 | 66.1 |
| 801-XX-0XX-20-201000 | 1305 | 88 | 851-XX-0XX-10-021000 | 4890-2 | 66.1 |
| 801-XX-0XX-30-001000 | 1304 | 85 | 851-XX-0XX-20-001000 | 4890-1 | 67 |
| 801-XX-0XX-40-002000 | 1303 | 77 | 851-XX-0XX-30-001000 | 4890-0 | 68 |
| 801-XX-0XX-61-001000 | 4614 | 83 | 851-XX-0XX-30-002000 | 4890-0 | 68 |
| 801-XX-0XX-62-001000 | 4615 | 83 | 852-XX-XXX-10-001000 | 4006-0 | 66 |
| 802-XX-0XX-10-001000 | 7007 | 82 | 852-XX-XXX-20-001000 | 4006-1/2 | 67 |
| 802-XX-0XX-10-002000 | 5016 | 80 | 852-XX-XXX-30-001000 | 4006-0 | 68 |
| 802-XX-XXX-10-004000 | 3077 | 86 | 853-XX-XXX-10-001000 | 4890-0 | 66 |
| 802-XX-0XX-20-001000 | 5005/5107 | 82 | 853-XX-0XX-10-011000 | 4890-1 | 66.1 |
| 802-XX-0XX-30-001000 | 7007 | 85 | 853-XX-0XX-10-021000 | 4890-2 | 66.1 |
| 802-XX-0XX-61-001000 | 5601 | 84 | 853-XX-XXX-20-001000 | 4890-1/2 | 67 |
| 802-XX-0XX-62-001000 | 5602 | 84 | 853-XX-XXX-30-001000 | 4890-0 | 68 |
| 803-XX-XXX-10-001000 | 1304 | 82 | 854-22-0XX-10-001101 | 0950-0 | 12.1 |
| 803-XX-0XX-10-002000 | 1303 | 80 | 855-22-0XX-10-001101 | 0950-0 | 12.1 |
| 803-XX-0XX-10-003000 | 1303 | 79 | 854-22-0XX-30-001101 | 0951-0 | 12.2 |
| 803-XX-XXX-10-004000 | 1313 | 86 | 856-XX-0XX-10-051000 | 1933 | 14.1 |
| 803-XX-XXX-20-001000 | 1305/1306 | 82 | 856-XX-0XX-30-051000 | 1935 | 14.1 |
| 803-XX-XXX-30-001000 | 1304 | 85 | 857-XX-0XX-10-051000 | 1933 | 14.1 |
| 803-XX-XXX-61-001000 | 4614 | 84 | 857-XX-0XX-30-051000 | 1935 | 14.1 |
| 803-XX-XXX-62-001000 | 4615 | 84 | 862-XX-121-00-180000 | 6218 | 59 |
| 810-22-0XX-40-001101 | 0916-0 | 7.2 | 862-XX-121-30-180000 | 6218 | 60 |
| 811-22-0XX-30-00X-101 | 0900-X | 06 |  |  |  |
| 811-22-00X-30-00X-191 | 0900-X | 09 | 896-43-004-00-000000 | N/A | 122 |
| 812-22-0XX-30-00X-101 | 0907-X | 07 | 896-43-004-90-000000 | N/A | 122 |
| 812-22-0XX-30-01X-101 | 0907-X/0908-X | 08 | 896-43-005-00-100001 | N/A | 121 |
| 812-22-00X-30-00X-191 | 0907-X | 09 | 896-43-008-90-000000 | N/A | 122 |
| 813-22-0XX-30-00X-101 | 0900-X | 06 | 897-43-004-90-000000 | N/A | 122 |
| 813-22-0XX-30-00X-191 | 0900-X | 09 | 897-43-005-00-100001 | N/A | 121 |
| 814-22-0XX-30-00X-101 | 0907-X | 07 | 896-43-004-00-000000 | N/A | 122 |
| 814-22-0XX-30-01X-101 | 0907-X/0908-X | 08 | 896-43-004-90-000000 | N/A | 122 |
| 814-22-0XX-30-00X-191 | 0907-X | 09 | 896-43-005-00-100001 | N/A | 121 |


| MILL-MAX SOCKET | MILL-MAX |  | MILL-MAX SOCKET | MILL-MAX |  |
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| $897-43-004-90-00000$ | N/A | 122 |  |  |  |
| $897-43-005-00-100001$ | N/A | 121 |  |  |  |
| $917-X X-X X-41-001000$ | 1701 | 123 |  |  |  |
| $917-X X-X X X-41-005000$ | 1705 | 123 |  |  |  |
| $940-44-X X X-17-40000 X$ | N/A | 118 |  |  |  |
| $940-44-X X X-24-000000$ | N/A | 119 |  |  |  |
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| 0039 | 166 | 0322 | 152 | 0415 | 146 | 0678 | 135 | 1045 | 166 | 1801 | 136 |
| 0040 | 166 | 0323 | 152 | 0433 | 157 | 0679 | 134 | 1047 | 167 | 1802 | 140 |
| 0066 | 166 | 0324 | 152 | 0434 | 157 | 0680 | 133 | 1052 | 169 | 1803 | 140 |
| 0067 | 166 | 0325 | 152 | 0435 | 157 | 0682 | 134 | 1053 | 169 | 1804 | 140 |
| 0068 | 166 | 0326 | 145 | 0436 | 157 | 0697 | 135 | 1064 | 195 | 1805 | 140 |
| 0086 | 166 | 0327 | 153 | 0442 | 128 | 0700 | 183 | 1065 | 134 | 1806 | 140 |
| 0088 | 166 | 0328 | 153 | 0444 | 167 | 0703 | 132 | 1066 | 134 | 1807 | 140 |
| 0089 | 166 | 0329 | 154 | 0445 | 167 | 0707 | 132 | 1067 | 178 | 1808 | 140 |
| 0132 | 136 | 0330 | 148 | 0447 | 137 | 0730 | 195 | 1068 | 195 | 1873 | 147 |
| 0133 | 136 | 0331 | 151 | 0461 | 129 | 0739 | 155 | 1070 | 195 | 1933 | 180 |
| 0134 | 136 | 0333 | 153 | 0462 | 131 | 0814 | 154 | 1071 | 195 | 1935 | 180 |
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| 0145 | 137 | 0341 | 135 | 0478 | 133 | 0905 | 15 | 1095 | 193 | 2102 | 196 |
| 0146 | 137 | 0342 | 157 | 0479 | 165 | 0906 | 16 | 1096 | 195 | 2103 | 205 |
| 0147 | 136 | 0343 | 154 | 0489 | 131 | 0907 | 15 | 1097 | 193 | 2104 | 205 |
| 0148 | 137 | 0344 | 152 | 0490 | 161 | 0908 | 16 | 1103 | 137 | 2105 | 205 |
| 0149 | 133 | 0345 | 153 | 0491 | 161 | 0910 | 17 | 1104 | 139 | 2106 | 205 |
| 0152 | 137 | 0347 | 154 | 0492 | 158 | 0912 | 184 | 1105 | 159 | 2107 | 205 |
| 0153 | 138 | 0348 | 152 | 0493 | 161 | 0913 | 15 | 1106 | 195 | 2108 | 196 |
| 0156 | 136 | 0349 | 152 | 0496 | 159 | 0914 | 16 | 1109 | 136 | 2109 | 196 |
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| 0253 | 135 | 0354 | 156 | 0504 | 179 | 0925 | 15 | 1124 | 192 | 2112 | 205 |
| 0255 | 136 | 0355 | 156 | 0505 | 179 | 0927 | 15 | 1130 | 177 | 2113 | 196 |
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| 0259 | 185 | 0357 | 153 | 0512 | 132 | 0929 | 16 | 1179 | 174 | 2297 | 168 |
| 0265 | 183 | 0358 | 154 | 0520 | 190 | 0930 | 16 | 1210 | 192 | 2301 | 199 |
| 0270 | 183 | 0359 | 154 | 0522 | 178 | 0932 | 16 | 1212 | 193 | 2302 | 207 |
| 0272 | 183 | 0360 | 154 | 0529 | 127 | 0933 | 17.1 | 1213 | 193 | 2303 | 206 |
| 0273 | 146 | 0362 | 158 | 0542 | 178 | 0934 | 15 | 1214 | 193 | 2304 | 200 |
| 0275 | 183 | 0363 | 158 | 0548 | 128 | 0936 | 15 | 1215 | 192 | 2305 | 200 |
| 0279 | 148 | 0364 | 158 | 0550 | 132 | 0940 | 186 | 1216 | 193 | 2306 | 200 |
| 0280 | 168 | 0365 | 158 | 0552 | 129 | 0950 | 17.1 | 1221 | 192 | 2307 | 200 |
| 0281 | 168 | 0366 | 158 | 0553 | 128 | 0951 | 17.1 | 1222 | 192 | 2308 | 197 |
| 0282 | 183 | 0367 | 158 | 0554 | 128 | 0952 | 178 | 1261 | 138 | 2309 | 211 |
| 0284 | 146 | 0368 | 159 | 0555 | 134 | 0962 | 17.1 | 1267 | 177 | 2310 | 199 |
| 0285 | 146 | 0370 | 161 | 0556 | 137 | 0967 | 17 | 1302 | 193 | 2311 | 200 |
| 0286 | 185 | 0372 | 158 | 0558 | 134 | 0980 | 16 | 1303 | 150 | 2312 | 197 |
| 0287 | 146 | 0373 | 153 | 0560 | 131 | 0990 | 17 | 1304 | 148 | 2313 | 212 |
| 0290 | 182 | 0378 | 143 | 0566 | 128 | 0995 | 188 | 1305 | 149 | 2314 | 208 |
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| 2506 | 199 | 3103 | 188 | 3400 | 182 | 4900 | 160 | 7007 | 182 | 8866 | 140 |
| 2507 | 207 | 3104 | 188 | 3401 | 182 | 4964 | 172 | 7009 | 143 | 8874 | 130 |
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| 2510 | 197 | 3106 | 188 | 3404 | 179 | 5005 | 182 | 7132 | 138 | 8877 | 142 |
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| 2512 | 203 | 3111 | 187 | 3406 | 181 | 5012 | 175 | 7310 | 191 | 8894 | 132 |
| 2513 | 197 | 3112 | 184 | 3408 | 183 | 5016 | 182 | 7405 | 151 | 8898 | 137 |
| 2514 | 211 | 3113 | 186 | 3409 | 181 | 5035 | 172 | 7406 | 151 | 8919 | 182 |
| 2515 | 208 | 3114 | 184 | 3410 | 182 | 5059 | 154 | 7491 | 131 | 8940 | 178 |
| 2516 | 208 | 3115 | 184 | 3411 | 182 | 5062 | 173 | 7520 | 146 | 8947 | 127 |
| 2517 | 206 | 3116 | 177 | 3413 | 180 | 5063 | 172 | 7553 | 130 | 8952 | 189 |
| 2520 | 206 | 3117 | 184 | 3435 | 164 | 5102 | 185 | 7614 | 149 | 8953 | 189 |
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| 2533 | 198 | 3121 | 175 | 3520 | 151 | 5155 | 176 | 8016 | 162 | 8964 | 142 |
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| 2703 | 202 | 3132 | 187 | 3802 | 140 | 5364 | 165 | 8301 | 194 | 9036 | 176 |
| 2704 | 200 | 3133 | 190 | 3805 | 140 | 5435 | 177 | 8303 | 150 | 9039 | 144 |
| 2705 | 203 | 3134 | 186 | 3808 | 156 | 5503 | 181 | 8330 | 173 | 9050 | 171 |
| 2706 | 212 | 3135 | 177 | 3907 | 141 | 5504 | 181 | 8331 | 151 | 9051 | 176 |
| 2707 | 197 | 3136 | 187 | 3966 | 165 | 5505 | 181 | 8360 | 154 | 9064 | 160 |
| 2708 | 198 | 3137 | 187 | 4001 | 141 | 5509 | 181 | 8363 | 141 | 9075 | 180 |
| 2709 | 210 | 3138 | 190 | 4006 | 175 | 5510 | 179 | 8365 | 160 | 9081 | 175 |
| 2710 | 202 | 3139 | 184 | 4011 | 136 | 5511 | 179 | 8401 | 149 | 9083 | 171 |
| 2713 | 202 | 3140 | 188 | 4015 | 164 | 5522 | 129 | 8404 | 180 | 9086 | 173 |
| 2715 | 209 | 3141 | 188 | 4030 | 140 | 5531 | 130 | 8427 | 133 | 9092 | 191 |
| 2717 | 202 | 3142 | 189 | 4034 | 158 | 5552 | 131 | 8433 | 157 | 9101 | 147 |
| 2762 | 209 | 3144 | 190 | 4040 | 161 | 5556 | 176 | 8445 | 138 | 9113 | 171 |
| 2801 | 204 | 3145 | 189 | 4064 | 157 | 5557 | 131 | 8451 | 173 | 9137 | 171 |
| 2802 | 204 | 3146 | 189 | 4068 | 171 | 5601 | 187 | 8467 | 130 | 9159 | 176 |
| 2803 | 203 | 3147 | 177 | 4071 | 172 | 5602 | 187 | 8553 | 128 | 9184 | 156 |
| 2804 | 204 | 3148 | 187 | 4078 | 138 | 5650 | 147 | 8579 | 129 | 9185 | 172 |
| 2805 | 204 | 3149 | 188 | 4095 | 150 | 5660 | 137 | 8600 | 189 | 9214 | 161 |
| 2806 | 204 | 3150 | 187 | 4184 | 171 | 5739 | 132 | 8602 | 210 | 9218 | 180 |
| 2807 | 209 | 3151 | 186 | 4194 | 176 | 5834 | 159 | 8608 | 194 | 9222 | 156 |
| 2808 | 209 | 3152 | 190 | 4209 | 172 | 5960 | 141 | 8637 | 128 | 9225 | 127 |
| 2809 | 209 | 3153 | 188 | 4259 | 179 | 5970 | 133 | 8679 | 147 | 9228 | 173 |
| 2810 | 201 | 3154 | 178 | 4268 | 173 | 6002 | 143 | 8685 | 176 | 9234 | 137 |
| 2811 | 204 | 3155 | 176 | 4280 | 165 | 6021 | 147 | 8730 | 159 | 9265 | 174 |
| 2812 | 201 | 3156 | 212 | 4286 | 134 | 6023 | 129 | 8806 | 150 | 9280 | 160 |
| 2815 | 203 | 3157 | 178 | 4288 | 171 | 6092 | 173 | 8808 | 172 | 9293 | 145 |
| 2816 | 203 | 3158 | 178 | 4310 | 141 | 6095 | 173 | 8815 | 187 | 9324 | 158 |
| 2817 | 203 | 3159 | 189 | 4353 | 171 | 6142 | 174 | 8827 | 147 | 9353 | 151 |
| 2821 | 198 | 3185 | 141 | 4361 | 171 | 6192 | 130 | 8829 | 159 | 9354 | 151 |
| 2954 | 142 | 3210 | 177 | 4366 | 177 | 6214 | 129 | 8830 | 140 | 9359 | 154 |
| 2956 | 185 | 3221 | 188 | 4378 | 137 | 6218 | 175 | 8831 | 210 | 9363 | 142 |
| 3006 | 175 | 3222 | 188 | 4477 | 173 | 6252 | 140 | 8835 | 210 | 9372 | 159 |
| 3013 | 136 | 3223 | 188 | 4526 | 188 | 6401 | 150 | 8836 | 210 | 9393 | 149 |
| 3016 | 128 | 3230 | 189 | 4582 | 159 | 6458 | 180 | 8837 | 162 | 9401 | 159 |
| 3018 | 141 | 3231 | 190 | 4612 | 133 | 6477 | 173 | 8838 | 155 | 9407 | 130 |
| 3024 | 185 | 3232 | 189 | 4613 | 133 | 6547 | 172 | 8852 | 141 | 9462 | 130 |

INDEX
NUMERICAL LISTING AND LOCATION OF MILL-MAX PINS



[^0]:    For RoHS compliance select $\diamond$ plating code.

[^1]:    For RoHS compliance
    select $\diamond$ plating code.

