

PCB Sockets

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PC Board Sockets

Individual sockets for PCB mounting, these contacts give a simple alternative to hard-wiring connections and oddform components directly to the PCB - allowing for rework, module replacement or upgrade, and in-service repair.

The individual sockets come in a choice of styles and mounting options. The primary specification for all PCB sockets is the size of male pin (or component termination tail) that will mate with the socket. Additional options may also then be available, depending on the socket range at that size.

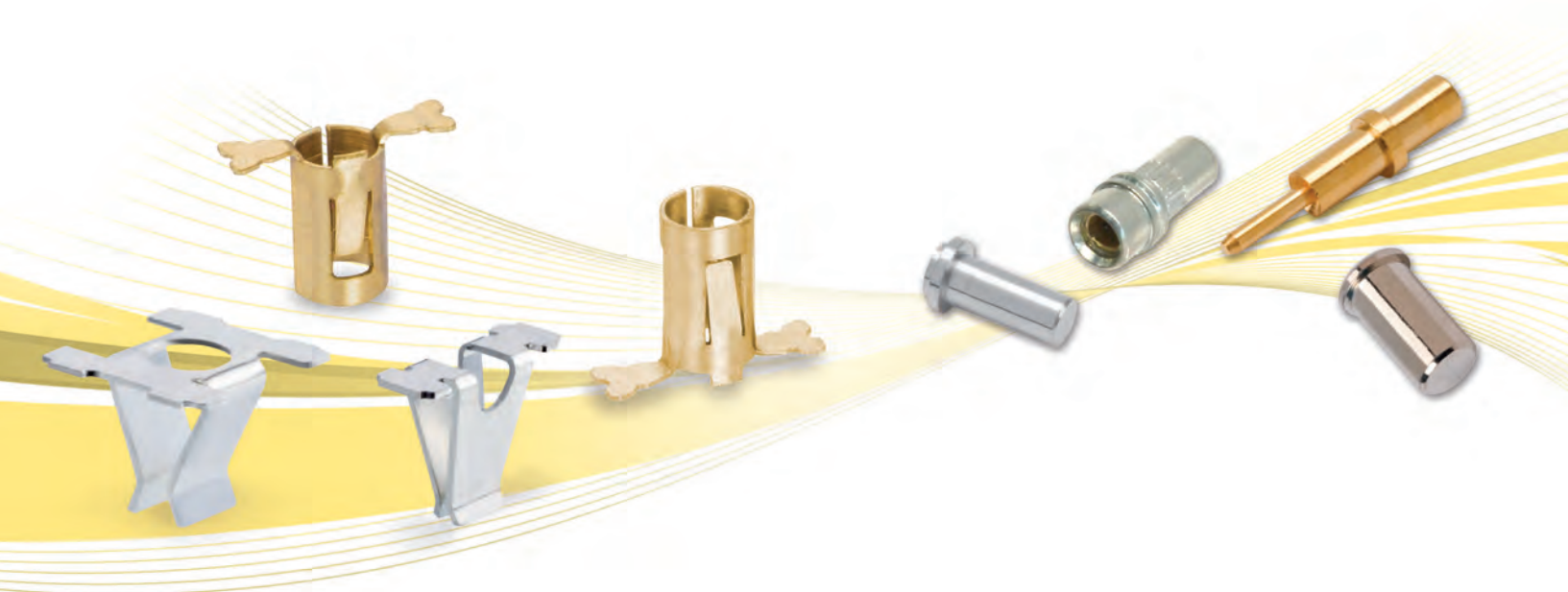
- ❖ Typically very low-profile, with most of the socket sitting within the PCB thickness, or below
- ❖ Full range accepts pin sizes from Ø0.41mm to Ø2.30mm
- ❖ Product styles range from 2 to 6 points of contact
- ❖ Gives the added flexibility of custom board layouts
- ❖ Stocked in depth throughout Harwin's authorized distributor network
- ❖ Reduces process costs with the elimination of secondary socket soldering operations

Surface Mount

- ❖ Ultra-Low profile with either 2 or 3 contact points, single piece construction with flat upper surface for pick and place
- ❖ Rated between 5 Amps and 9 Amps (design-dependant)
- ❖ Supplied in Tape and Reel packaging. Suitable for high volume applications with automated SMT systems

Throughboard

- ❖ High reliability contacts. Proven history in high end industrial and Mil/Aero applications.
- ❖ Designed for robustness and reliability, and based on the same design as the Datamate and M300 four finger Beryllium Copper contacts
- ❖ Suited for use in environments where high vibration, shock and extremes of temperature are a consideration
- ❖ The socket design is a two-part construction comprising of a contact clip retained in a precision-turned outer shell



PC Board Sockets Product Features

Surface Mount - Ultra-low profile

Ultra-low profile on the PCB - barely more than a material thickness above the board.



Throughboard - Retention features

Variants include knurls for mechanical PCB retention, and open-ended sockets for longer pins.



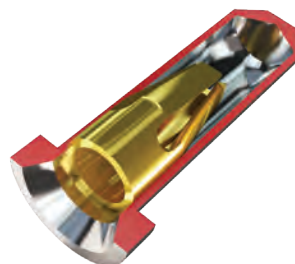
Surface Mount - Automated product placement

Supplied as standard in Tape and Reel packaging, ideally suited for high volume automated assembly. Pick and place location built into the design.



Throughboard - Beryllium Copper contact

Proven 4-finger and 6 finger contact designs (based on Datamate) to maintain electrical contact through high vibration and shock. -55°C to +125°C operating temperature range.



Surface Mount - Round or Square mating pins

Accommodates mating pins 0.80mm to 1.90mm, square or round profile pins. Sycamore Contacts can be mated via top or bottom entry (design dependant).



Throughboard - Up to Ø2.30mm mating pin

Accepts nominal mating pin sizes of Ø0.50mm, Ø0.80mm, Ø1.00mm and Ø2.00mm (Ø2.30mm maximum).



PC Board Sockets Specifications

❖ 3-Beam SYCAMORE Contact and Twin Beam sockets: Surface mount, single piece construction

❖ Materials

Base material	
3-Beam:	Beryllium Copper
Twin Beam:	Phosphor Bronze
Finish:	See individual pages

❖ Electrical

Current	
3-Beam:	6A max
Twin Beam Ø0.8-1.5mm:	5A max
Twin Beam Ø1.1-1.8mm:	9A max
Contact resistance:	20mΩ max

❖ Mechanical

Durability	
3-Beam:	500 operations
Twin Beam Ø0.8-1.5mm:	25 operations
Twin Beam Ø1.1-1.8mm:	100 operations
Insertion force (max)	
3-Beam Ø1.5-1.9mm:	3.5N (Ø1.5mm), 17.0N (Ø1.9mm)
3-Beam Ø0.8-1.3mm:	3.0N (Ø0.8mm), 6.0N (Ø1.3mm)
Twin Beam Ø0.8-1.5mm:	8.0N (Ø1mm), 17.0N (Ø1.5mm)
Twin Beam Ø1.1-1.8mm:	2.8N (Ø1.1mm), 6.0N (Ø1.8mm)
Withdrawal force (min)	
3-Beam Ø1.5-1.9mm:	0.5N (Ø1.5mm), 1.0N (Ø1.9mm)
3-Beam Ø0.8-1.3mm:	0.3N (Ø0.8mm), 0.6N (Ø1.3mm)
Twin Beam Ø0.8-1.5mm:	0.5N (Ø1mm), 1.0N (Ø1.5mm)
Twin Beam Ø1.1-1.8mm:	0.3N (Ø1.1mm), 0.5N (Ø1.8mm)

❖ Environmental

Operating temperature	
3-Beam:	-50°C to +125°C
Twin Beam:	-40°C to +105°C
Solderability:	235°C for 5 seconds
Soldering heat resistance:	260°C for 10 seconds

❖ Throughboard, two piece construction

❖ Materials

Outer shell:	Brass
Inner contact:	Beryllium Copper
Finish:	See individual pages

❖ Electrical

Current	
Ø0.50mm:	2A max
Ø0.80mm, Ø1.00mm:	10A max
Ø2.00mm:	20A max
Contact resistance:	25mΩ max

❖ Mechanical

Durability	
Ø0.50, Ø2.00mm:	500 operations
Ø0.80, Ø1.00mm:	1,000 operations
Insertion force (max)	
Ø0.50, Ø2.00mm:	6.0N
Ø0.80mm:	5.0N
Ø1.00mm:	9.0N
Withdrawal force (min)	
Ø0.50mm:	0.5N
Ø0.80, Ø1.00, Ø2.00mm:	1.0N
Vibration sensitivity:	10 – 2,000Hz, 0.75mm, 98m/s ² (10G), 6 hours duration

❖ Environmental

Operating temperature:	-55°C to +125°C
Solderability:	235°C for 5 seconds
Soldering heat resistance:	260°C for 10 seconds

PC Board Sockets

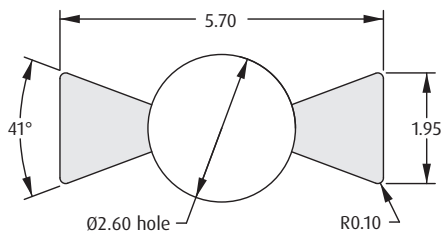
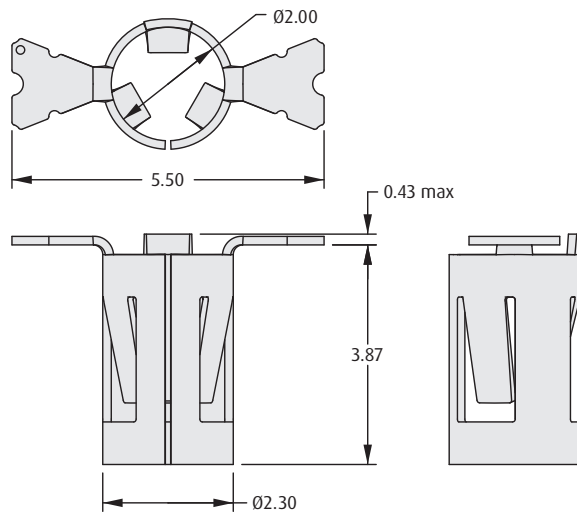
SYCAMORE Contact, 3-Beam

The SYCAMORE Contact is a low-profile single-piece open-ended socket design.

- ❖ 3 points of contact for enhanced reliability.
- ❖ SMT product is pick and place-able using standard assembly machines.
- ❖ Beryllium Copper base material for enhanced temperature range of -50°C to +125°C.
- ❖ Gold plating for improved durability and decreased wear.

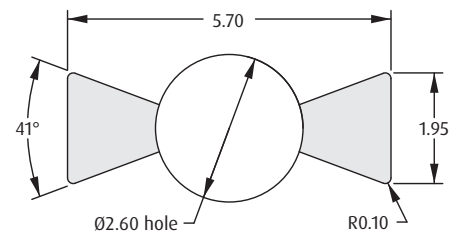
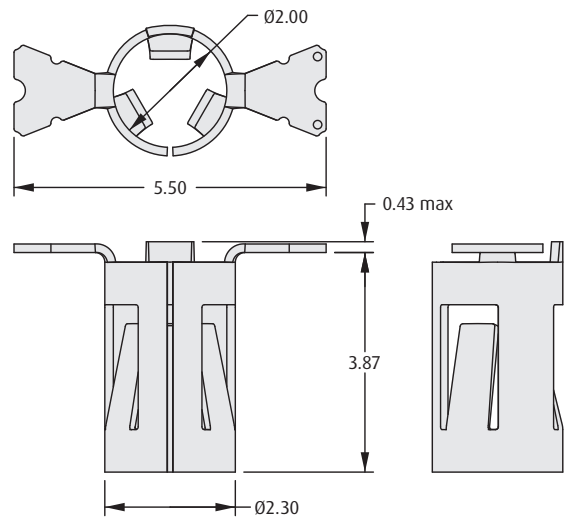


TOP ENTRY



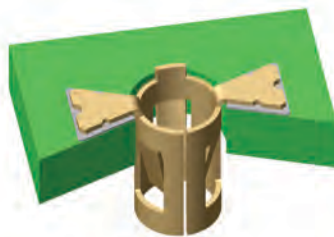
Recommended PC Board Pattern

BOTTOM ENTRY



Recommended PC Board Pattern

Orientation of SMT Socket in PCB



HOW TO ORDER

S91X1 - 45 R

SERIES CODE

S9111	Top Entry, 0.15 to 0.19mm Mating pin
S9121	Bottom Entry, 0.15 to 0.19mm Mating pin
S9131	Top Entry, 0.08 to 0.13mm Mating pin
S9141	Bottom Entry, 0.08 to 0.13mm Mating pin

PACKAGING

R	Tape & Reeled
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FINISH

45	Gold
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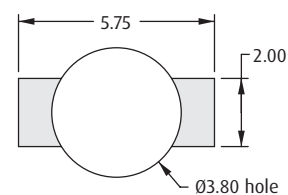
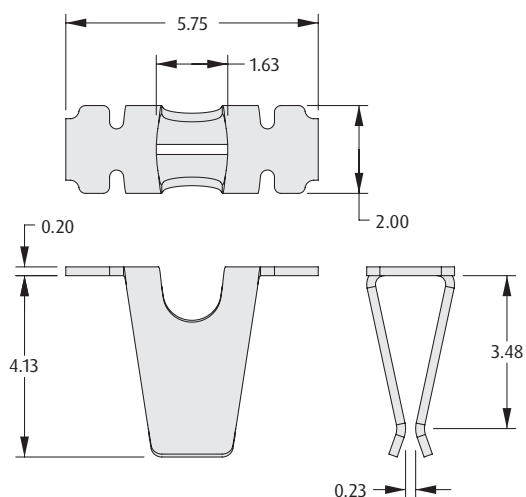
PC Board Sockets

Surface Mount, Low Profile

- ❑ Accepts pins between 0.8mm and 1.8mm diameter.
- ❑ SMT product is pick and place-able using standard assembly machines.
- ❑ Rated to 5 Amps and 9 Amps electrical current.
- ❑ Greatly reduces process costs by removing the need for secondary operations.
- ❑ Reduced component costs.

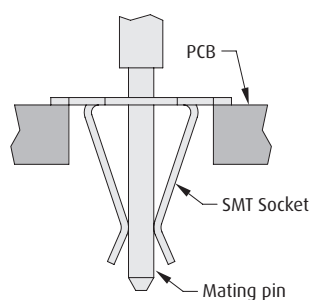


Ø0.8mm TO Ø1.5mm MATING PIN

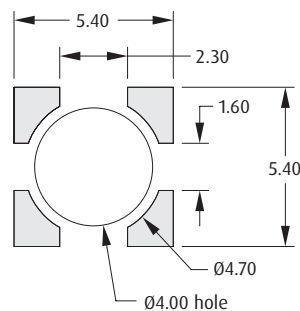
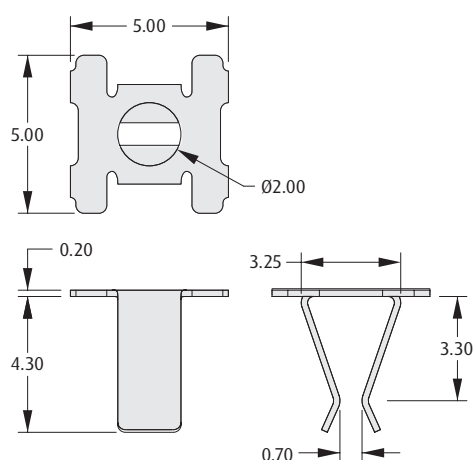


Recommended PC Board Pattern

Orientation of SMT Socket in PCB



Ø1.1mm TO Ø1.8mm MATING PIN



Recommended PC Board Pattern

HOW TO ORDER

S9XX1 - 46 R

SERIES CODE

S9091	Ø0.8 to Ø1.5mm Mating pin
S9101	Ø1.1 to Ø1.8mm Mating pin

PACKAGING

R	Tape & Reeled
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FINISH

46	Tin
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All dimensions in mm.

PC Board Sockets

Sub-Miniature – Ø0.50mm Mating Pin

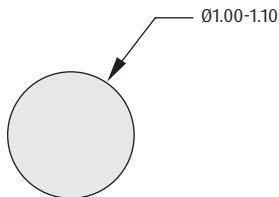
- ❖ Compatible with Ø0.50mm mating pins.
- ❖ Suitable for a variety of mating pin lengths.
- ❖ Utilizes the Datamate four finger Beryllium Copper contact clip.



SOCKETS

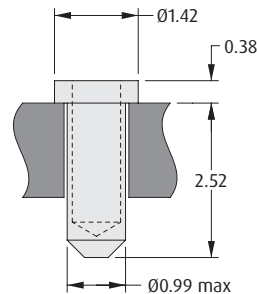
Specifications

Mating pin size: Ø0.46 - 0.51mm
 Contact depth: 2.30mm max
 Pin length: See individual sockets



Recommended PC Board Pattern

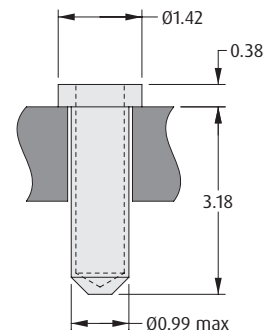
2.52mm BODY LENGTH



ORDER CODE	FINISH
H3190-01	Gold contact, Tin shell
H3190-05	Gold contact, Gold shell

Maximum Pin Length = 2.40mm

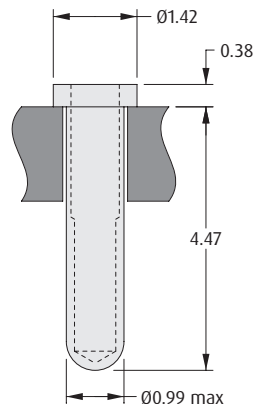
3.18mm BODY LENGTH



ORDER CODE	FINISH
H3153-01	Gold contact, Tin shell
H3153-05	Gold contact, Gold shell

Maximum Pin Length = 3.15mm

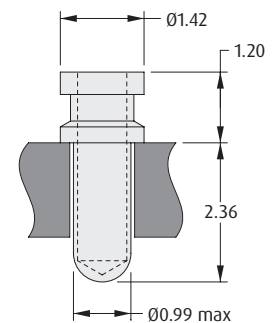
4.47mm BODY LENGTH



ORDER CODE	FINISH
H3191-01	Gold contact, Tin shell
H3191-05	Gold contact, Gold shell

Maximum Pin Length = 4.50mm

RAISED SHOULDER



ORDER CODE	FINISH
H3155-01	Gold contact, Tin shell
H3155-05	Gold contact, Gold shell

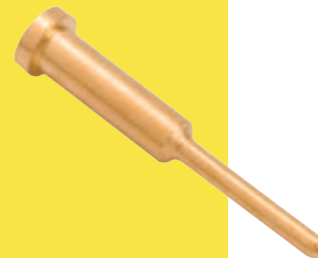
Maximum Pin Length = 3.15mm

All dimensions in mm.

PC Board Sockets

Ø0.50mm Mating Pin - Extended Tails

- Compatible with Ø0.50mm mating pins.
- Utilizes the Datamate four finger Beryllium Copper contact clip.
- Extended tail sizes for stacked mating or wire wrap functions.



Specifications

Mating pin size:

H3192-XX Ø0.46 - 0.51mm

H3175-XX Ø0.41 - 0.53mm

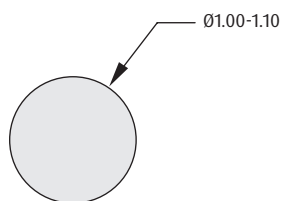
Contact depth:

H3192-XX 2.30mm max

H3175-XX 2.16mm max

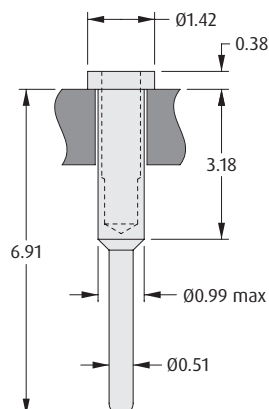
Pin length:

3.15mm max



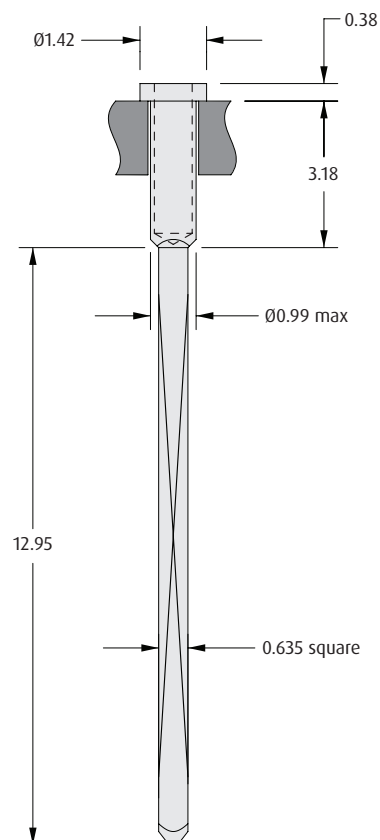
Recommended PC Board Pattern

EXTENDED TAIL



ORDER CODE	FINISH
H3192-01	Gold contact, Tin shell
H3192-05	Gold contact, Gold shell

WIRE WRAP TAIL



ORDER CODE	FINISH
H3175-01	Gold contact, Tin shell
H3175-05	Gold contact, Gold shell

All dimensions in mm.

PC Board Sockets

Strips of Sub-Miniature Sockets

- ❖ Sub-miniature sockets using the four finger Beryllium Copper contact, mounted on carrier strips for ease of production use.
- ❖ See previous page for information on the individual sockets.

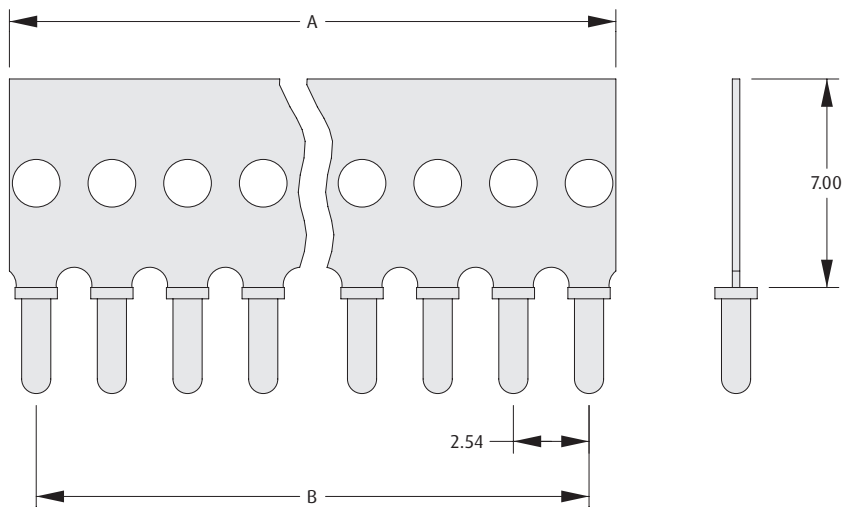


SINGLE-IN-LINE SOCKET CARRIERS

- ❖ Brass carriers are supplied fitted with the sub-miniature socket shown in the tables below.
- ❖ Supplied in standard lengths.

CALCULATION

A	$B + 1.8$
B	$2.54 \times (\text{No. of sockets} - 1)$



HOW TO ORDER

D01 - 9XX XX 01

SERIES CODE

TYPE

979	Single-in-line Socket Carrier with H3192-01
982	Single-in-line Socket Carrier with H3191-01
984	Single-in-line Socket Carrier with H3155-01
990	Single-in-line Socket Carrier with H3153-01

FINISH

01	Gold contact, Tin shell
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NO. OF CONTACTS PER STRIP

04, 06 to 10, 12, 14, 16, 20, 32

All dimensions in mm.

PC Board Sockets

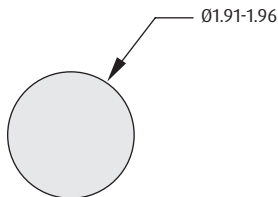
Ø0.80mm Mating Pin

- ❖ Compatible with Ø0.80mm mating pins – see table below.
- ❖ Knurled option available for added board retention.
- ❖ Ident groove in shoulder, to differentiate from Ø1mm mating pin sockets as shown on the next page.
- ❖ Construction uses four finger Beryllium Copper contact from M300 range.

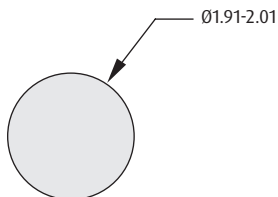


Specifications

Mating pin size: Ø0.60 - 0.85mm
 Contact depth: 3.30mm max
 Pin length: See individual sockets

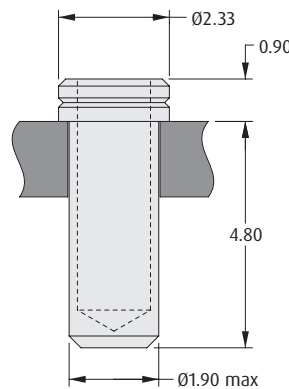


Recommended PC Board Pattern
with Retention Knurl



Recommended PC Board Pattern
without Retention Knurl

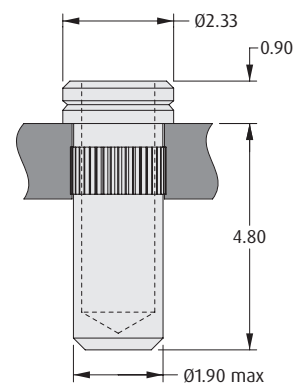
4.8mm BODY LENGTH



ORDER CODE	FINISH
H8504-01	Gold contact, Tin shell
H8504-05	Gold contact, Gold shell

Maximum Pin Length = 4.65mm

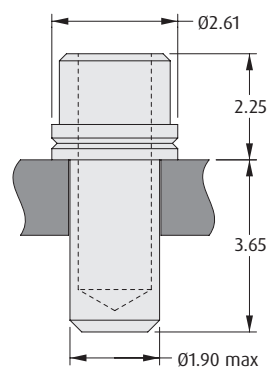
4.8mm BODY, KNURL



ORDER CODE	FINISH
H8501-01	Gold contact, Tin shell
H8501-05	Gold contact, Gold shell

Maximum Pin Length = 4.65mm

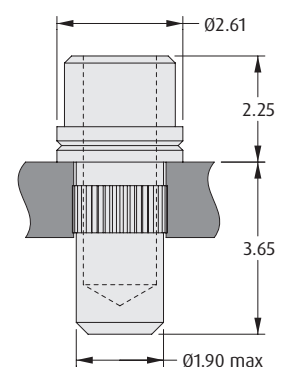
3.65mm BODY LENGTH



ORDER CODE	FINISH
H8505-01	Gold contact, Tin shell
H8505-05	Gold contact, Gold shell

Maximum Pin Length = 4.85mm

3.65mm BODY, KNURL



ORDER CODE	FINISH
H8502-01	Gold contact, Tin shell
H8502-05	Gold contact, Gold shell

Maximum Pin Length = 4.85mm

All dimensions in mm.

PC Board Sockets

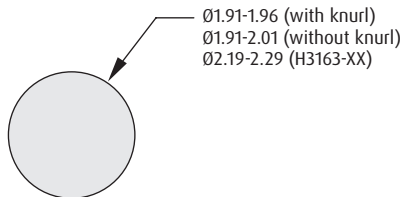
Ø1.00mm Mating Pin

- Compatible with Ø1.00mm mating pins – see table below.
- Knurled option available for added pin retention.
- Construction uses four finger Beryllium Copper contact from M300 range.



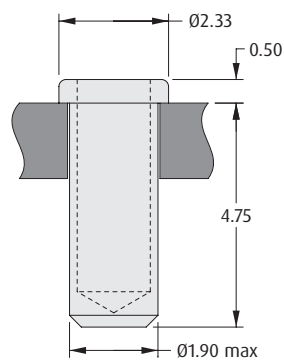
Specifications

Mating pin size: Ø0.90 - 1.05mm
Contact depth: 3.55mm max
Pin length: See individual sockets



Recommended PC Board Pattern

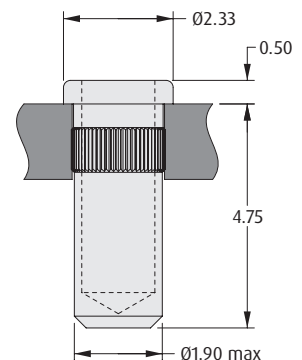
4.75mm BODY LENGTH



ORDER CODE	FINISH
H3183-01	Gold contact, Tin shell
H3183-05	Gold contact, Gold shell

Maximum Pin Length = 4.60mm

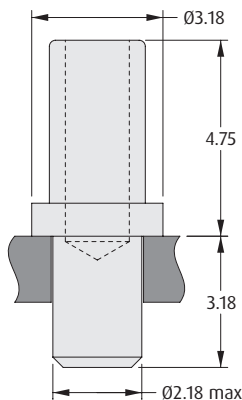
4.75mm BODY, KNURL



ORDER CODE	FINISH
H3161-01	Gold contact, Tin shell
H3161-05	Gold contact, Gold shell

Maximum Pin Length = 4.60mm

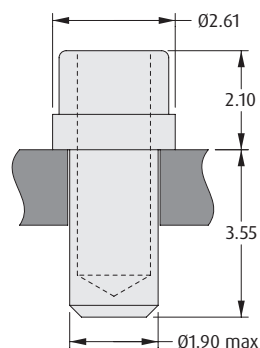
RAISED SHOULDER



ORDER CODE	FINISH
H3163-01	Gold contact, Tin shell
H3163-05	Gold contact, Gold shell

Maximum Pin Length = 5.00mm

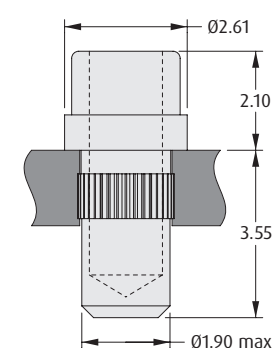
3.55mm BODY LENGTH



ORDER CODE	FINISH
H3182-01	Gold contact, Tin shell
H3182-05	Gold contact, Gold shell

Maximum Pin Length = 4.85mm

3.55mm BODY, KNURL



ORDER CODE	FINISH
H3165-01	Gold contact, Tin shell
H3165-05	Gold contact, Gold shell

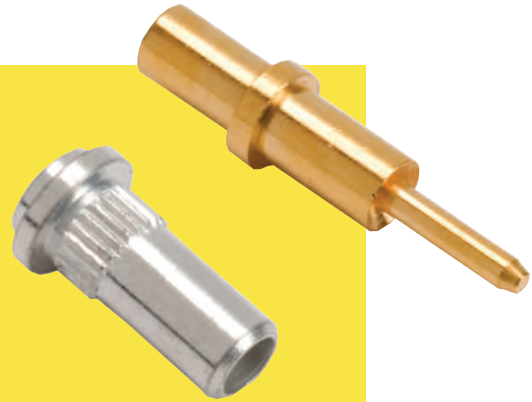
Maximum Pin Length = 4.85mm

All dimensions in mm.

PC Board Sockets

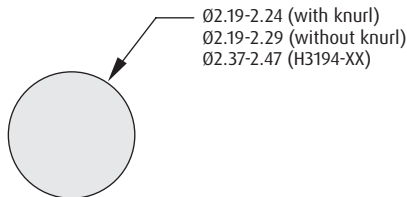
Ø1.00mm Mating Pin

- ❖ Compatible with Ø1.00mm mating pins – see table below.
- ❖ Knurled option available for added pin retention.
- ❖ Construction uses four finger Beryllium Copper contact from M300 range.



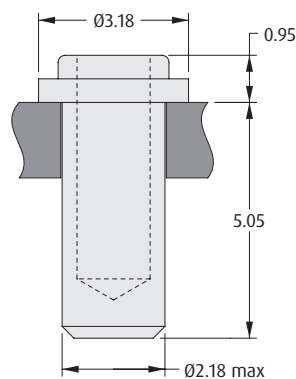
Specifications

Mating pin size: Ø0.90 - 1.05mm
 Contact depth: 3.55mm max
 Pin length: See individual sockets



Recommended PC Board Pattern

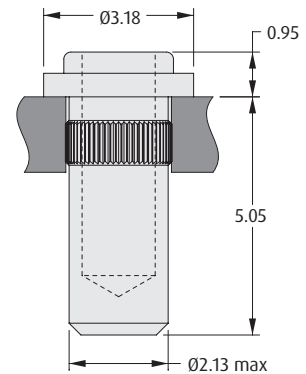
5.05mm BODY LENGTH



ORDER CODE	FINISH
H3184-01	Gold contact, Tin shell
H3184-05	Gold contact, Gold shell

Maximum Pin Length = 4.75mm

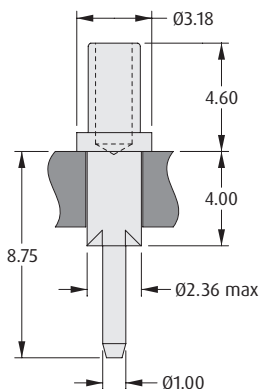
5.05mm BODY, KNURL



ORDER CODE	FINISH
H3167-01	Gold contact, Tin shell
H3167-05	Gold contact, Gold shell

Maximum Pin Length = 4.75mm

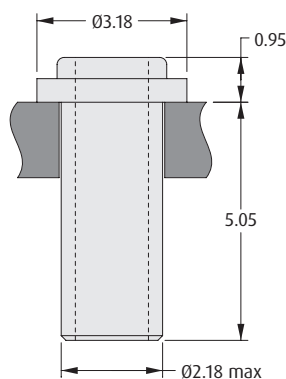
RAISED SHOULDER, TAIL



ORDER CODE	FINISH
H3194-01	Gold contact, Tin shell
H3194-05	Gold contact, Gold shell

Maximum Pin Length = 4.30mm

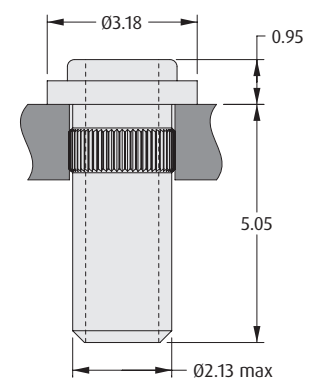
5.05mm BODY, OPEN END



ORDER CODE	FINISH
H3185-01	Gold contact, Tin shell
H3185-05	Gold contact, Gold shell

Open End - No Maximum Pin Length

5.05mm OPEN END, KNURL



ORDER CODE	FINISH
H3169-01	Gold contact, Tin shell
H3169-05	Gold contact, Gold shell

Open End - No Maximum Pin Length

All dimensions in mm.

PC Board Sockets

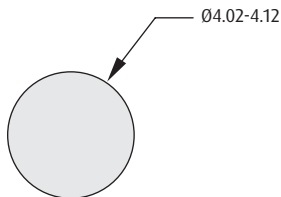
Ø2.00mm Mating Pin

- ❖ Compatible with Ø2.00mm mating pins.
- ❖ Uses six finger Beryllium Copper contact for high-reliability performance.

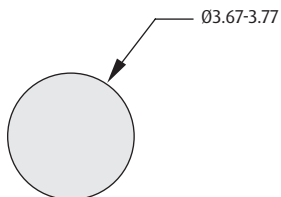


❖ Specifications

Mating pin size: Ø2.00 - 2.30mm
 Contact depth: 4.10mm max
 Pin length: See individual sockets

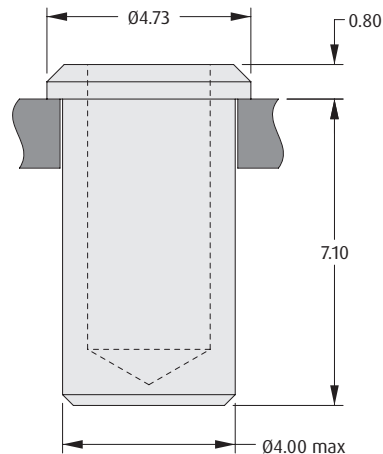


Recommended PC Board Pattern
for 7.1mm Body Length (H3492-XX)



Recommended PC Board Pattern
for 8mm Body Length (H3490-XX)

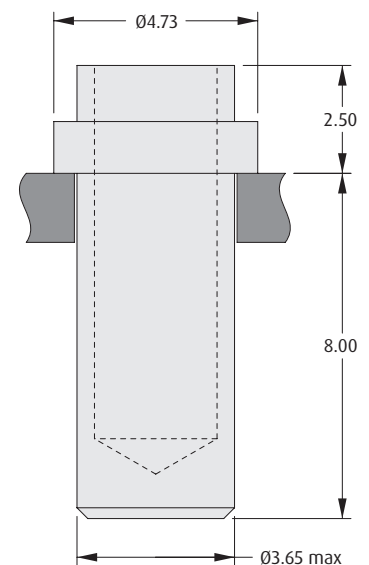
7.1mm BODY LENGTH



ORDER CODE	FINISH
H3492-01	Gold contact, Tin shell

Maximum Pin Length = 6.30mm

8mm BODY LENGTH



ORDER CODE	FINISH
H3490-01	Gold contact, Tin shell

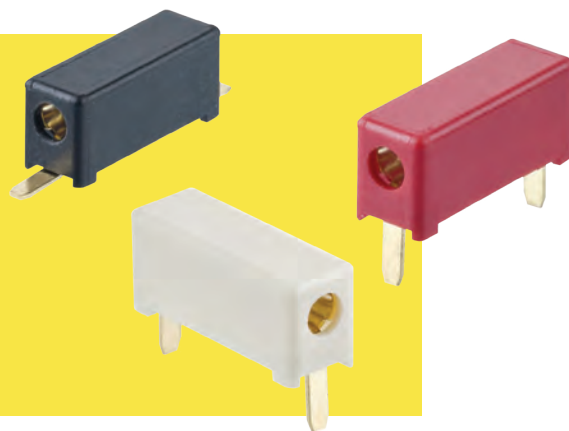
Maximum Pin Length = 8.50mm

All dimensions in mm.

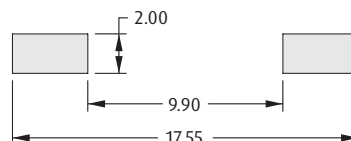
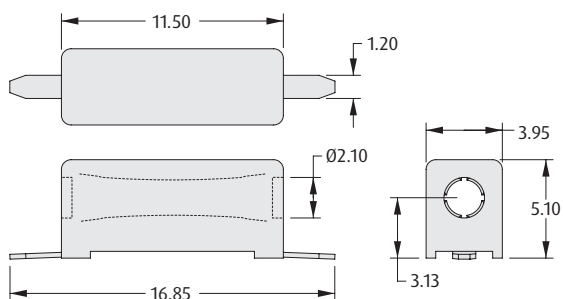
Test Sockets

Ø2.03mm Mating Probe

- ❖ Dual entry horizontal sockets with gold plated contacts.
- ❖ Color coded options available.
- ❖ Surface Mount product features a flat top area, and is available in tape and reel packaging for automated assembly, using standard pick and place machines.
- ❖ 5A current rating and 1,500V voltage rating.
- ❖ Please consult Technical Drawings online for further specifications.

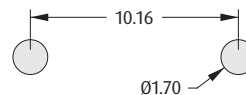
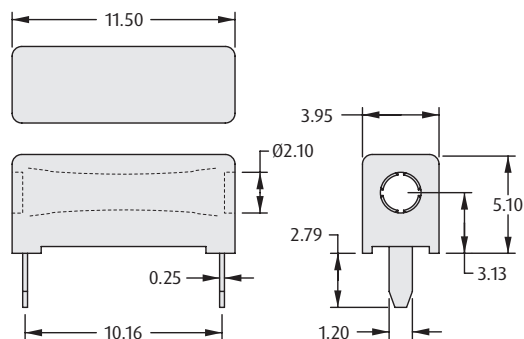


SURFACE MOUNT



Recommended PC Board Pattern

PC TAIL / THROUGHBOARD



Recommended PC Board Pattern

HOW TO ORDER

M349 X - XX X

SERIES CODE

TYPE

7	Surface Mount
8	Throughboard

PACKAGING

Blank	Loose
R	Tape & Reeled (M3497 only)

TYPE

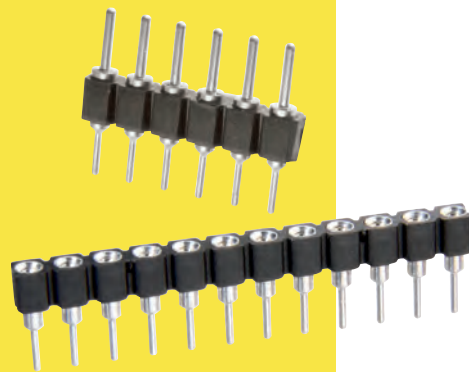
94	White (M3498 only)
98	Black
99	Red (M3498 only)

All dimensions in mm.

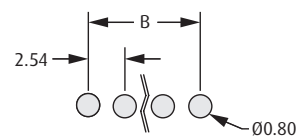
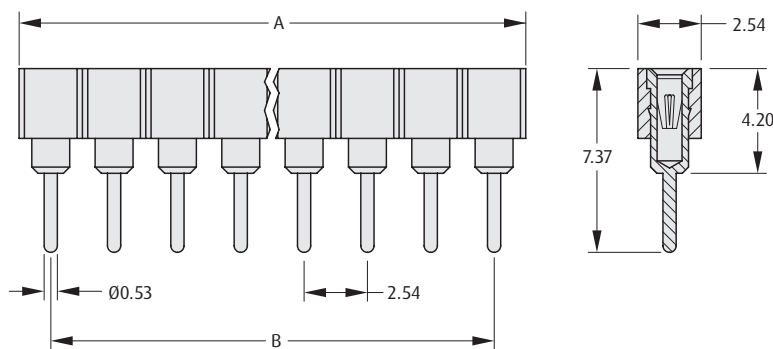
IC Sockets

Modular Single Row

- Connectors can be cut to smaller sizes.
- Socket accepts mating pin $\varnothing 0.40$ to 0.56mm , using four finger Beryllium Copper contact technology.
- Please consult Technical Drawings online for further specifications.



FEMALE

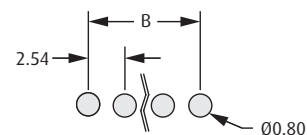
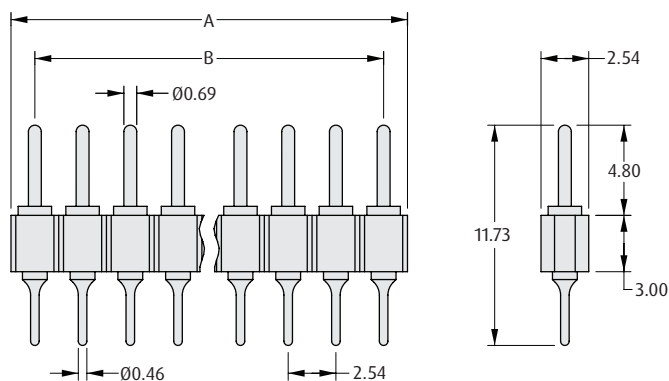


Recommended PC Board Pattern

CALCULATION

A	$2.54 \times \text{No. of contacts}$
B	$2.54 \times (\text{No. of contacts} - 1)$

MALE



Recommended PC Board Pattern

HOW TO ORDER

D01 - 99 X XX XX

SERIES CODE

TYPE

7	Female
2	Male

FINISH

42	Gold + Tin (Female)
46	Tin (Male)

NO. OF CONTACTS

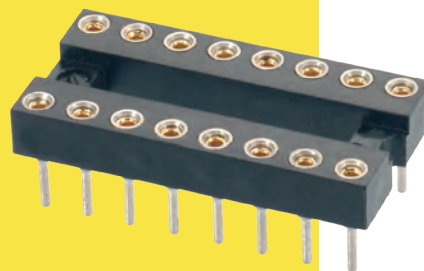
20, 32

All dimensions in mm.

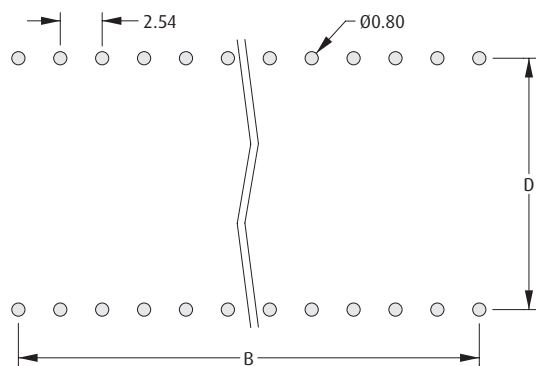
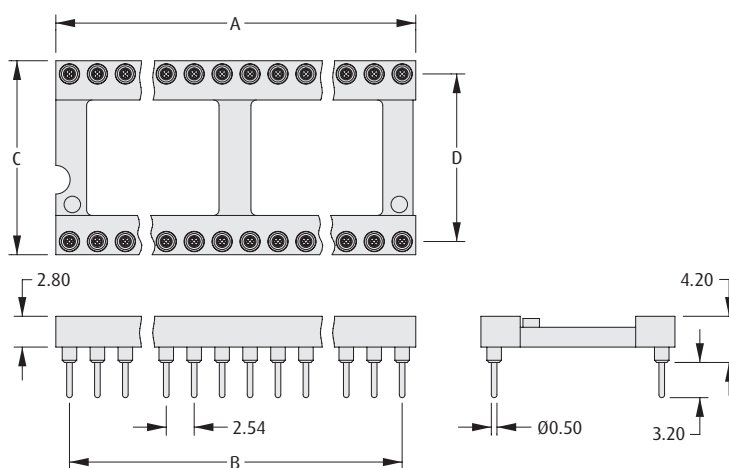
IC Sockets

Dual Row IC Socket

- ❖ Socket accepts IC leads $\varnothing 0.40$ to 0.56mm .
- ❖ End and side stackable.
- ❖ Utilizes four finger Beryllium Copper contact technology.
- ❖ Gold finish on contact, with Tin finish on shells/termination.
- ❖ Please consult Technical Drawings online for further specifications.



IC SOCKET



Recommended PC Board Pattern

ORDER CODE	NO. OF CONTACTS	A	B	C	D
D2806-42	6	7.60	5.08	10.02	7.62 (0.3")
D2808-42	8	10.10	7.62	10.02	7.62 (0.3")
D2814-42	14	17.70	15.24	10.02	7.62 (0.3")
D2816-42	16	20.30	17.78	10.02	7.62 (0.3")
D2818-42	18	22.80	20.32	10.02	7.62 (0.3")
D2820-42	20	25.30	22.86	10.02	7.62 (0.3")
D2922-42	22	27.80	25.40	10.02	7.62 (0.3")
D2822-42	22	27.80	25.40	12.60	10.16 (0.4")
D2924-42	24	30.40	27.94	10.02	7.62 (0.3")
D2724-42	24	30.40	27.94	12.60	10.16 (0.4")
D2824-42	24	30.40	27.94	17.64	15.24 (0.6")
D2928-42	28	35.50	33.02	10.02	7.62 (0.3")
D2828-42	28	35.50	33.02	17.64	15.24 (0.6")
D2832-42	32	40.60	38.10	17.64	15.24 (0.6")
D2840-42	40	50.80	48.26	17.64	15.24 (0.6")
D2948-42	48	60.90	58.42	17.64	15.24 (0.6")
D2864-42	64	81.20	78.74	25.40	22.86 (0.9")

All dimensions in mm.