

# IC-SOCKETS & INTERCONNECT PRODUCTS





This building served for the production of Swiss precision watches for a period of 70 years.

In 1984 the facility was purchased, completely renovated and high technology fully automated production equipment was installed for the production of precision interconnection products.

In 1992 the trademark

**E-tec**

was registered to cover the complete interconnect product range.

As of 1993 a world-wide sales & distribution network was established to offer fast and efficient service regardless of location.

In addition to the interconnection products E-tec also supplies high quality screw machine parts as well as customized injection moulded and machined products.

Our innovative approach to new product development allows us to offer the service, quality and competitive prices our customers demand.

Whatever your requirement, be it high volume commodity product or low quantity custom special, E-tec, the "Swiss Connection" will endeavour to satisfy your requirements.

For any further details please contact E-tec or your closest sales office.

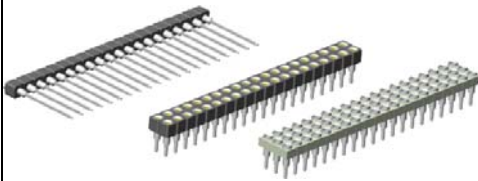
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**THROUGH HOLE SOCKET STRIPS**

Straight Socket Strips  
Single-, Dual- & Triple-In-Line



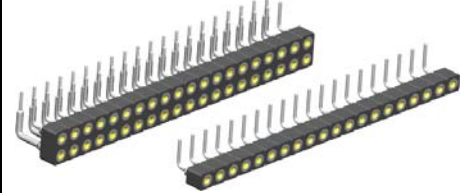
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Straight Socket Strips  
Low- & Super Low Profile



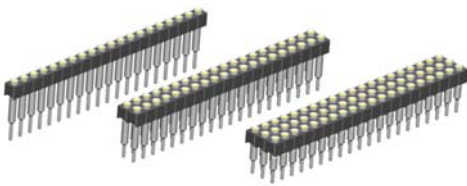
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90° Socket Strips  
Single- & Dual-In-Line



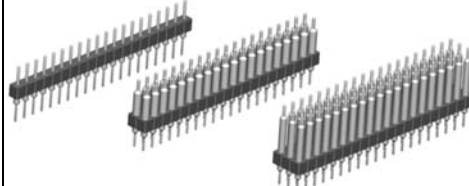
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Straight Board Stacker Strips  
Single-, Dual- & Triple-In-Line



Page 5 & 6

Straight Adapter Strips  
Single-, Dual- & Triple-In-Line



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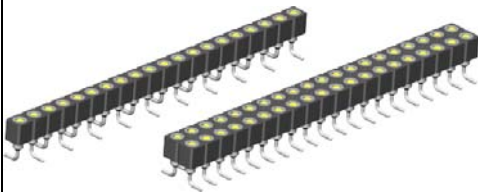
90° Adapter Strips  
Single- & Dual-In-Line



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**SMT SOCKET STRIPS**

Single- & Dual-In-Line



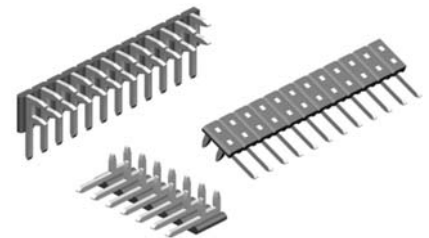
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Super Low Profile



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**“F” – CONTACT STRIPS**

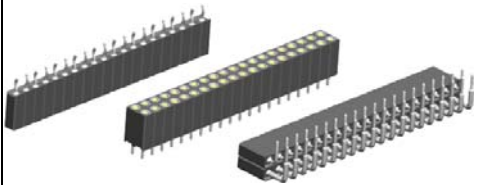


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**JUMBO CONTACT SOCKET & ADAPTER STRIPS**

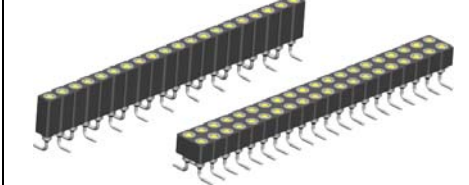
mating with 0,65x0,65mm square pins (Pin Header)

Single- & Dual-In-Line Socket  
straight & 90° through hole version



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Single- & Dual-In-Line Socket  
SMT version



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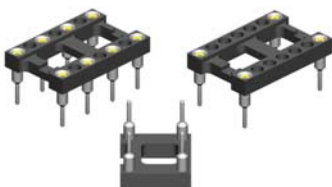
Single- & Dual-In-Line Adapter  
straight & 90° through hole version



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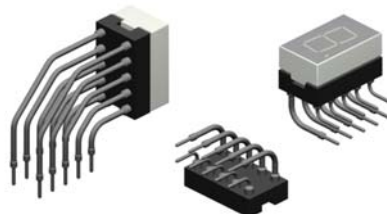
**Specials**

Crystal Oscillator Sockets



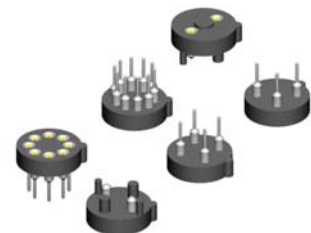
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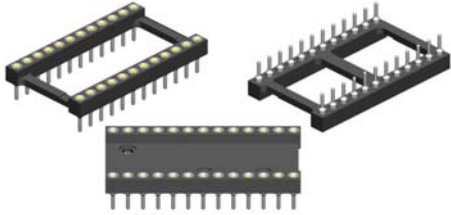
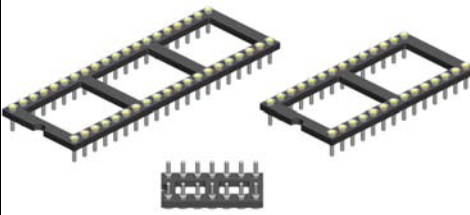
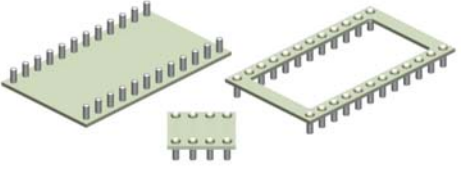
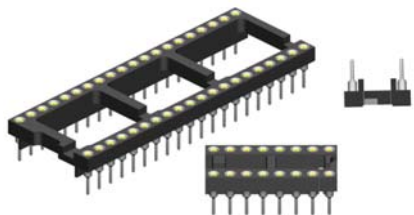
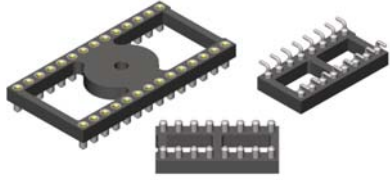
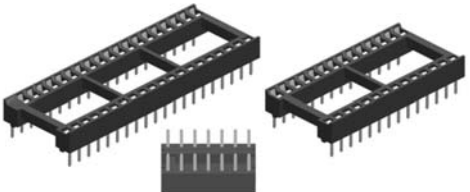
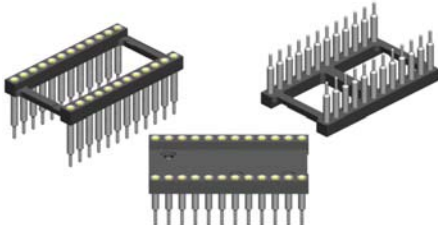
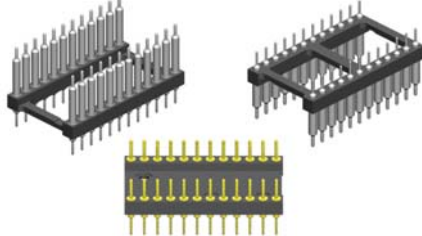
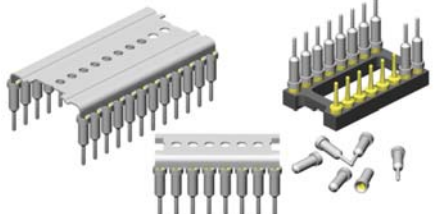
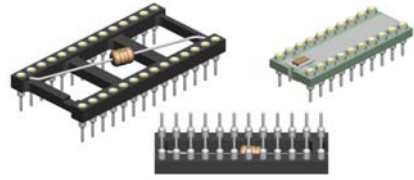
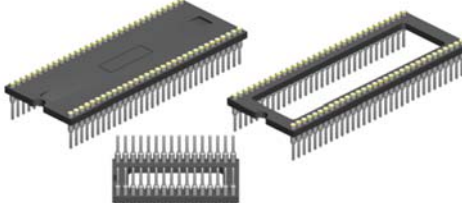
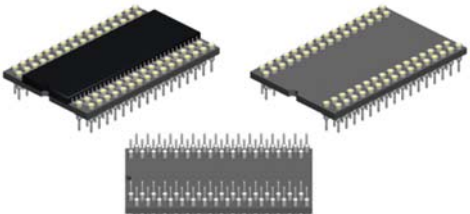
Transistor-, TO-Sockets  
& Fuse Holders


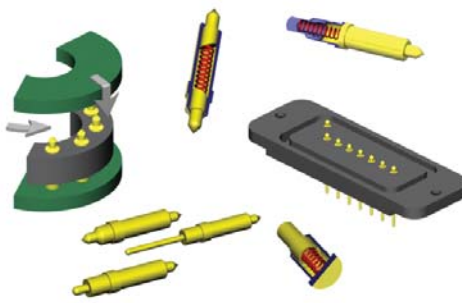



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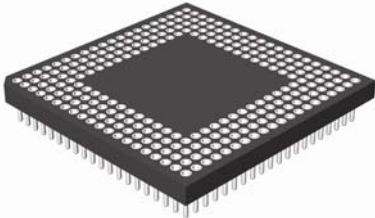
**IC DIP SOCKETS THROUGH HOLE STYLE**

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<p>Precision Contact Socket for automatic insertion</p>  <p><b>Page 19</b></p>	<p>SMT Precision Contact</p>  <p><b>Page 21</b></p>	<p>Low Cost - stamped Contact</p>  <p><b>Page 23</b></p>
<p>Precision Contact Board Stacker open &amp; closed frame</p>  <p><b>Page 15</b></p>	<p>Precision Contact Board Spacer open &amp; closed frame</p>  <p><b>Page 16</b></p>	<p>Carrier Sockets</p>  <p><b>Page 20</b></p>
<p>Capacitor Sockets</p>  <p><b>Page 22</b></p>	<p>Shrink Sockets</p>  <p><b>Page 24</b></p>	<p>Quad-In-Line Sockets</p>  <p><b>Page 25</b></p>

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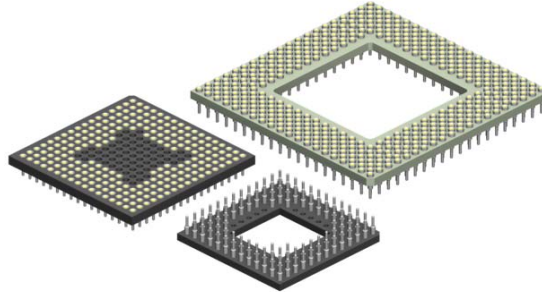
**PIN GRID ARRAY SOCKETS & ADAPTERS**

MiniGrid Sockets & Adapter  
pitch 0.80 – 1.00 – 1.50 – 2.00mm



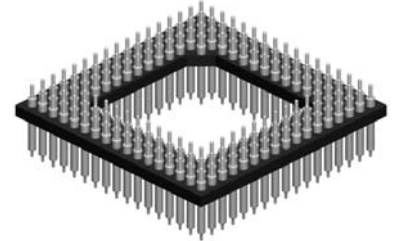
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Sockets  
pitch 1.27 & 2.54mm  
and Interstitial (2.54mm/1.27mm)



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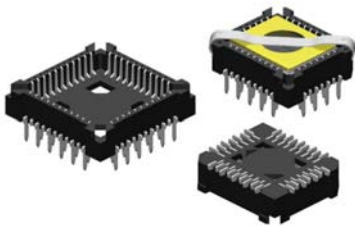
Adapter  
pitch 1.27 & 2.54mm  
and Interstitial (2.54mm/1.27mm)



Page 31 & 32

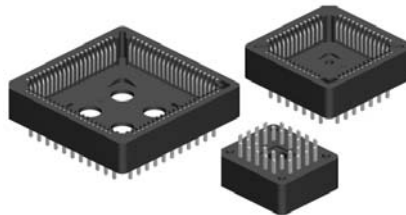
**LCC & PLCC SOCKETS**

Socket for LCC JEDEC Type “C”



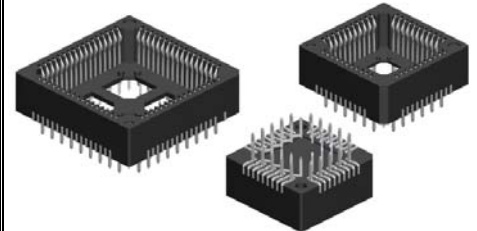
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Socket for PLCC Chips  
through hole “Commercial” Type



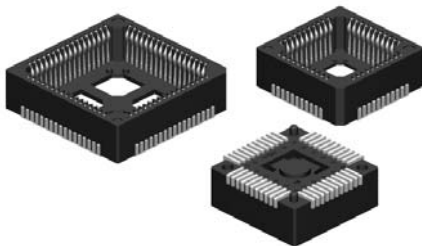
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Socket for PLCC Chips  
through hole “Hi-Rel” Type



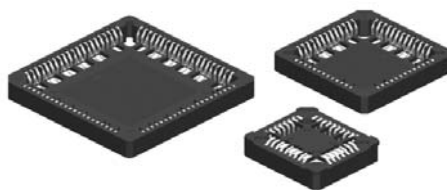
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Socket for PLCC Chips  
SMT “Hi-Rel” Type



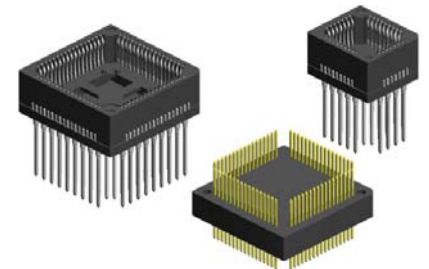
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Socket for PLCC Chips  
SMT “Low Profile” Type



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Special PLCC Parts  
Adapter & Wire Wrap Adapter



Please ask E-tec for availability

**SIMM SOCKETS**

Vertical & 26° slanted Type  
72- & 80-pin



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**DIMM SOCKETS**

Vertical Type  
100- , 168- , 184-pin



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25° slanted Type  
168-pin

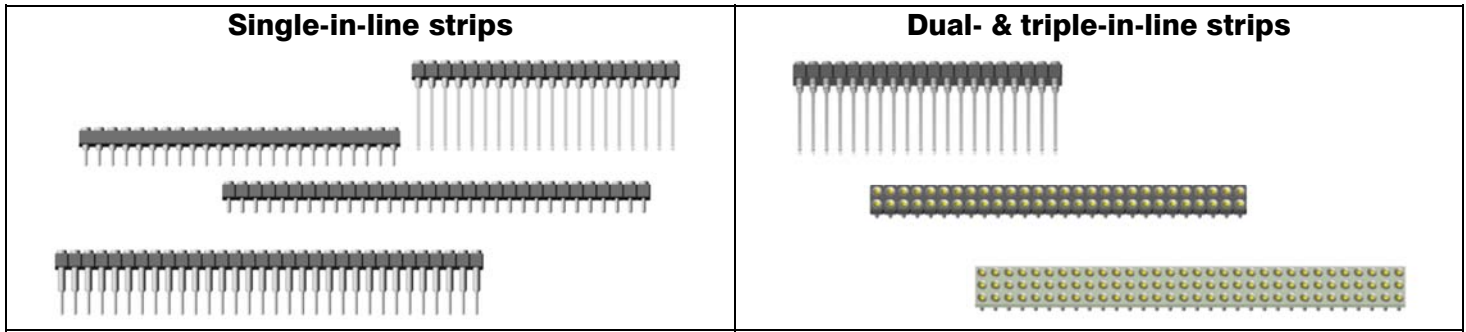


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90° right angle Type  
168-pin



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**SIB Series**  
single-in-line Strips  
breakable and solid insulator available  
**Unless otherwise specifically requested, the strips will be delivered either in solid or breakable plastic depending on availability of the insulator bodies.**

$n \times 2.54$   
 $(n-1) \times 2.54$   
breakable shown    solide shown

2.50

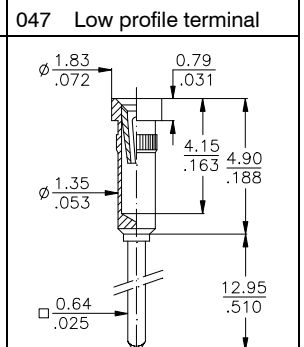
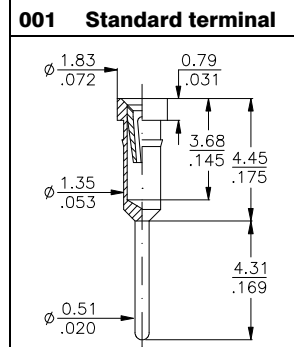
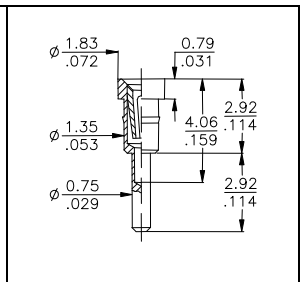
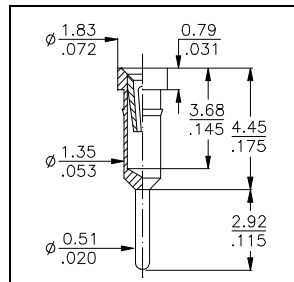
"head flush"    "head above"

**SIB Series**  
**Standard "head flush"**  
**SIB-1xx-Fxxx-xx**

**Alternative: "head above"**  
**SIB-1xx-Sxxx-xx**

Number of contacts standard breakable sizes  
**20; 32 and 40**

Number of contacts either breakable or solid available  
from **02 to 40**



**DIS & TIS Series**  
dual and triple row 2,54mm grid

$n \times 2.54$   
 $(n-1) \times 2.54$

2.54    5.00

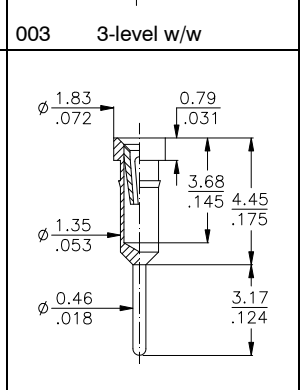
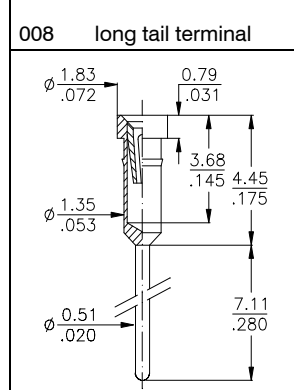
2.54

**DIS Series**  
**DIS-2xx-Fxxx-xx**

Number of contacts available  
from **04 to 80**

**TIS Series**  
**TIS-3xx-Exxx-xx**

Number of contacts available  
from **06 to 96**



**Strips**  
Other lengths & pin-outs available on request.

**Specifications**  
refer to page 49 of this catalogue

**Terminals**  
For other terminal styles please refer to the pages 46 to 48 of this catalogue or contact your closest sales office.

How to order

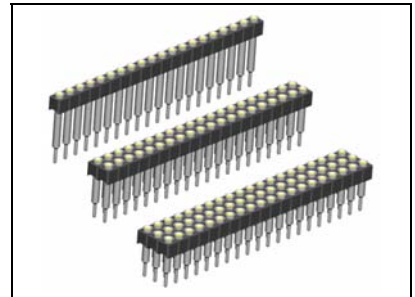
XXX - XXX - X XXX - XX

<b>Series</b> SIB = single-in-line strips DIS = dual-in-line strips... TIS = triple-in-line strips...	<b>Rows</b> ..... 1 ..... 2 ..... 3	<b>Nbr of contacts</b> see above table	<b>Insulator</b> F = head flush S = head above E = Epoxy FR4 TIS Series only	<b>Terminal style</b> see drawings above or refer to pages 46 to 48 of this catalogue for other types.	<b>Plating</b> - 95 = tin/gold - 55 = gold/gold - 99 = tin/tin (tin is leadfree)
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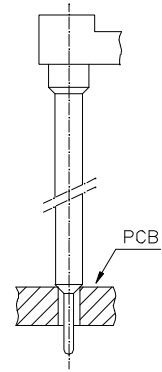


**Board Stacker Terminals**

<p><b>079</b></p>	<p><b>623</b></p>	<p><b>062</b></p>
<p><b>060</b></p>	<p><b>063</b></p>	<p><b>080</b></p>
<p><b>084</b></p>	<p><b>085</b></p>	<p><b>088</b></p>
<p><b>065</b></p>	<p><b>Many other terminals and custom specific terminal styles are available on request, or refer to the pages 46 to 48 of this catalogue.</b></p>	

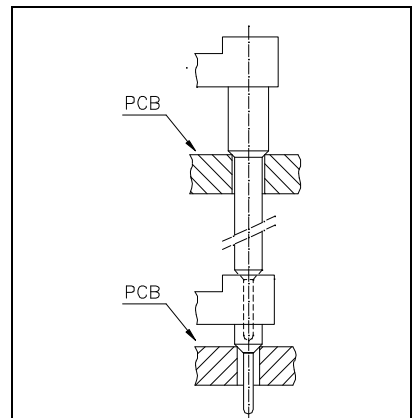


**Application Examples**



Possible Terminals:

060; 062; 063; 065; 079  
080; 084; 085; 088; 623



Possible Terminals:

060; 062; 063; 079; 623

**Specifications**

See page 49 of this catalogue

How to order

**XXX - xxx - X xxx - 95**

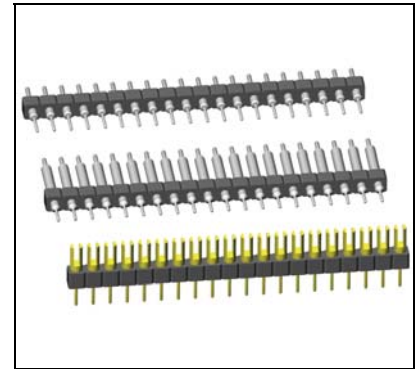
<p><b>Series</b>  <b>SIB</b> = single-in-line strips.  <b>DIS</b> = dual-in-line strips...  <b>TIS</b> = triple-in-line strips..</p>	<p><b>Rows</b>          ..... 1          ..... 2          ..... 3</p>	<p><b>Nbr of contacts</b>          1-row = 02 to 40          2-row = 04 to 80          3-row = 06 to 96</p>	<p><b>Insulator</b>          see socket strip page 5</p>	<p><b>Terminal style</b>          see drawings above or refer to pages 46 to 48 of this catalogue for other types.</p>	<p><b>Plating</b>          - 95 = tin/gold (tin leadfree)          other on request</p>
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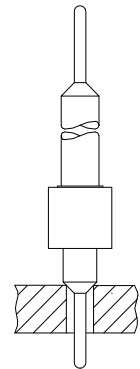


**Board to Board Terminals**

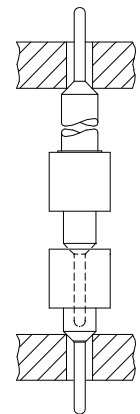
<p><b>077</b></p>	<p><b>057</b></p>	<p><b>037</b></p>
<p><b>058</b></p>	<p><b>059</b></p>	<p><b>056</b></p>
<p><b>542</b></p>	<p><b>038</b></p>	<p><b>353</b></p>
<p><b>036</b></p>	<p><b>Many other terminals and custom specific terminal styles are available on request, or refer to the pages 46 to 48 of this catalogue.</b></p>	



**Application Examples**



**Possible Terminals:**  
037; 056; 057; 058; 059  
077; 220; 542; 544  
562; 583; 770



**Possible Terminals:**  
037; 056; 057; 058; 059  
077; 078; 542; 544  
562; 583; 770

**How to order**

**XXX - x xx - X xxx - xx**

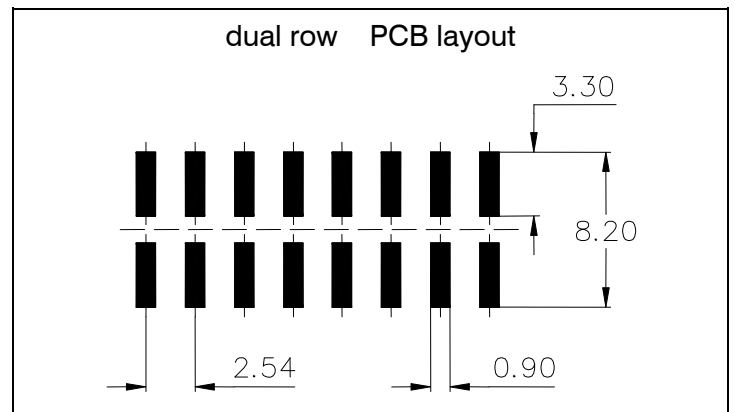
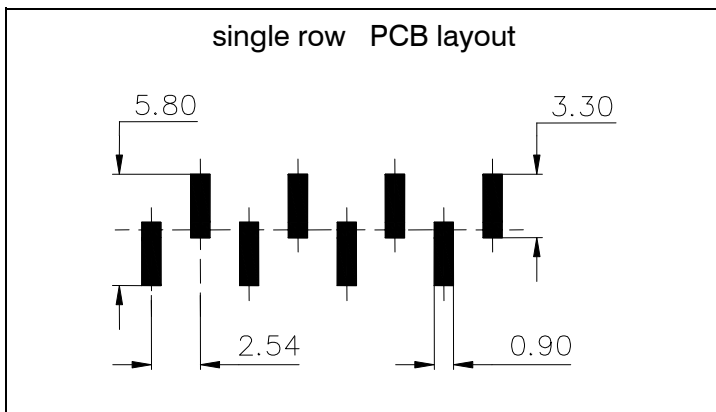
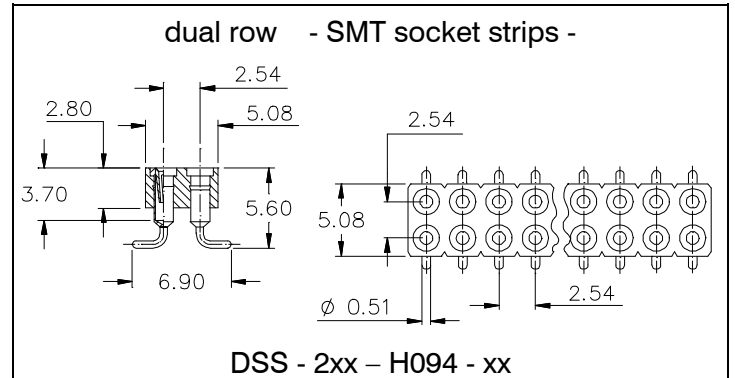
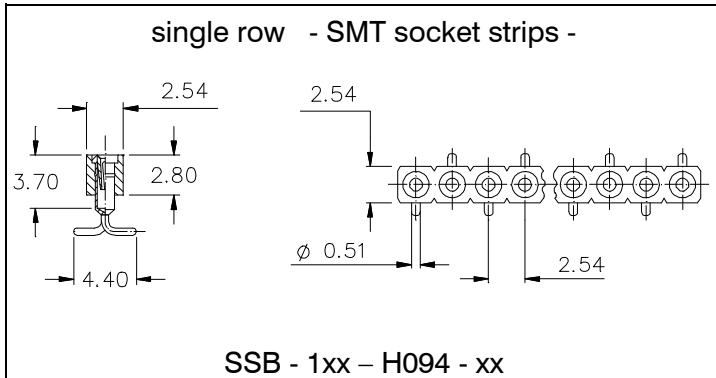
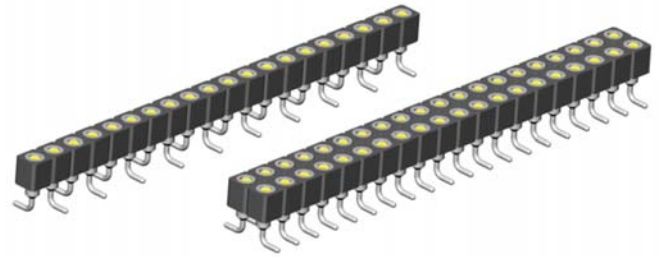
<p><b>Series</b>  <b>SIB</b> = single-in-line strips.  <b>DIS</b> = dual-in-line strips...  <b>TIS</b> = triple-in-line strips..</p>	<p><b>Rows</b>          .....1          .....2          .....3</p>	<p><b>Nbr of contacts</b>          1-row = 02 to 40          2-row = 04 to 80          3-row = 06 to 96</p>	<p><b>Insulator</b>  <b>S</b> = Plastic  <b>E</b> = Epoxy FR4          (TIS Series only)          dimension see socket strip page 5</p>	<p><b>Terminal style</b>          see drawings above          or refer to pages 46 to 48 of this catalogue for other types.</p>	<p><b>Plating</b>          - <b>55</b> = gold          - <b>99</b> = tin (leadfree)</p>
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The 2,54mm pitch **SMT** socket strips with standard IC-Socket Precision Contacts can also be used in combination with the straight version SIB/DIS strips shown earlier in this catalogue.

The socket strips accept round pins with a diameter of 0,41 to 0,56mm max., as well as square pins of 0,40 x 0,40mm max.

The **SMT** socket strips are available in single and dual row.

The head of the female terminal is completely embedded in the insulator.



**Specifications**

**Mechanical data**

Insertion force contact type 900	1,80 N (avg)
Extraction force contact type 900	0,90 N (avg)
Contact life	> 100 cycles
Operating temperature	-55° C to +125° C
Processing temperature	+250°C +0/-5°C for 20~40sec.

**Material**

Insulator (RoHS compliant)	high temp plastic UL 94 V-0
Terminal (RoHS compliant)	CuZn
Contact (RoHS compliant)	BeCu

**Electrical data**

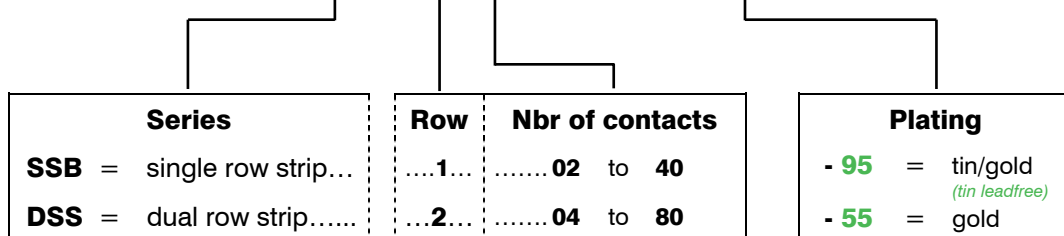
Insulation resistance	5 x 10 <sup>9</sup> Ω min.
Breakdown voltage	500 V AC for 1 minute
Contact resistance	4,3 mΩ typ.
Current rating	1 A max., 100V

**Insertion depth contact type 900**

maximum	3,68mm / .145"
minimum	2,80mm / .110"

**How to order**

**XXX - x xx - H 094 - xx**



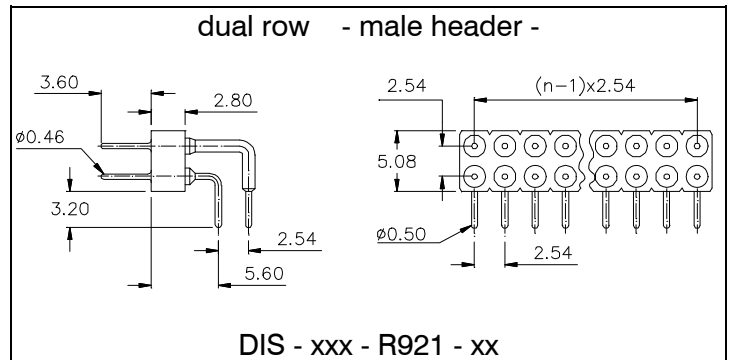
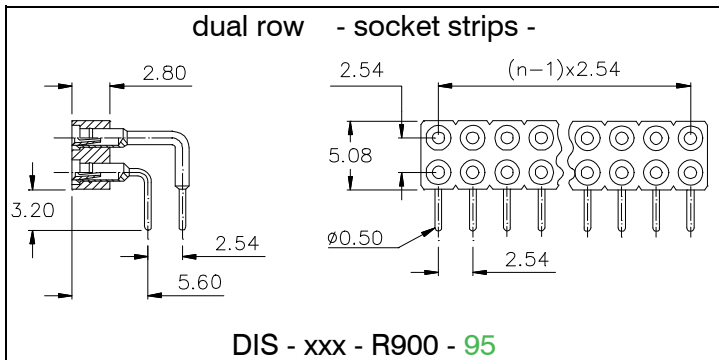
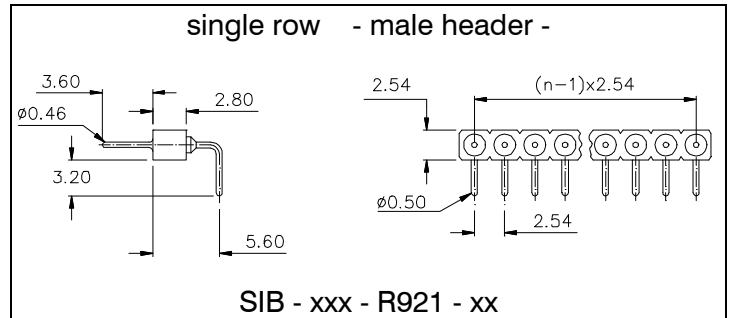
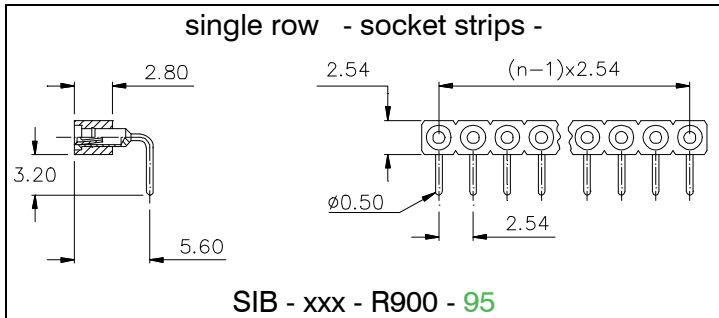
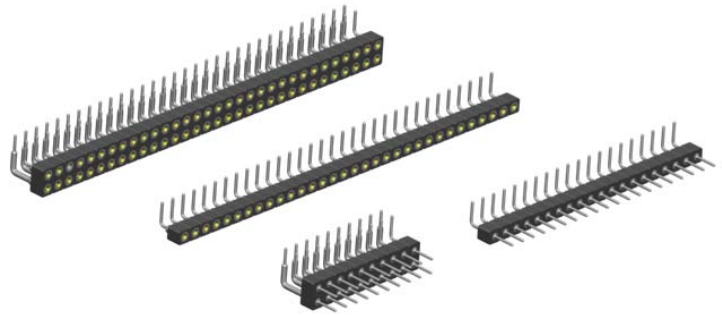
# 90° Socket Strips & Male Headers

The 2,54mm pitch 90° socket strips and male headers are designed for „board to board“ connections, and can also be used in combination with the straight version SIB/DIS strips shown earlier in this catalogue.

The socket strips accept round pins with a diameter of 0,41 to 0,56mm max., as well as square pins of 0,40 x 0,40mm max.

The socket strips and male headers are stackable and available in any pinout as shown in the below order code.

The head of the female terminal is completely embedded in the insulator.



## Specifications

**Mechanical data**

Insertion force contact type 900	1,80 N (avg)
Extraction force contact type 900	0,90 N (avg)
Contact life	> 100 cycles
Operating temperature	-55° C to +125° C
Processing temperature	+250°C +0/-5°C for 20~40sec.

**Material**

Insulator (RoHS compliant)	high temp plastic UL 94 V-0
Terminal (RoHS compliant)	CuZn
Contact (RoHS compliant)	BeCu

**Electrical data**

Insulation resistance	5 x 10 <sup>9</sup> Ω min.
Breakdown voltage	500 V AC for 1 minute
Contact resistance	4,3 mΩ typ.
Current rating	1 A max., 100V

**Insertion depth contact type 900**

maximum	3,68mm / .145"
minimum	2,80mm / .110"

How to order

**XXX - xxx - R xxx - xx**

Series	Row	Nbr of contacts	Contact Type	Plating
<b>SIB</b> = single-in-line strips	... 1	<b>02 to 40</b> <i>20, 32, 40 Std. breakable sizes</i>	<b>900</b> = female	<b>Contact type „900“</b> - <b>95</b> = tin/gold (tin leadfree)
<b>DIS</b> = dual-in-line strips...	... 2	<b>04 to 72</b>	<b>921</b> = male	<b>Contact type „921“</b> - <b>99</b> = tin (tin leadfree) - <b>55</b> = gold



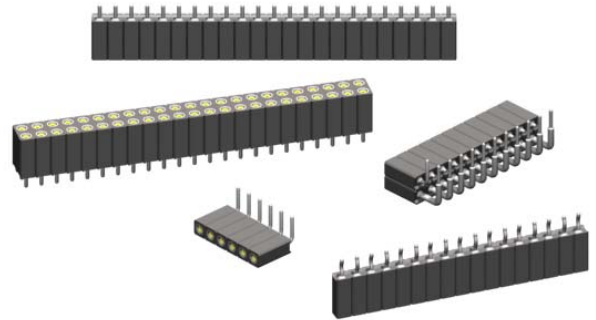


2,54mm pitch female header with precision „Jumbo Contact“ for board to board connections.

Accepts **square pins 0,65 x 0,65mm** max. (Pin Headers), as well as **round pins Ø 0,65 to 0,85mm** max.

7,00mm standard profile, and 4.50mm low profile available, other on request.

The stand-offs underneath the insulator, prevent the header from slanting during soldering.



<p><b>4.50mm Profile</b> single row -straight-</p> <p><b>BL1 - xxx - G109 - 95</b></p>	<p><b>7.00mm Profile</b> single row -straight-</p> <p><b>BL1 - xxx - G700 - 95</b></p>	<p><b>Other available Terminals</b></p> <p><b>G065P press fit type</b> For PCB thickness 1.50 to 2.00mm; plated-thru holes: Ø0,94 to 1,09mm</p>	<p>single row -right angle-</p> <p><b>BL1 - xxx - A700 - 95</b></p>
<p><b>4.50mm Profile</b> dual row -straight-</p> <p><b>BL2 - xxx - G109 - 95</b></p>	<p><b>7.00mm Profile</b> dual row -straight-</p> <p><b>BL2 - xxx - G700 - 95</b></p>	<p><b>G799 Clinched type</b> off G700 only for BL1 Series available</p>	<p>dual row -right angle-</p> <p><b>BL2 - xxx - A700 - 95</b></p>

### Specifications

#### Mechanical data

Insertion force (test probe Ø 0,66)	1,40 N (avg) if A700, G700 & G109 2,00 N (avg) if G065P 3,75 N (avg) if G799
Extraction force (test probe Ø 0,66)	0,25 N (avg) if A700, G700 & G109 1,00 N (avg) if G065P & G799
Contact life	> 100 cycles
Operating temperature	-55° C to +125° C

#### Material

Insulator	(RoHS compliant) high temp plastic UL 94 V-O
Terminal	(RoHS compliant) CuZn
Contact	(RoHS compliant) BeCu

#### Electrical data

Insulation resistance	10 <sup>4</sup> MΩ min.
Breakdown voltage	500 V AC for 1 minute
Contact resistance	30 mΩ / contact max.
Current rating	3 A max., 100V
<b>Insertion depth</b>	
maximum	depends on the Terminal style
minimum	4,00mm / .157"

### How to order

**BLX - xxx - X xxx - 95**

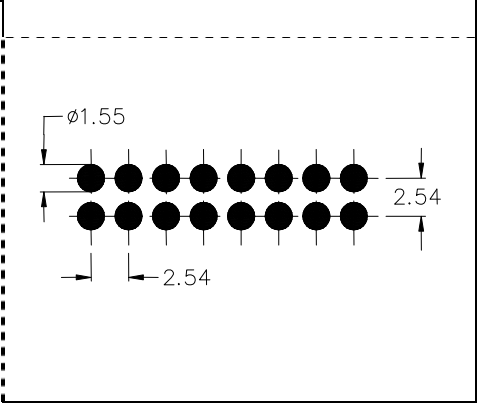
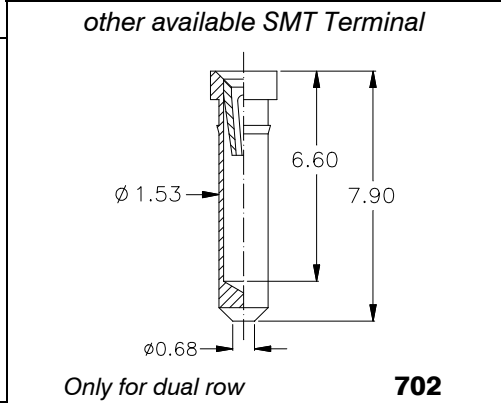
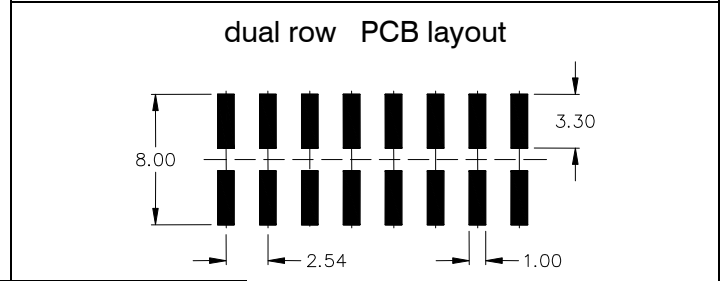
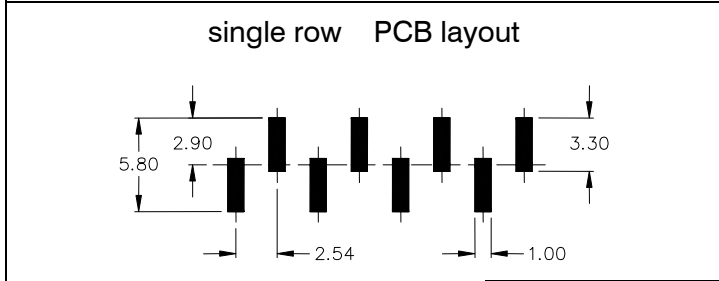
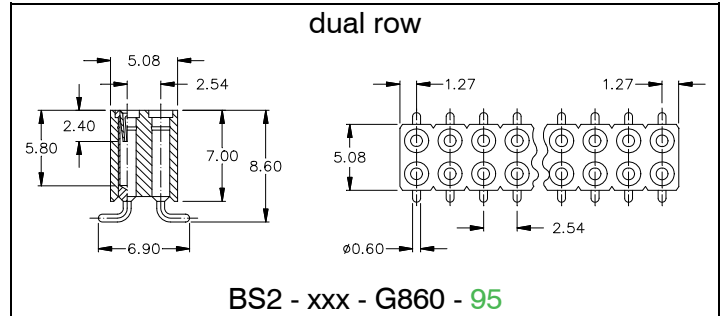
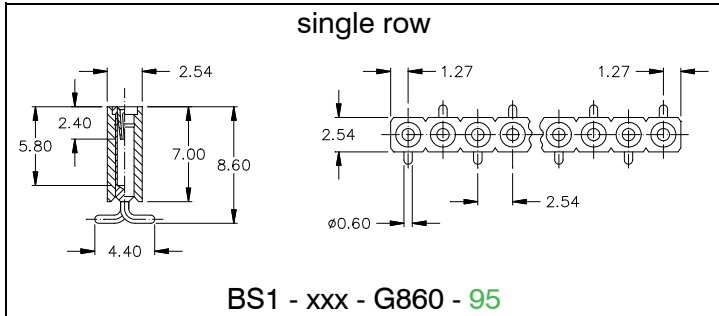
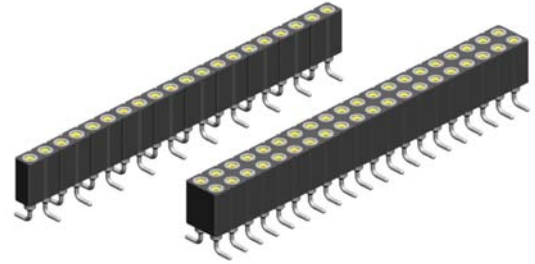
<p><b>Series</b></p> <p><b>BL1</b> = single row...</p> <p><b>BL2</b> = dual row....</p>	<p><b>Nbr of contacts</b></p> <p>.....<b>002</b> to <b>050</b></p> <p><i>Note: 002 to 040 only available for G109 series</i></p> <p>.....<b>004</b> to <b>100</b></p> <p><i>Note: 004 to 080 only available for G109 series</i></p>	<p><b>Connector style</b></p> <p><b>G</b> = straight</p> <p><b>A</b> = right angle</p>	<p><b>Terminal Type</b></p> <p>pls. ref. to the drawings shown above</p> <p>“press fit” = 065P and “clinched” type = 799 <b>not</b> available for the <b>A</b> = right angle style</p>	<p><b>Plating</b></p> <p>- <b>95</b> = tin/gold (tin leadfree)</p> <p>others on request</p>
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**SMT Female Headers** 2,54mm pitch

2,54mm pitch **SMT** female header with precision „Jumbo Contact“ for board to board connections.

Accepts square pins 0,65 x 0,65mm max. (Pin Headers), as well as round pins  $\varnothing$  0,65 to 0,85mm max.

The female headers are available in any number of contacts, up to a maximum of 50 for the single row, and 100 for the double row.



**Specifications**

**Mechanical data**

Insertion force (test probe $\varnothing$ 0,66)	2,00 N if Terminal 860
Extraction force (test probe $\varnothing$ 0,66)	1,00 N for all Terminals
Contact life	> 100 cycles
Operating temperature	-55° C to +125° C
Processing Temperature	+250°C +0/-5°C for 20~40sec.

**Material**

Insulator	(RoHS compliant) high temp plastic UL 94 V-O
Terminal	(RoHS compliant) CuZn
Contact	(RoHS compliant) BeCu

**Electrical data**

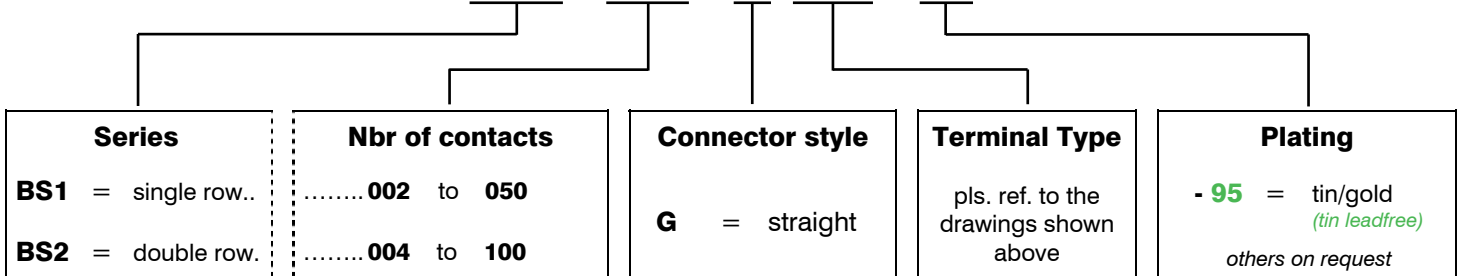
Insulation resistance	10 <sup>4</sup> M $\Omega$ min.
Breakdown voltage	500 V AC for 1 minute
Contact resistance	30 m $\Omega$ / contact max.
Current rating	3 A max., 100V

**Insertion depth**

maximum	depends on the Terminal style
minimum	4,0mm / .157"

**How to order**

**BSx - xxx - G xxx - xx**

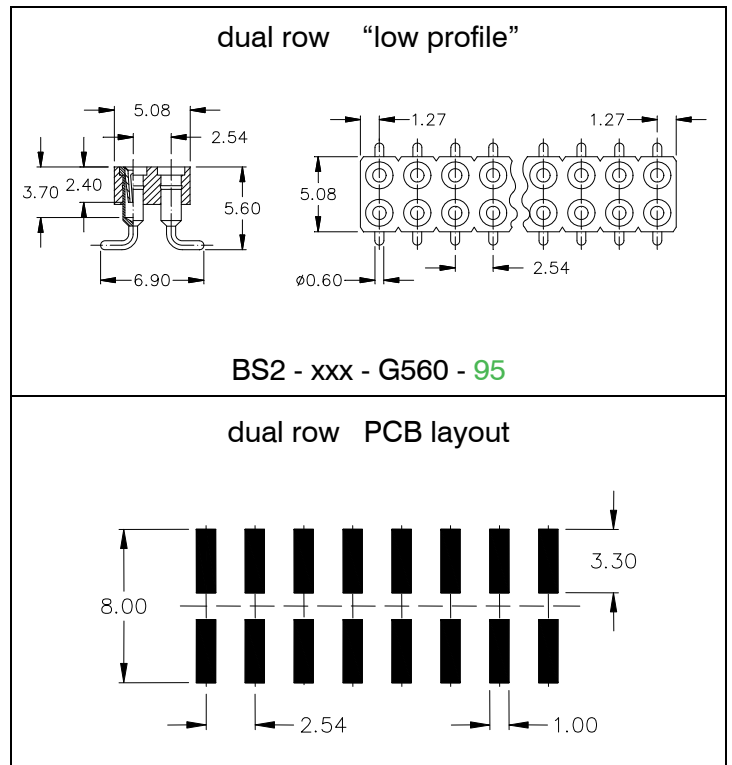
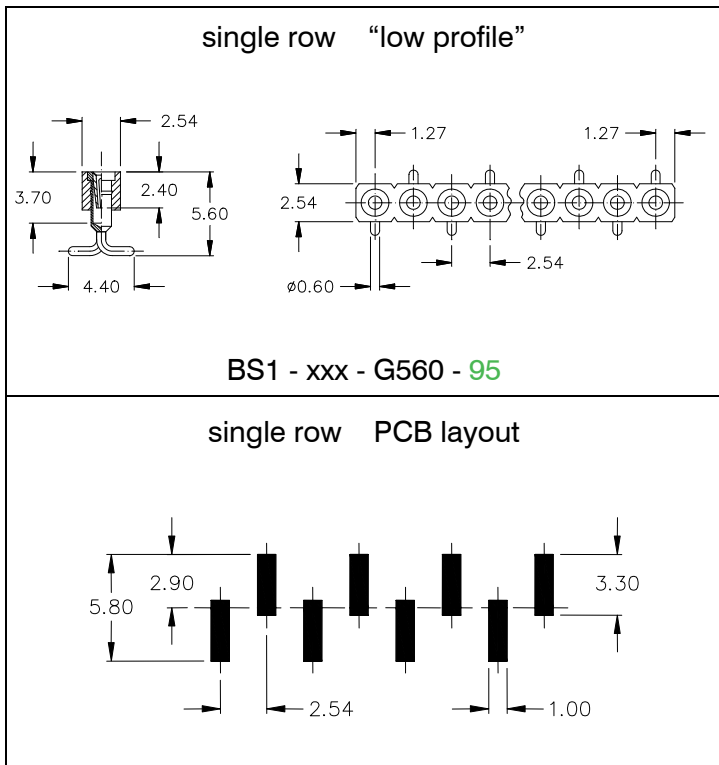
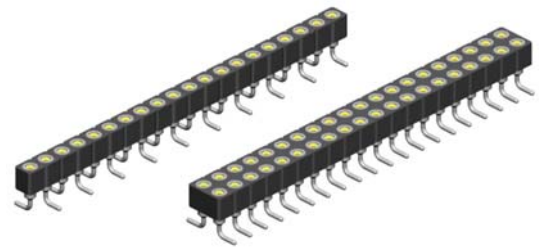




2,54mm pitch “**low profile**” SMT female header with precision „Jumbo Contact“ for board to board connections.

Accepts square pins 0,65 x 0,65mm max. (Pin Headers), as well as round pins  $\varnothing$  0,65 to 0,85mm max.

The female headers are available with 40 contacts max. for the single row, and 80 (2x40) max. for the dual row.



**Specifications**

**Mechanical data**

Insertion force	1,40 N (avg) (test probe $\varnothing$ 0,66)
Extraction force	0,25 N (avg) (test probe $\varnothing$ 0,66)
Contact life	> 100 cycles
Operating temperature	-55° C to +125° C
Processing Temperature	+250°C +0/-5°C for 20~40sec.

**Material**

Insulator	(RoHS compliant) high temp plastic UL 94 V-O
Terminal	(RoHS compliant) CuZn
Contact	(RoHS compliant) BeCu

**Electrical data**

Insulation resistance	10 <sup>4</sup> M $\Omega$ min.
Breakdown voltage	500 V AC for 1 minute
Contact resistance	30 m $\Omega$ / contact max.
Current rating	3 A max., 100V

**Insertion depth**

maximum	3.70mm / .146"
minimum	3.00mm / .118"

How to order

**BSx - xxx - G560 - 95**

<b>Series</b>	<b>Nbr of contacts</b>	<b>Connector style</b>	<b>Terminal Type</b>	<b>Plating</b>
<b>BS1</b> = single row... <b>BS2</b> = dual row....	..... <b>002</b> to <b>040</b> ..... <b>004</b> to <b>080</b>	<b>G</b> = straight	pls. ref. to the drawings shown above	<b>- 95</b> = tin/gold (tin leadfree) others on request



# SL - Series „Jumbo“ Male Headers

2,54mm pitch

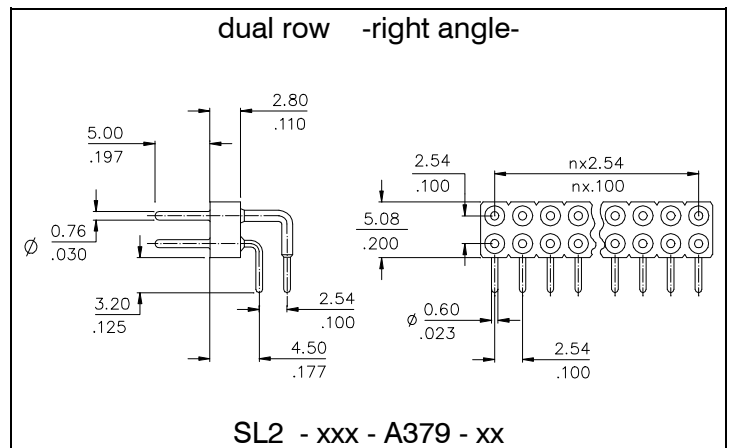
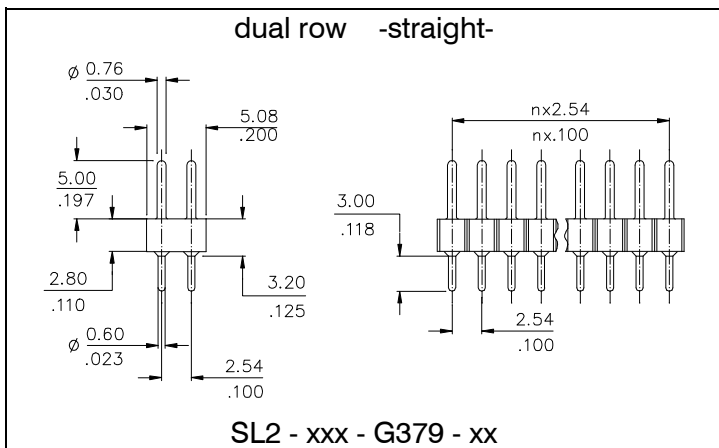
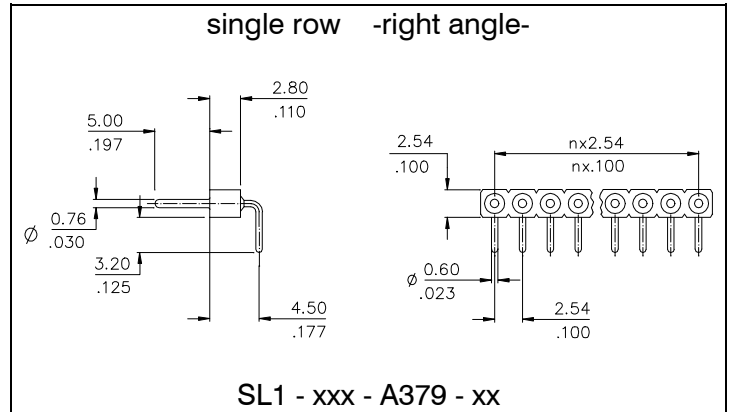
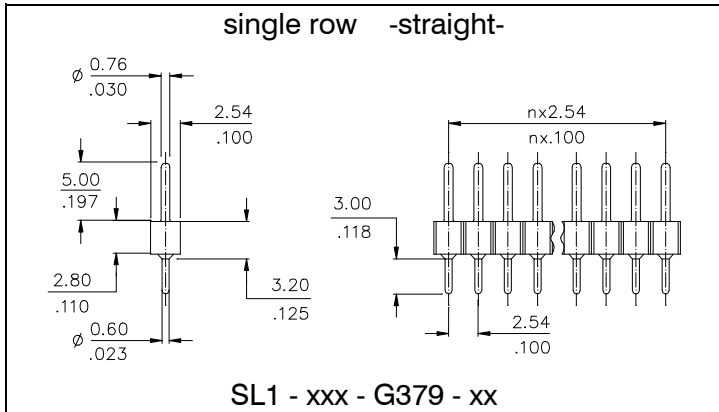
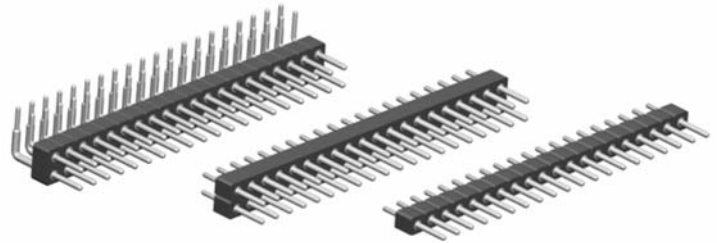


2,54mm pitch male header with precision turned „Jumbo“ pin,  $\varnothing$  0,76mm / .030“, for board to board connections.

Mates with the „Jumbo Contact“ female headers shown in this catalogue.

The pin headers are stackable and available in single and double row version.

The pins are either completely gold or tin plated.



## Specifications

### Material

Insulator (RoHS compliant) high temp plastic UL 94 V-O  
Terminal (RoHS compliant) CuZn

**Operating temperature** -55° C to +125° C

### Electrical data

Insulation resistance 10<sup>4</sup> M $\Omega$  min.  
Breakdown voltage 500 V AC for 1 minute  
Rated voltage 60 V RMS / 90 V DC  
Contact resistance 30 m $\Omega$  / contact max.  
Current rating 3 A max.

### How to order

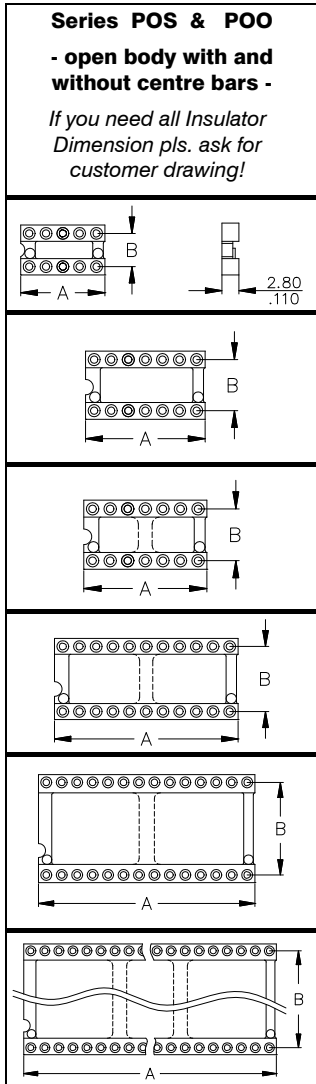
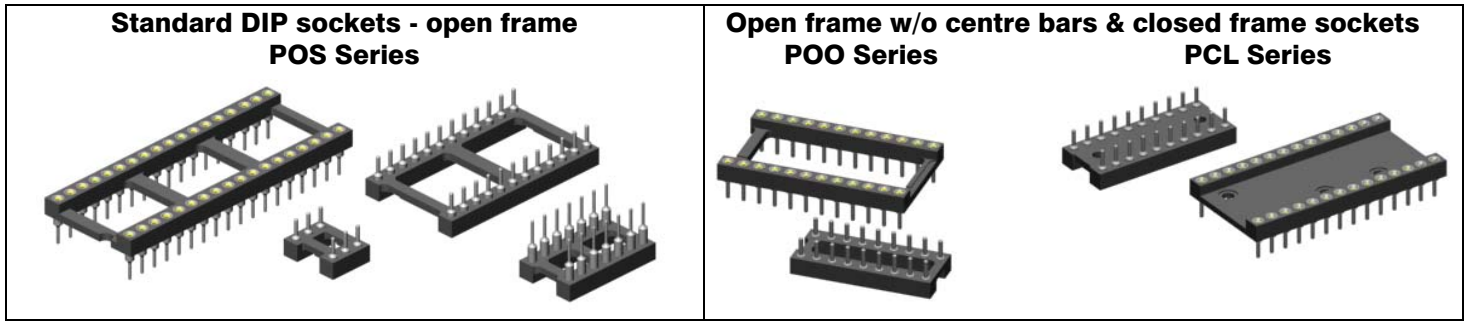
SLx - xxx - X 379 - xx

Series	
SL1	= single row.....
SL2	= dual row.....

Nbr of contacts	
.....002	to 040
064	on request only
.....004	to 080 (straight style)
.....004	to 072 (right angle style)

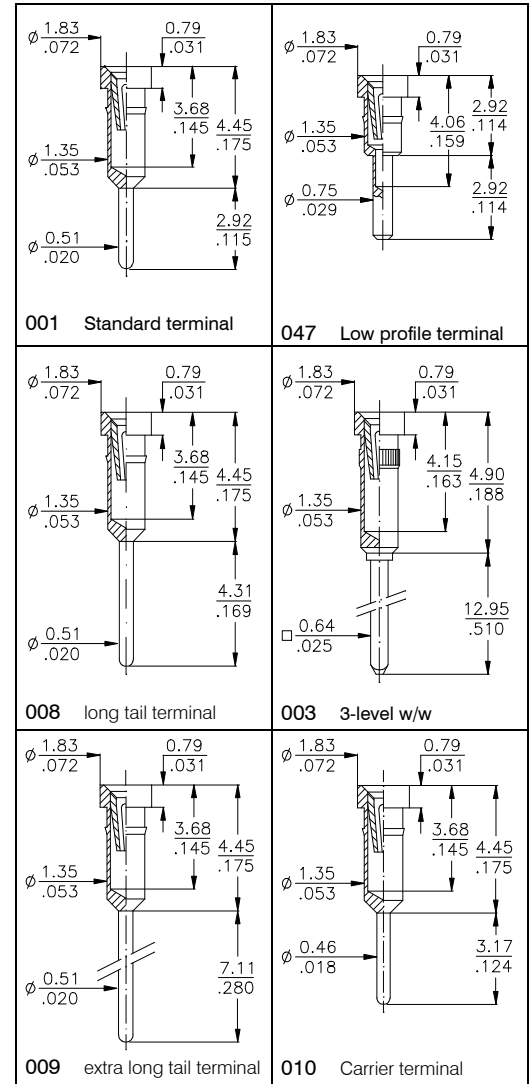
Terminal style	
G	= straight
A	= right angle

Plating	
- 99	= tin (tin leadfree)
- 55	= gold



**POS sockets in 7,62mm/.300" DIP spacing are either supplied with or without bars in the centre depending on plastic wafer availability. If you need sockets without centre bars, then please always order with POO instead of POS.**

Pin	Dimension		Available Pinouts of Series			
	"A"	"B"	POS	POO	PCL	
10	12,60	5,08 .200"	-	-	<b>-210-</b>	
6	7,60	7,62 .300"	<b>-306-</b>	-	-	
8	10,10		<b>-308-</b>	-	-	
10	12,60		<b>-310-</b>	-	-	
14	17,70		<b>-314-</b>	<b>-314-</b>	<b>-314-</b>	
16	20,30		<b>-316-</b>	<b>-316-</b>	<b>-316-</b>	
18	22,80	7,62 .300"	<b>-318-</b>	<b>-318-</b>	<b>-318-</b>	
20	25,30		<b>-320-</b>	<b>-320-</b>	<b>-320-</b>	
22	27,80		on request	on request	-	
24	30,40		<b>-324-</b>	<b>-324-</b>	-	
28	35,50		<b>-328-</b>	<b>-328-</b>	-	
16	20,32		10,16 .400"	on request	on request	on request
22	27,80			on request	on request	on request
24	30,60	on request		on request	on request	
24	30,50	15,24 .600"	<b>-624-</b>	<b>-624-</b>	on request	
28	35,50		<b>-628-</b>	<b>-628-</b>	<b>-628-</b>	
32	40,60		<b>-632-</b>	<b>-632-</b>	<b>-632-</b>	
36	45,70		<b>-636-</b>	on request	-	
40	50,80		<b>-640-</b>	<b>-640-</b>	<b>-640-</b>	
48	60,96		<b>-648-</b>	on request	on request	
64	81,26	22,86 .900"	on request	-	-	



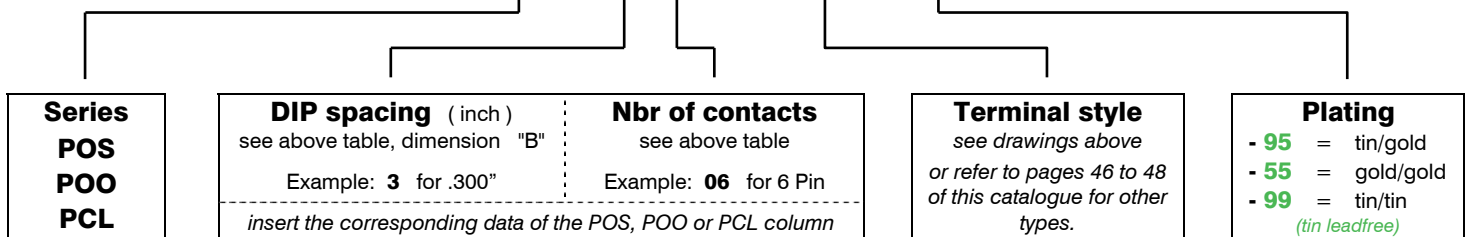
**Specifications**  
PBT and high temp plastic depending on type.  
See page 49 of this catalogue and contact factory for more details.

**Insulator body**  
POS series = open insulator - see drawings above  
POO series = open insulator w/o centre bars  
PCL series = closed insulator body

**Terminals**  
The POS, POO and PCL series are available with many different terminal styles. The most common terminal styles are shown on the right hand side of this page. Many other additional terminals can be found at the end of this catalogue. Custom design terminals are available on request.

How to order

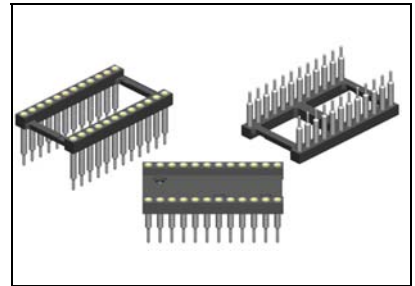
XXX - x xx - Sxxx - xx



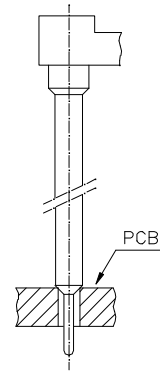


**Board Stacker Terminals**

<p><b>079</b></p>	<p><b>623</b></p>	<p><b>062</b></p>
<p><b>060</b></p>	<p><b>063</b></p>	<p><b>080</b></p>
<p><b>084</b></p>	<p><b>085</b></p>	<p><b>088</b></p>
<p><b>065</b></p>	<p><b>Many other terminals and custom specific terminal styles are available on request, or refer to the pages 46 to 48 of this catalogue.</b></p>	

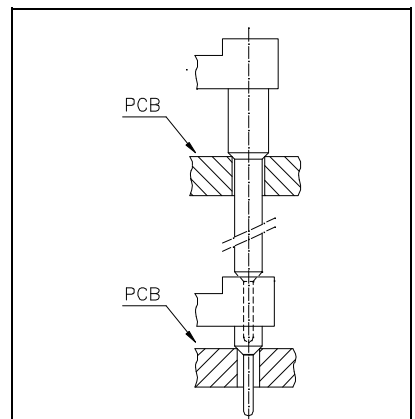


**Application Examples**



Possible Terminals:

060; 062; 063; 065; 079  
080; 084; 085; 088; 623



Possible Terminals:

060; 062; 063; 079; 623

**Specifications**

See page 49 of this catalogue

How to order

XXX - x xx - S xxx - xx

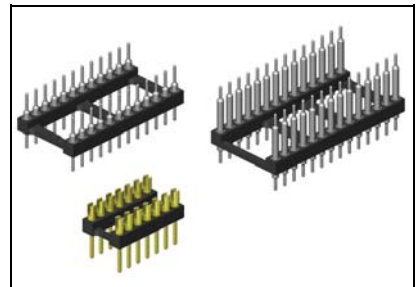
<p><b>Series</b> POS POO PCL see page 14</p>	<p><b>DIP spacing</b> in inch refer to table, dimension "B" on page 14 ----- insert the corresponding data of the POS, POO or PCL column</p>	<p><b>Nbr of contacts</b> refer to table on page 14</p>	<p><b>Terminal style</b> see drawings above or refer to pages 46 to 48 of this catalogue for other types.</p>	<p><b>Plating</b> - 95 = tin/gold (tin leadfree) other on request</p>
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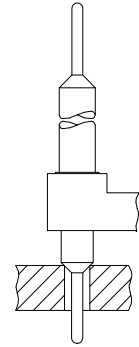


**Board to Board Terminals**

<p>077</p>	<p>057</p>	<p>037</p>
<p>058</p>	<p>059</p>	<p>056</p>
<p>542</p>	<p>038</p>	<p>353</p>
<p>036</p>	<p><b>Many other terminals and custom specific terminal styles are available on request, or refer to the pages 46 to 48 of this catalogue.</b></p>	

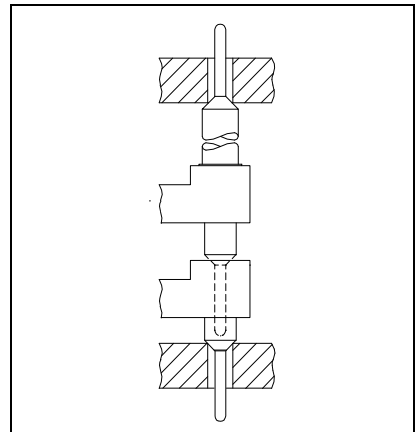


**Application Examples**



**Possible Terminals:**

037; 056; 057; 058; 059; 077  
220; 221; 542; 543; 544; 562  
770



**Possible Terminals:**

037; 056; 057; 058; 059  
077; 542; 544; 562; 770

**Specifications**

See page 49 of this catalogue

How to order

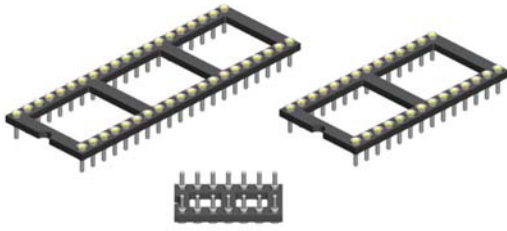
XXX - xxx - Sxxx - xx

<p><b>Series</b> <b>POS</b> <b>PCL</b> see page 14</p>	<p><b>DIP spacing</b> in inch refer to table, dimension "B" on page 14 ----- insert the corresponding data of the POS, POO or PCL column</p>	<p><b>Nbr of contacts</b> refer to table on page 14</p>	<p><b>Terminal style</b> see drawings above or refer to pages 46 to 48 of this catalogue for other types.</p>	<p><b>Plating</b> - 55 = gold - 99 = tin (tin leadfree)</p>
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“low profile“ Sockets & Strips

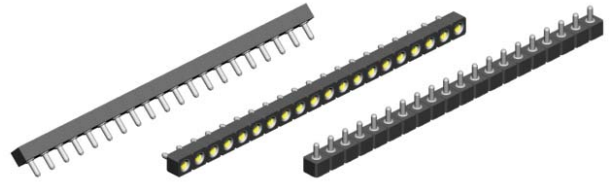
**Low profile DIP sockets LOP Series**

height above PCB 2.41mm / .095"

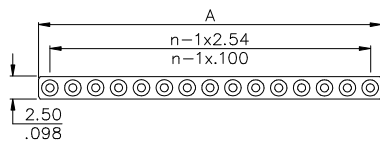
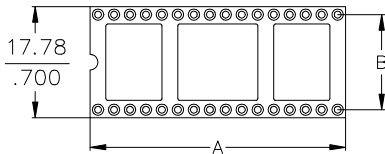
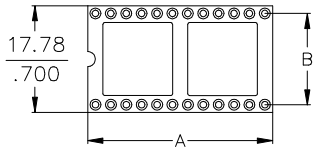
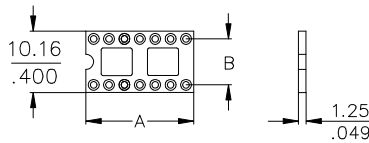


**Low profile strips SLP Series**

height above PCB 2.41mm / .095"



**Insulator**



Pin	Dimensions mm/inch		Ordering Code
	"A"	"B"	
14	17,78/.700	7,62 .300	<b>LOP - 314 - S083 - 95</b>
16	20,32/.800		<b>LOP - 316 - S083 - 95</b>
18	22,86/.900		<b>LOP - 318 - S083 - 95</b>
20	25,40/1.000		<b>LOP - 320 - S083 - 95</b>
24	30,48/1.200		<b>LOP - 324 - S083 - 95</b>
		15,24 .600	
24	30,48/1.200		<b>LOP - 624 - S083 - 95</b>
28	35,56/1.400		<b>LOP - 628 - S083 - 95</b>
		15,24 .600	
32	40,64/1.600		<b>LOP - 632 - S083 - 95</b>
40	50,80/2.000		<b>LOP - 640 - S083 - 95</b>
10	25,40/1.000		<b>SLP - 110 - S083 - 95</b>
14	35,56/1.400		<b>SLP - 114 - S083 - 95</b>

**Other sizes and flush head version on request**

**Pin-outs**

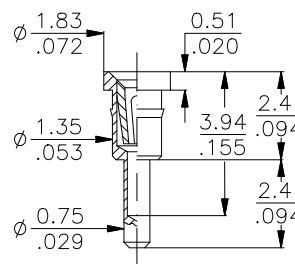
*Other pin-outs available on request.*

Despite the very low profile of these sockets the IC legs can be inserted completely.

**Recommended PCB Layout**

*Recommended drilling hole dia Ø 0,8mm/.031"*

**Low Profile Terminal**



**083** 2.41mm / .095" over PCB

**Plating**

**Standard:**

- **95** = tin/gold  
*(tin leadfree)*

**Alternative**

- **55** = gold/gold  
- **99** = tin/ tin  
*(leadfree)*

**Specifications**

**Mechanical data**

Insertion force 1,80 N (avg)  
Extraction force 0,90 N (avg)  
Contact life > 100 cycles  
Solderability as per IEC 60068-2-58  
Contact security:  
-Vibration as per EN60352-4  
-Shock as per EN60352-4

**Material**

Insulator *(RoHS compliant)* PBT UL 94 V-0  
Terminal *(RoHS compliant)* CuZn  
Contact *(RoHS compliant)* BeCu

**Electrical data**

Contact resistance at 1A 4,3 mΩ typ.  
Current rating 1A max., 100V  
Contact capacitance at 1MHz 2 pF max.  
Insulation resistance at 500V DC 5 × 10<sup>9</sup> Ω min.  
Breakdown voltage at 60 Hz 500 V AC  
Contact resistance ≤ 7 mΩ

**Operating temperature**

-55° C to +125° C

**Pitch**

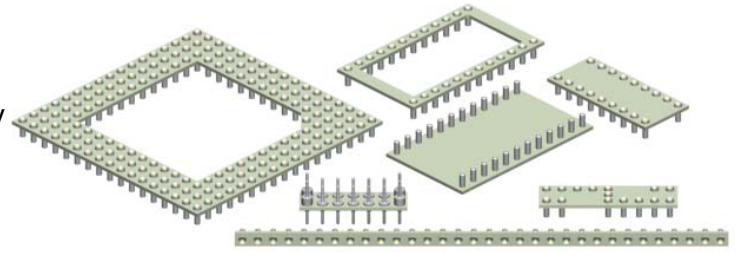
2,54 mm (.100")

**More information, for example about testresult please ref. to page 49 or contact E-tec.**

E-tec's super low profile sockets and adapters are designed for use in applications where height above board is most critical.

The sockets have a profile of 0,60mm above board and they can be combined with the adapters to achieve a board to board interconnection height of 2,20mm max.

Also available in this socket range are the ultra low profile SMT sockets with a height above board of only 3,45mm.



Super Low Profile Sockets						Super Low Profile Adapters	
SMT use			through hole use				
<b>Terminal style</b>	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	<p><b>Style 377</b></p>	
<b>144</b>	3,45/.136	3,05/.120	0,94/.037	0,45/.018	1,15/.045		

Specifications			
<b>Mechanical data</b>		<b>Electrical data</b>	
Force per contact (avg)	0,70N insertion / 0.25N extraction	Breakdown voltage at 60 Hz	500 V AC
Contact life	>50 cycles min.	Contact resistance at 1A	4,3 mΩ typ
Solderability	as per IEC 60068-2-58	Insulation resistance	5 × 10 <sup>9</sup> Ω min.
<b>Material</b>		Current rating	1A max., 100V
Terminal (RoHS compliant)	BeCu	Capacitance	2 pF max.
Insulator (RoHS compliant)	Glass Epoxy FR4	<b>Operating temperature</b>	-55 °C to +125 °C

### How to order

XXX - x xx - E xxx (- xxx) - xx (/x)

Series	DIP spacing	Nbr of contacts	Terminal styles	Plating	Pitch
<b>LSP</b> = DIP sockets <b>SSP</b> = SIP sockets <b>DSP</b> = 2-row SIP's <b>PGS</b> = PGA sockets <b>ZZS</b> = Zig-Zag sockets	see pages for LSP series: POS for SSP series: SIB/SIS for DSP series: DIS for ZZS series: ZZP for PGS series: PGA only nbr of contacts	See drawings above for 2,54mm and 2,00mm pitch. For 1,27mm pitch please contact nearest sales office.	- <b>95</b> = tin/gold (tin leadfree) (not available for adapter terminals) - <b>55</b> = gold/gold - <b>99</b> = tin/tin (leadfree)	Complete with <b>1</b> = 1,27mm <b>2</b> = 2,00mm 2.54mm pitch is standard. Others available on request	

**Grid size & Configuration code only for PGA sockets**

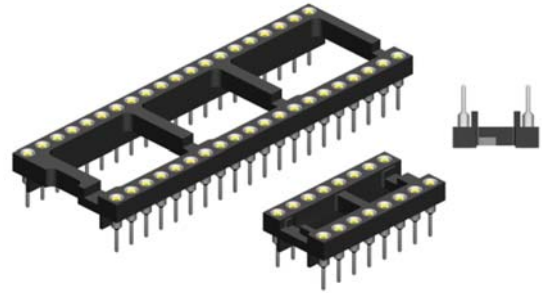
Please refer to PGA socket pages 29 to 31

IC Sockets for Automatic Insertion

The terminals can be bent before and cut after the soldering process.

Open frame sockets with rails under the plastic as required by certain auto-insert machines.

Delivered in tubes with correct orientation.



Socket Drawing "top view"		PIN	Dimensions mm/inch			Ordering Code
DIM "B" = 7,62mm / .300"	DIM "B" = 15,24mm / .600"		"A"	"B"	"C"	
		08	10,16 / .400	7,62 .300	4,50 .177	<b>POA-308-Sxxx-95</b>
		14	17,78 / .700			<b>POA-314-Sxxx-95</b>
		16	20,32 / .800			<b>POA-316-Sxxx-95</b>
		18	22,86 / .900			<b>POA-318-Sxxx-95</b>
		20	25,40 / 1.000			<b>POA-320-Sxxx-95</b>
		24	30,48 / 1.200			<b>POA-324-Sxxx-95</b>
		28	35,56 / 1.400			<b>POA-328-Sxxx-95</b>
		24	30,48 / 1.200			15,24 .600
		28	35,56 / 1.400	<b>POA-628-Sxxx-95</b>		
		40	50,80 / 2.000	<b>POA-640-Sxxx-95</b>		

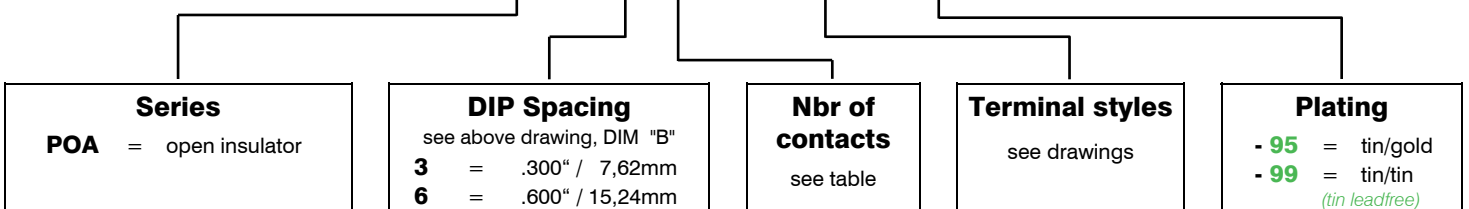
  

Socket Drawing "side view"	Terminal styles
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>001</b></p> </div> <div style="text-align: center;"> <p><b>010</b></p> </div> </div>

Specifications			
<b>Mechanical data</b> Insertion force: 1,80 N (avg) Extraction force: 0,90 N (avg) Contact life: > 100 cycles Solderability: as per IEC 60068-2-58 Contact security: -Vibration: as per EN60352-4 -Shock: as per EN60352-4	<b>Electrical data</b> Contact resistance at 1A: 4,3 mΩ typ. Current rating: 1A max., 100V Contact capacitance at 1MHz: 2 pF max. Insulation resistance at 500V DC: 5 × 10 <sup>9</sup> Ω min. Breakdown voltage at 60 Hz: 500 V AC Contact resistance: ≤ 7 mΩ	<b>Operating temperature</b> : -55° C to +125° C <b>Pitch</b> : 2,54 mm (.100")	<b>Material</b> Insulator (RoHS compliant): PBT UL 94 V-0 Terminal (RoHS compliant): CuZn Contact (RoHS compliant): BeCu
<b>More information, for example about testresult please ref. to page 49 or contact E-tec.</b>			

How to order

POA - x x x - S x x x - x x

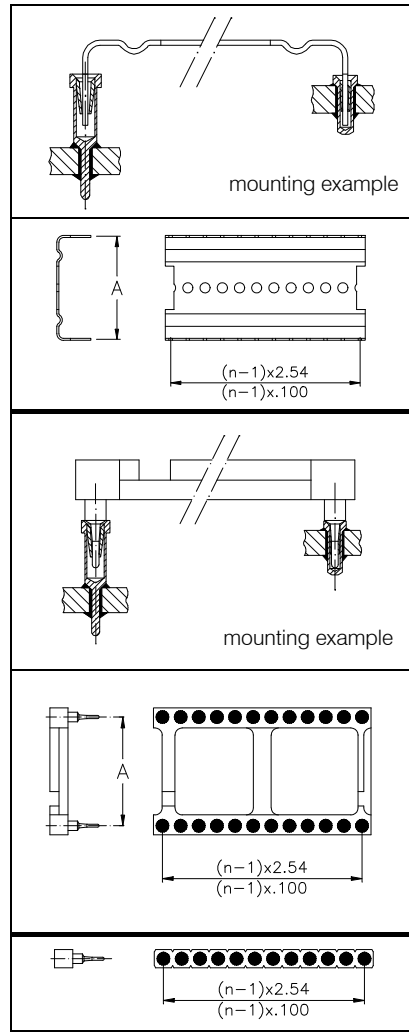
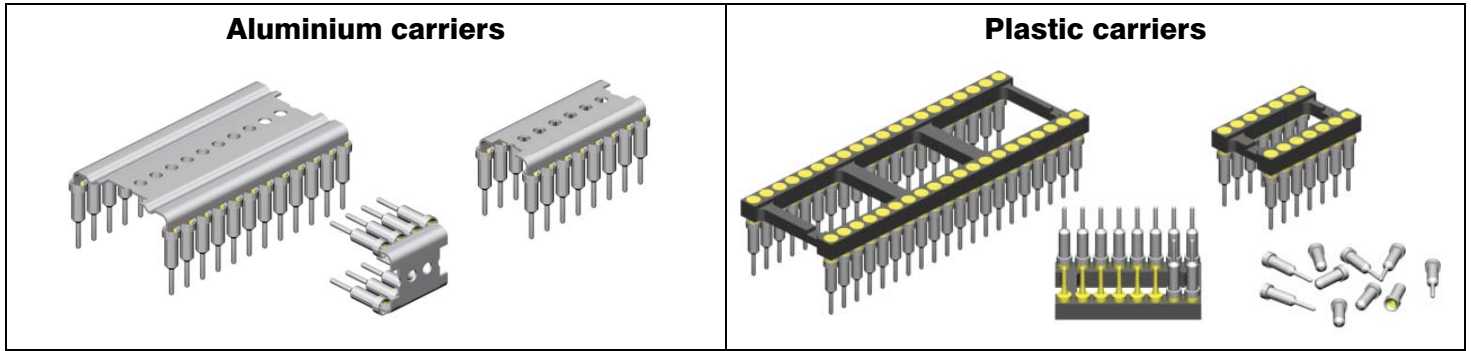




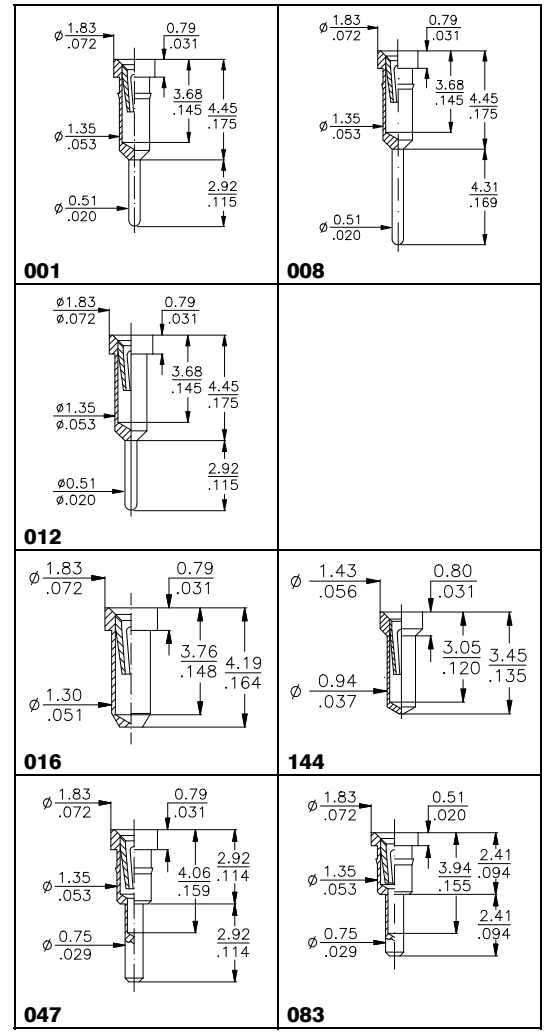
# DCA/DCP/SCP - Series

## Carrier Sockets & Strips

2,54mm pitch



PIN	DIM "A" mm/inch	Ordering Code	
6	7,62/.300	<b>DCA-306-Sxxx-95</b>	
8		<b>DCA-308-Sxxx-95</b>	
14		<b>DCA-314-Sxxx-95</b>	
16		<b>DCA-316-Sxxx-95</b>	
18		<b>DCA-318-Sxxx-95</b>	
20		<b>DCA-320-Sxxx-95</b>	
22	15,24/.600	<b>DCA-322-Sxxx-95</b>	
24		<b>DCA-624-Sxxx-95</b>	
28		<b>DCA-628-Sxxx-95</b>	
40		<b>DCA-640-Sxxx-95</b>	
6		7,62/.300	<b>DCP-306-Sxxx-95</b>
8			<b>DCP-308-Sxxx-95</b>
10	<b>DCP-310-Sxxx-95</b>		
14	<b>DCP-314-Sxxx-95</b>		
16	<b>DCP-316-Sxxx-95</b>		
18	<b>DCP-318-Sxxx-95</b>		
20	15,24/.600	<b>DCP-320-Sxxx-95</b>	
24		<b>DCP-324-Sxxx-95</b>	
28		<b>DCP-328-Sxxx-95</b>	
24		<b>DCP-624-Sxxx-95</b>	
28		<b>DCP-628-Sxxx-95</b>	
32		<b>DCP-632-Sxxx-95</b>	
36	15,24/.600	<b>DCP-636-Sxxx-95</b>	
40		<b>DCP-640-Sxxx-95</b>	
48	<b>DCP-648-Sxxx-95</b>		
2 to 32	single strip	<b>SCP-1xx-Sxxx-95</b>	
4 to 80	double strip	<b>SCP-2xx-Sxxx-95</b>	



**Specifications**  
See page 49 of this catalogue

**Terminals**  
For other terminal styles please refer to the pages 46 to 48 of this catalogue or contact your closest sales office.

**Carrier Material**  
DCP & SCP series : PBT or high temp plastic UL 94 V-0 depending on pincount  
DCA series : Aluminum

### How to order

**XXX - xxx - S xxx - 95**

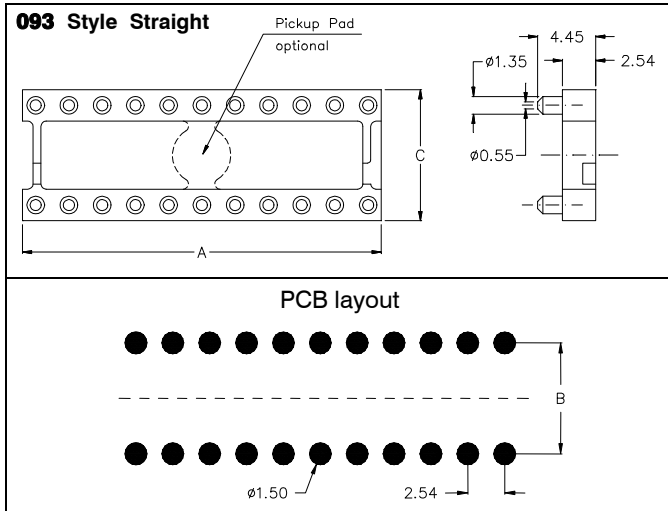
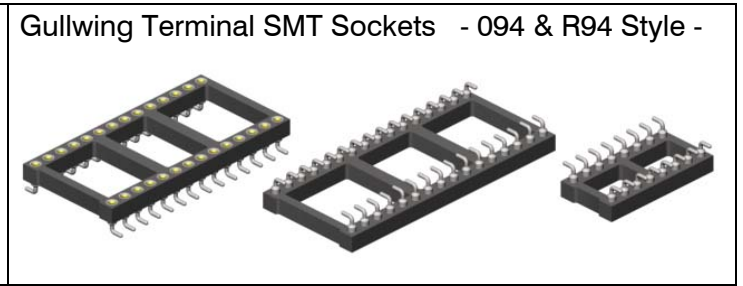
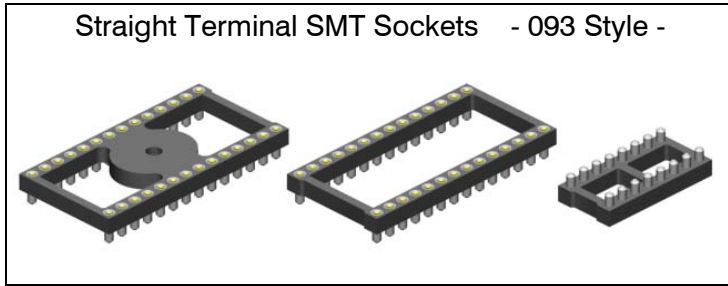
Series	
<b>DCA</b>	= DIL Alu Carrier
<b>DCP</b>	= DIL Plastic Carrier
<b>SCP</b>	= SIL Plastic Carrier

Pitch	
<b>1</b>	= only for SCP Series
<b>2</b>	= only for SCP Series
<b>3</b>	= .300" / 7,62mm
<b>4</b>	= .400" / 10,16mm
<b>6</b>	= .600" / 15,24mm
<b>9</b>	= .900" / 22,86mm

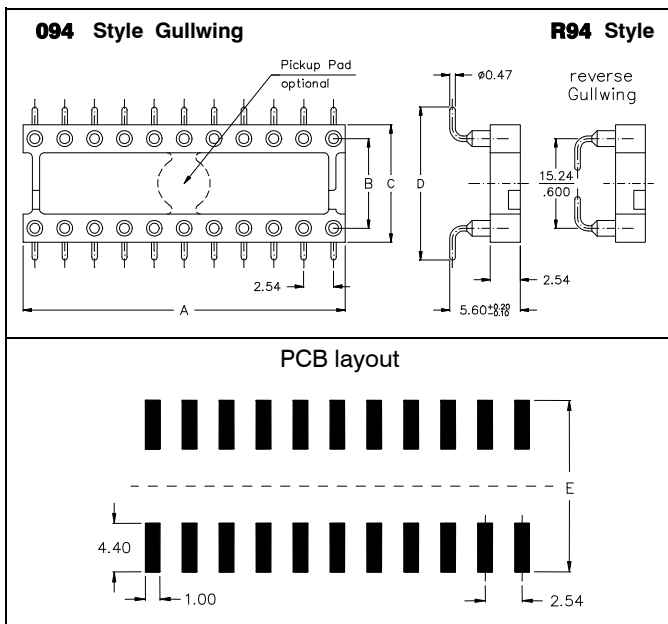
**Nbr of contacts**  
see Ordering Code table above

**Terminal style**  
see drawings above  
or refer to pages 46 to 48 of this catalogue for other types.

**Plating**  
- 95 = tin/gold  
(tin leadfree)



Pin	Dimensions (mm/inch)				Ordering Code
	"A"	"B"	"C"		
6	7,62/.300	7,62 .300	10,16 .400		<b>PSO-306-H093-95</b>
8	10,16/.400				<b>PSO-308-H093-95</b>
10	12,70/.500				<b>PSO-310-H093-95</b>
14	17,78/.700				<b>PSO-314-H093-95</b>
16	20,32/.800				<b>PSO-316-H093-95</b>
18	22,86/.900				<b>PSO-318-H093-95</b>
20	25,40/1.000	15,24 .600	17,78 .700		<b>PSO-320-H093-95</b>
24	30,48/1.200				<b>PSO-624-H093-95</b>
28	35,56/1.400				<b>PSO-628-H093-95</b>
32	40,64/1.600				<b>PSO-632-H093-95</b>
36	45,72/1.800				<b>PSO-636-H093-95</b>
40	50,80/2.000				<b>PSO-640-H093-95</b>
48	60,96/2.400				<b>PSO-648-H093-95</b>



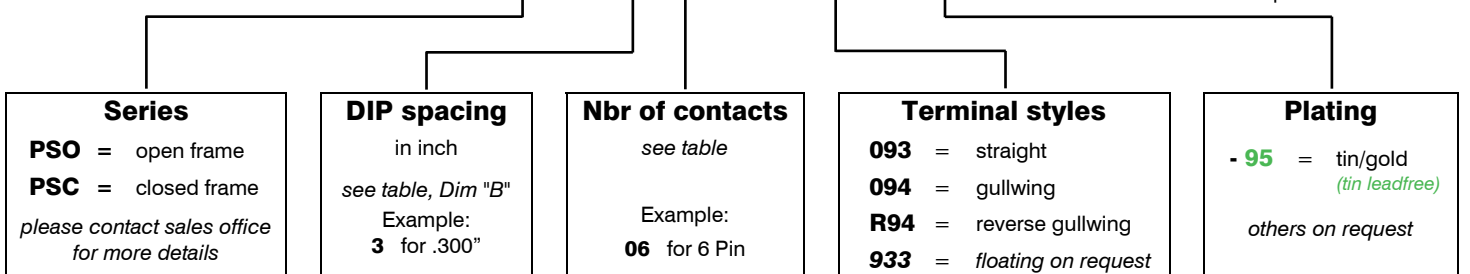
Pin	Dimensions (mm/inch)					Ordering Code
	"A"	"B"	"C"	"D"	"E" 094 Style	
10	12,70/.500	5,08 .200	7,62 .300	10,46 .412	15,00 .590	<b>PSO-210-H094-95</b>
6	7,62/.300	7,62 .300	10,16 .400	13,00 .512		<b>PSO-306-H094-95</b>
8	10,16/.400					<b>PSO-308-H094-95</b>
10	12,70/.500					<b>PSO-310-H094-95</b>
14	17,78/.700					<b>PSO-314-H094-95</b>
16	20,32/.800					<b>PSO-316-H094-95</b>
18	22,86/.900				<b>PSO-318-H094-95</b>	
20	25,40/1.000	15,24 .600	17,78 .700	20,70 .815	22,70 .894	<b>PSO-320-H094-95</b>
24	30,48/1.200					<b>PSO-624-Hxxx-95</b>
28	35,56/1.400					<b>PSO-628-Hxxx-95</b>
32	40,64/1.600					<b>PSO-632-Hxxx-95</b>
36	45,72/1.800					<b>PSO-636-Hxxx-95</b>
40	50,80/2.000					<b>PSO-640-Hxxx-95</b>

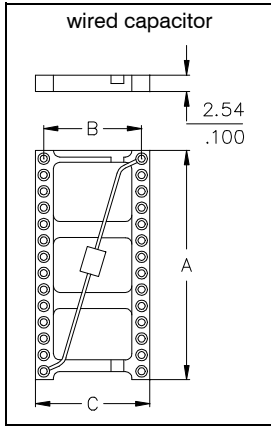
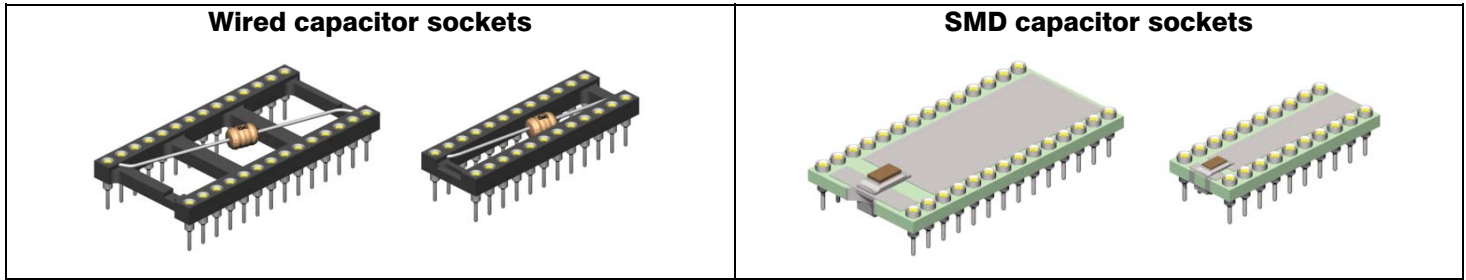
<p><b>Body types</b></p> <p>Standard = Open frame (PSO Series)</p> <p>Optional = Closed frame (PSC Series)</p>	<p><b>Insulator</b></p> <p>high-temp plastic UL 94 V-0 (RoHS compliant)</p> <p>For further technical data refer to page 49</p>	<p><b>Temperature</b></p> <p>Operating temp. -55 °C to +125 °C</p> <p>Processing temp. +250°C +0/-5°C for 20~40sec.</p>
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How to order

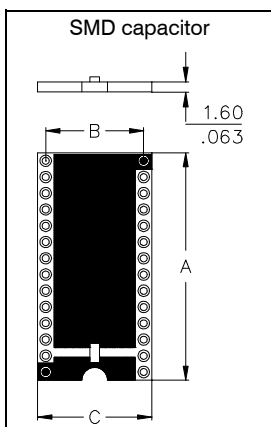
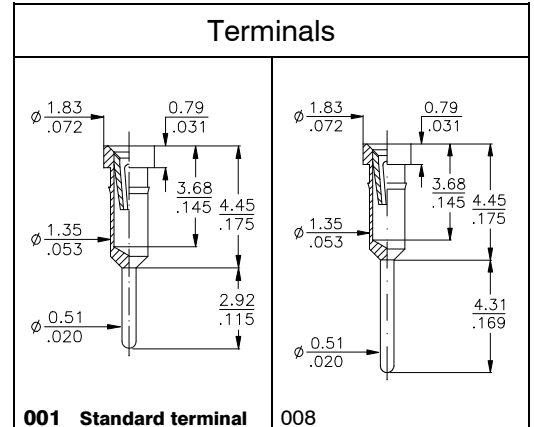
PSO - x xx - H xxx - 95 (/P)

if with Pickup Pad only 28- & 32-pin -others on request-

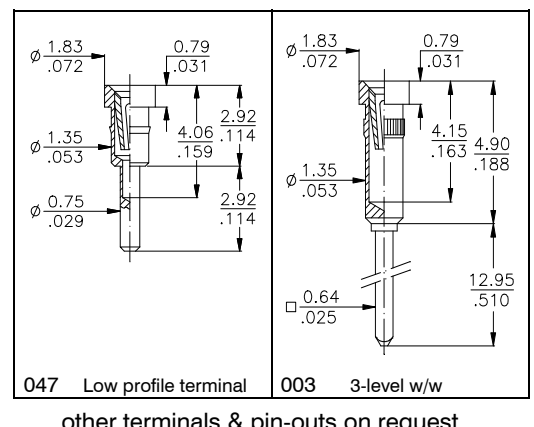




Pin	"A"	"B"	"C"	Ordering code
8	10,16/.400	7,62 .300	10,16 .400	<b>QIT-308-W001-95</b>
14	17,78/.700			<b>QIT-314-W001-95</b>
16	20,32/.800			<b>QIT-316-W001-95</b>
18	22,86/.900			<b>QIT-318-W001-95</b>
20	25,40/1.00			<b>QIT-320-W001-95</b>
24	30,48/1.20			<b>QIT-324-W001-95</b>
28	35,56/1.40	15,24 .600	17,78 .700	<b>Not available</b>
24	30,48/1.20			<b>QIT-624-W001-95</b>
28	35,56/1.40			<b>QIT-628-W001-95</b>
32	40,64/1.60			<b>QIT-632-W001-95</b>
40	50,80/2.00			<b>QIT-640-W001-95</b>



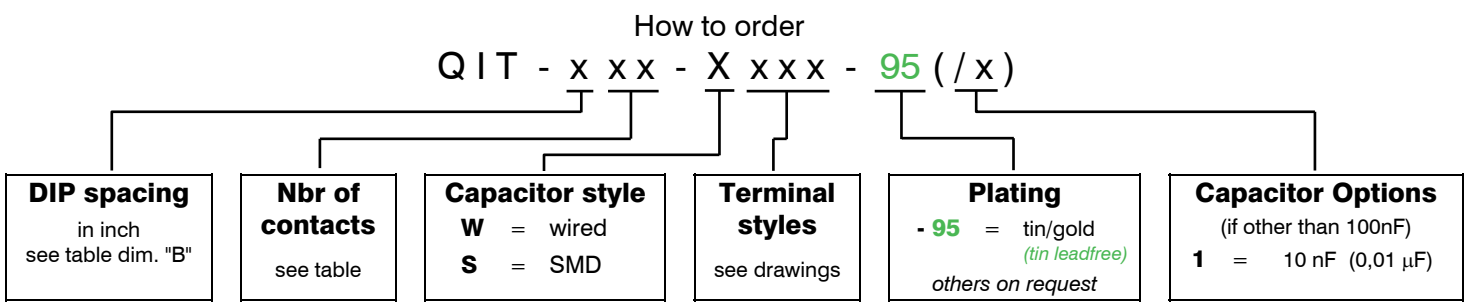
Pin	"A"	"B"	"C"	Ordering code
8	10,16/.400	7,62 .300	10,16 .400	<b>QIT-308-S001-95</b>
14	17,78/.700			<b>QIT-314-S001-95</b>
16	20,32/.800			<b>QIT-316-S001-95</b>
18	22,86/.900			<b>QIT-318-S001-95</b>
20	25,40/1.00			<b>QIT-320-S001-95</b>
24	30,48/1.20			<b>QIT-324-S001-95</b>
28	35,56/1.40	15,24 .600	17,78 .700	<b>QIT-328-S001-95</b>
24	30,48/1.20			<b>QIT-624-S001-95</b>
28	35,56/1.40			<b>QIT-628-S001-95</b>
32	40,64/1.60			<b>QIT-632-S001-95</b>
40	50,80/2.00			<b>QIT-640-S001-95</b>



other terminals & pin-outs on request

Socket Specifications			
<b>Mechanical data</b>	Insertion force Extraction force Contact life Solderability Contact security: -Vibration -Shock	1,80 N (avg) 0,90 N (avg) > 100 cycles as per IEC 60068-2-58  as per EN60352-4 as per EN60352-4	<b>Electrical data</b> Contact resistance at 1A Current rating Contact capacitance at 1MHz Insulation resistance at 500V DC Breakdown voltage at 60 Hz Contact resistance
<b>Material</b>	Insulator Terminal Contact	(RoHS compliant) (RoHS compliant) (RoHS compliant)	4,3 mΩ typ. 1A max., 100V 2 pF max. 5 × 10 <sup>9</sup> Ω min. 500 V AC ≤7 mΩ
		Hi temp plastic UL 94 V-0 (wired version) Epoxy FR4 if with SMD capacitor CuZn BeCu	<b>Operating temperature</b> Pitch
			-55° C to +125° C 2,54 mm (.100")
<b>More information, for example about testresult please ref. to page 49 or contact E-tec.</b>			

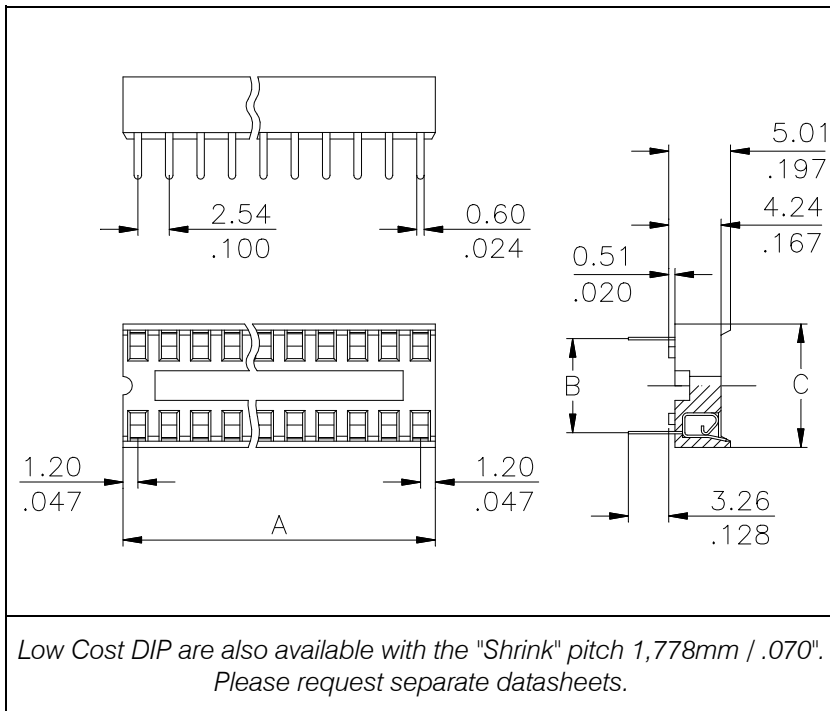
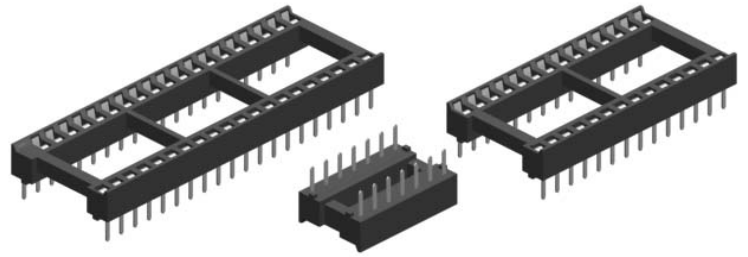
Capacitor Specifications			
<b>General data</b>	Ceramic material Voltage	Z5U 50 V	<b>Available capacitor values</b> Standard type Alternatives:
			100nF (0.1 μF) 10nF (0.01 μF)



Available in sizes of 6 to 48 pins.

Low profile & dual-beam contact design.

Contact design incorporates anti-overstress feature.



Pin	Dimensions mm/inch			Ordering Code
	"A"	"B"	"C"	
6	7,49/.295	7,62 / .300	10,16 / .400	<b>LOC-306-T051-99</b>
8	10,03/.795			<b>LOC-308-T051-99</b>
14	17,65/.695			<b>LOC-314-T051-99</b>
16	20,19/.795			<b>LOC-316-T051-99</b>
18	22,73/.895			<b>LOC-318-T051-99</b>
20	25,27/.995			<b>LOC-320-T051-99</b>
24	30,35/1.195			<b>LOC-324-T051-99</b>
28	35,43/1.395			<b>LOC-328-T051-99</b>
22	27,81/1.095	10,16 / .400	12,70 / .500	<b>LOC-422-T051-99</b>
24	30,35/1.195	15,24 / .600	17,70 / .700	<b>LOC-624-T051-99</b>
28	35,43/1.395			<b>LOC-628-T051-99</b>
32	40,51/1.595			<b>LOC-632-T051-99</b>
40	50,67/1.995			<b>LOC-640-T051-99</b>
42	53,21/2.095			<b>LOC-642-T051-99</b>
48	60,83/2.395			<b>LOC-648-T051-99</b>

**Specification**

**Mechanical data**

Insertion force 2 N max.  
Extraction force 0,5 N min.  
Contact reliability 50 cycles min

**Material**

Insulator (RoHS compliant) std. temp PBT plastic  
UL 94 V-0  
Contact (RoHS compliant) Phosphor bronze

**Electrical data**

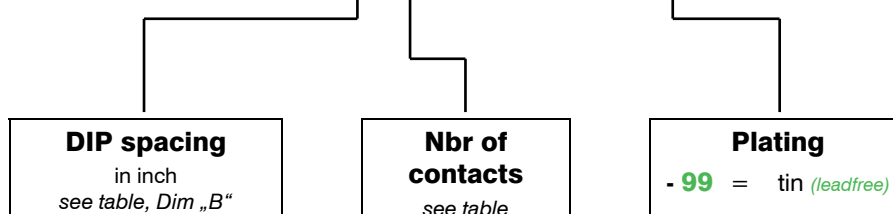
Contact resistance 10 mΩ typ.  
Current rating 1A max., 100V  
Contact capacitance 0,5 pF  
Insulation resistance 1000 MΩ min.  
Breakdown voltage 1 KV min.

**Operating temperature**

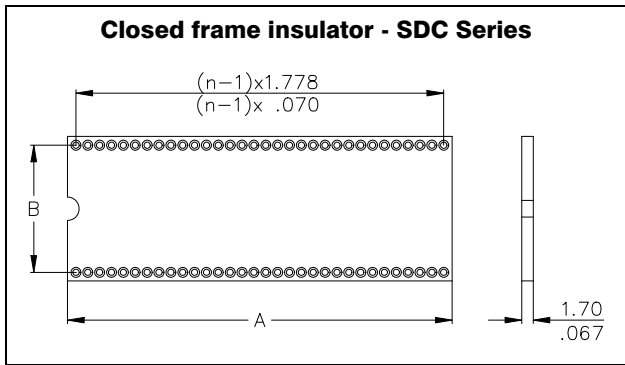
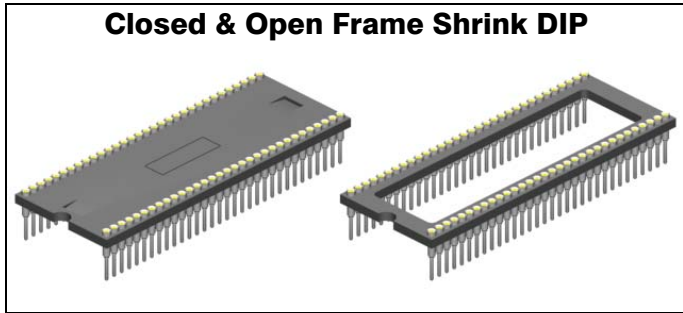
-50°C to +125°C

How to order

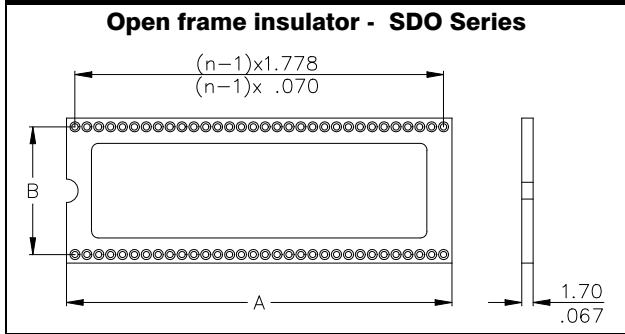
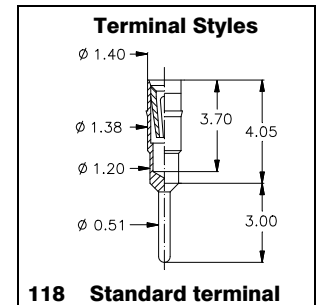
LOC - x xx - T051 - 99



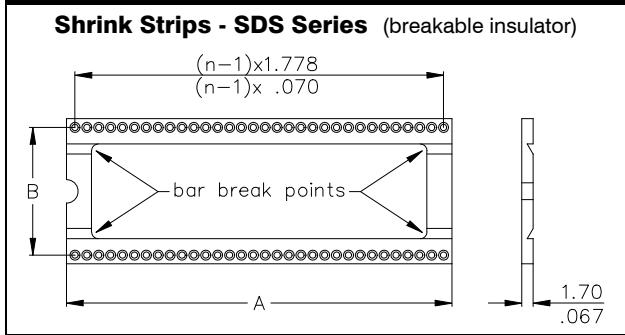
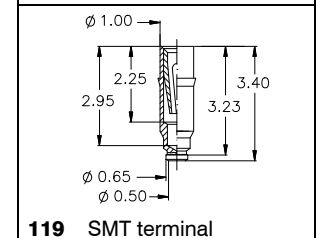




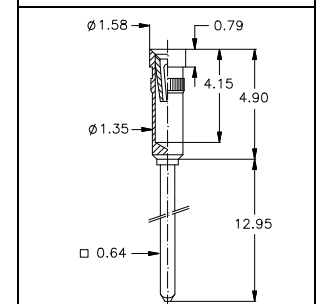
Pin	Dimensions mm/inch		Ordering Code
	"A"	"B"	
24	22,09 / .870	10,16 / .400	<b>SDC-424-Exxx-xx</b>
28	25,65 / 1.010		<b>SDC-628-Exxx-xx</b>
40	36,32 / 1.430	15,24 / .600	<b>SDC-640-Exxx-xx</b>
42	36,32 / 1.430		<b>SDC-642-Exxx-xx</b>
64	57,65 / 2.270	19,05 / .750	<b>SDC-764-Sxxx-xx</b>



64	57,65 / 2.270	19,05 / .750	<b>SDO-764-Sxxx-xx</b>
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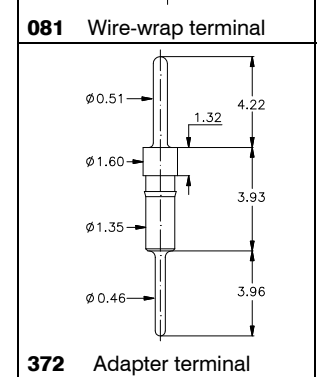


2 x 32	57,65 / 2.270	19,05 / .750	<b>SDS-232-Sxxx-xx</b>
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**Technical Data :**  
 Insertion force 0.70 N (avg.)  
 Extraction force 0.25 N (avg.)

For further data refer to page 49 in this catalogue.

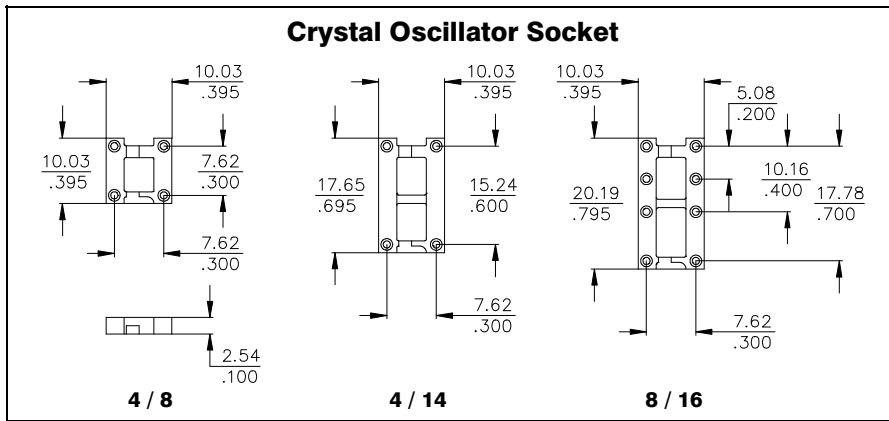
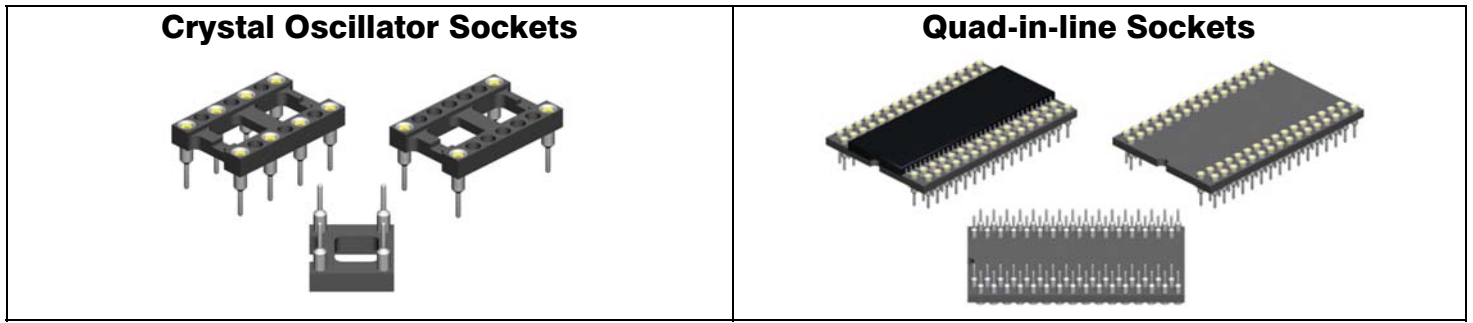


How to order

XXX - xxx - XXX - xx

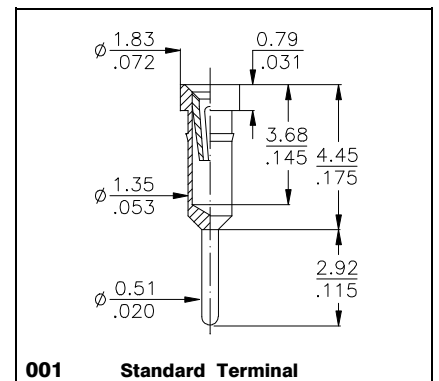
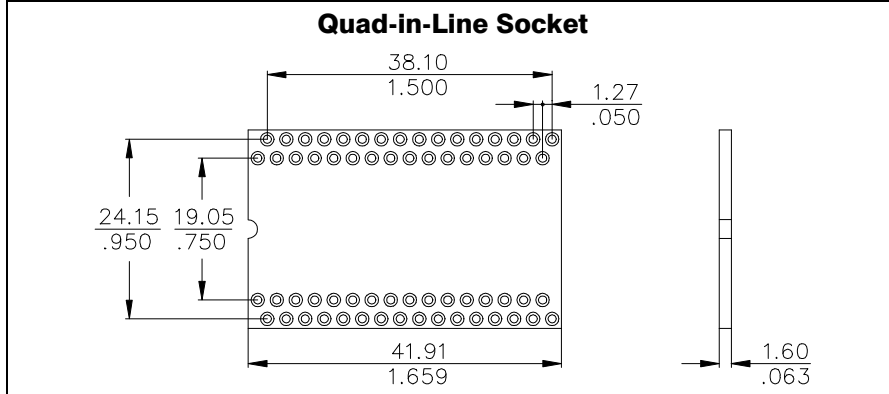
<p><b>Series</b></p> <p><b>SDC</b> = closed frame  <b>SDO</b> = open frame  <b>SDS</b> = strips</p>	<p><b>DIP spacing</b></p> <p>Dim "B" in inch                  Example:  <b>6</b> for ".600"</p>	<p><b>Nbr of contacts</b></p> <p>see table</p>	<p><b>Insulator</b></p> <p><b>S</b> = Plastic  <b>E</b> = FR 4 (Epoxy)</p>	<p><b>Terminal styles</b></p> <p>see drawings                  others on request</p>	<p><b>Plating</b></p> <p>- <b>95</b> = tin/gold (not for terminal 372)                  - <b>55</b> = gold/gold                  - <b>99</b> = tin/tin (tin is leadfree)</p>
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# Crystal Oscillator and Quad-in-Line Sockets



### Crystal Oscillator Sockets

Pin	Ordering Code
4 / 8	<b>COS-084-S001-95</b>
4 / 14	<b>COS-144-S001-95</b>
8 / 16	<b>COS-168-S001-95</b>



### Quad-in-line Socket

Pin	Ordering Code
64	<b>QIL-764-S001-95</b>

for Rockwell & NEC Chip

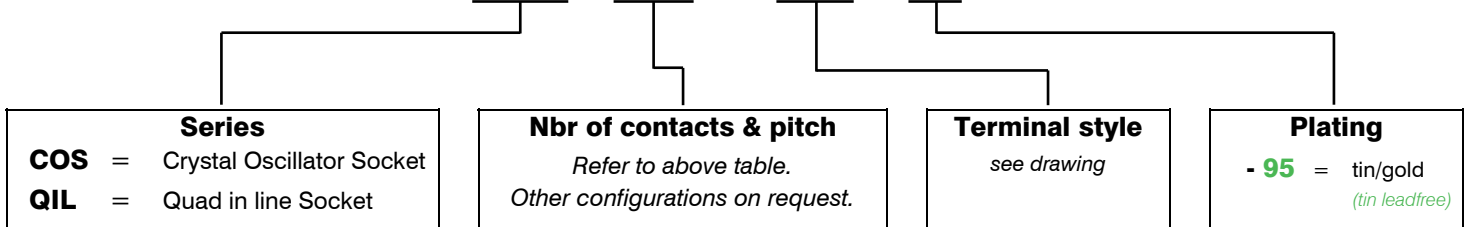
Other pin-outs available on request.

Specifications			
<b>Mechanical data</b>	Insertion force	1,80 N for COS & 0.70N for QIL	<b>Electrical data</b>
	Extraction force	0,90 N for COS & 0.25N for QIL	
<b>Material</b>	Insulator (RoHS compliant)	COS Series: hi temp plastic UL 94 V-0	Current rating
	Terminal (RoHS compliant)	QIL Series: PBT plastic UL 94 V-0	Contact capacitance at 1MHz
	Contact (RoHS compliant)	CuZn	Insulation resistance at 500V DC
		BeCu	Breakdown voltage at 60 Hz
			Contact resistance
			<b>Operating temperature</b>
			<b>Pitch</b>

**More information, for example about testresult please ref. to page 49 or contact E-tec.**

## How to order

**XXX - xxx - S001 - 95**

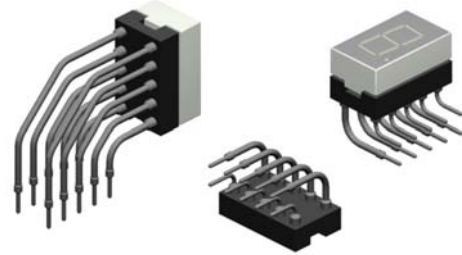


LED socket mounted with precision turned pins ensure perfect contact reliability.

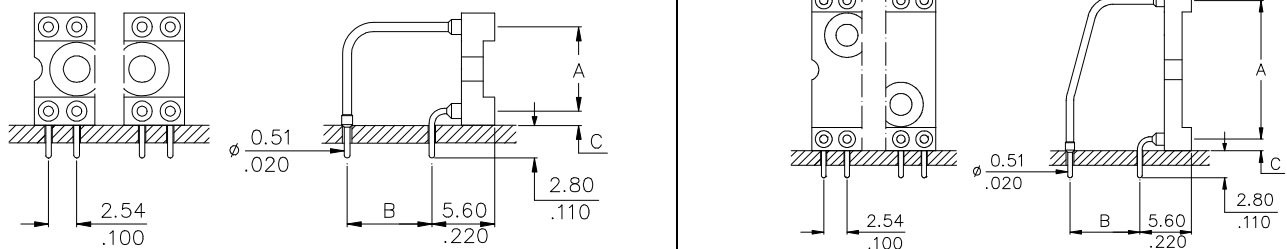
The sockets are available in horizontal and vertical executions.

The contacts are designed to hold many different IC's and LED's with short leads.

The LED sockets are also designed to accept DIP Switches.



### LEH Series - Horizontal -

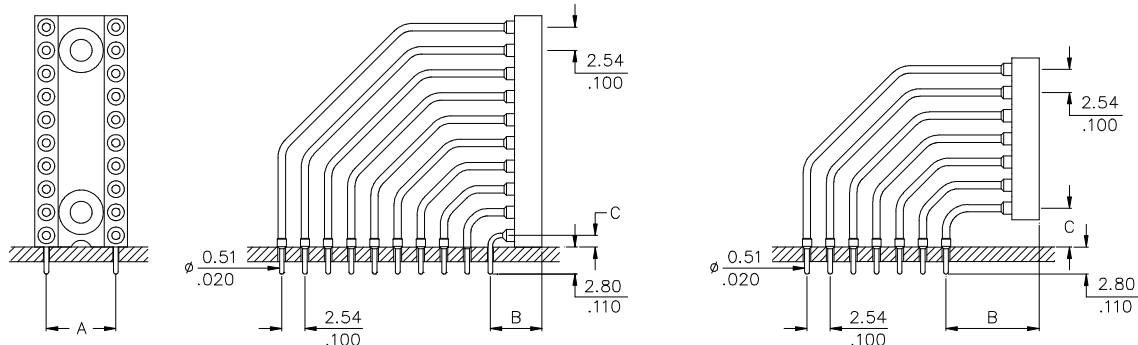


#### Ordering Code

#### Dimensions of the various socket types

Ordering Code pin-outs on request	Standard type -900-					all types Dim. "C"
	Dim. "A"	Dim. "B"	Option -901	Option -902	Option -903	
<b>LEH - 2 xx - S xxx - 95</b>	5,08/.200	5,08/.200	2,54/.100	7,62/.300	-	1,27/.050
<b>LEH - 3 xx - S xxx - 95</b>	7,62/.300	7,62/.300	2,54/.100	5,08/.200	-	1,27/.050
<b>LEH - 4 xx - S xxx - 95</b>	10,16/.400	10,16/.400	2,54/.100	5,08/.200	7,62/.300	1,27/.050
<b>LEH - 6 xx - S xxx - 95</b>	15,24/.600	7,62/.300	15,24/.600	-	-	1,27/.050
<b>LEH - 6 xx - S904 - 95</b>	15,24/.600	7,62/.300	-	-	-	2,87/.112

### LEV Series - Vertical -



Drawing for standard socket type -910

Drawing for all other options

#### Ordering Code

#### Dimensions

Ordering Code pin-outs on request	Standard Type								Options	
	all types "A"	-910 "B" "C"		-915 "B" "C"		-916 "B" "C"		-917 "B" "C"		
<b>LEV - 2 xx - S xxx - 95</b>	5,08/.200	5,60/.220	1,27/.050	8,14/.320	3,81/.150	10,68/.420	6,35/.250	13,22/.520		
<b>LEV - 3 xx - S xxx - 95</b>	7,62/.300	5,60/.220	1,27/.050	8,14/.320	3,81/.150	10,68/.420	6,35/.250	13,22/.520		
<b>LEV - 6 xx - S xxx - 95</b>	15,24/.600	5,60/.220	1,27/.050	8,14/.320	3,81/.150	10,68/.420	6,35/.250	13,22/.520		

**LEV - 3 xx - S911 - 95**    7,62/.300    10,16/.400    4,87/.192

**For technical specifications please refer to page 49**

#### How to order

**LE X - x xx - S xxx - 95**

#### Execution

**H** = Horizontal  
**V** = Vertical

#### DIP spacing

Dim "A" in inch

#### Nbr of contacts

on request

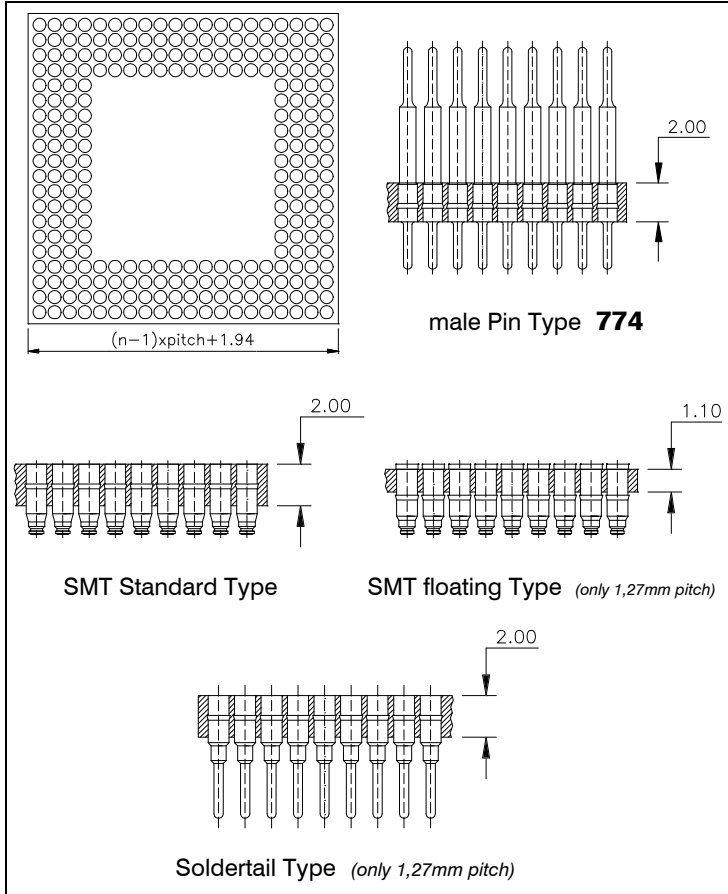
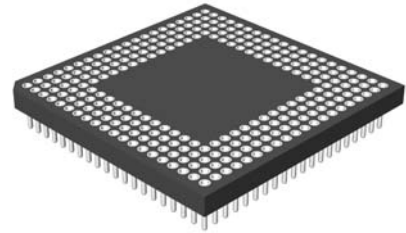
#### Socket Type

see above drawings  
Other options available on request.

#### Plating

- **95** = tin/gold  
(leadfree)

E-tec offers MiniGrid sockets in any pin-out, configuration and grid size adapted to the chip and customer requirements. Open frame socket bodies are also available on request. Special terminal designs are possible on request also.



Terminal styles			
 <b>SMT Terminal Type 119</b> if 1,50 & 2,00mm pitch	 <b>SMT „floating” Type 120</b> if 1,50 & 2,00mm pitch	 <b>SMT Terminal Type 167</b> if 1,27 and 1,00mm pitch	 <b>SMT Terminal Type 169</b> if 0,80mm pitch
 <b>Solder-tail Terminal Type 117</b> if 1,50 & 2,00mm pitch	 <b>Solder-tail Terminal Type 172</b> if 1,27 and 1,00mm pitch	 <b>Solder-tail Terminal Type 174</b> if 0,80mm pitch	 <b>male pin Type 774</b> if 1,27 ; 1,50 & 2,00mm pitch

Specifications			
<b>Terminal Type</b> 774	<b>Material</b> CuZn	<b>Plating</b> Au over Ni over Cu	<b>Socket &amp; Adapter Material</b> FR 4 glass Epoxy UL 94V-0
117, 119, 120, 167 169, 172, 174	Terminal : CuZn Contact clip : BeCu	Sn over Ni over Cu Au over Ni over Cu	<b>Others</b> Operating Temperature -55°C to +125°C ; 260°C for 60 sec.

### How to order

MGS xxxx - E xxx - xx X 95 xx

<b>Nbr of contacts</b> as per device	<b>Terminal styles</b> Please refer to the drawings shown above.  Accepted male pin diameters: Pins 119, 120, 117 : 0.38 to 0.51mm Pins 167, 172 : 0.18 to 0.33mm Pins 169, 174 : 0.15 to 0.28mm	<b>Grid size</b>  <b>will be given by the factory after receipt of the chip datasheet.</b>	<b>Config Code</b>	<b>Plating</b>  <b>95</b> = tin/gold (tin leadfree)  for male pin - <b>774</b> plating gold only  = <b>55</b>	<b>Pitch of Grid Array</b>  <b>08</b> = 0.80mm <b>10</b> = 1.00mm <b>12</b> = 1.27mm <b>15</b> = 1.50mm <b>20</b> = 2.00mm  others on request
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Production sockets for JEDEC Type "C" LCC chips.

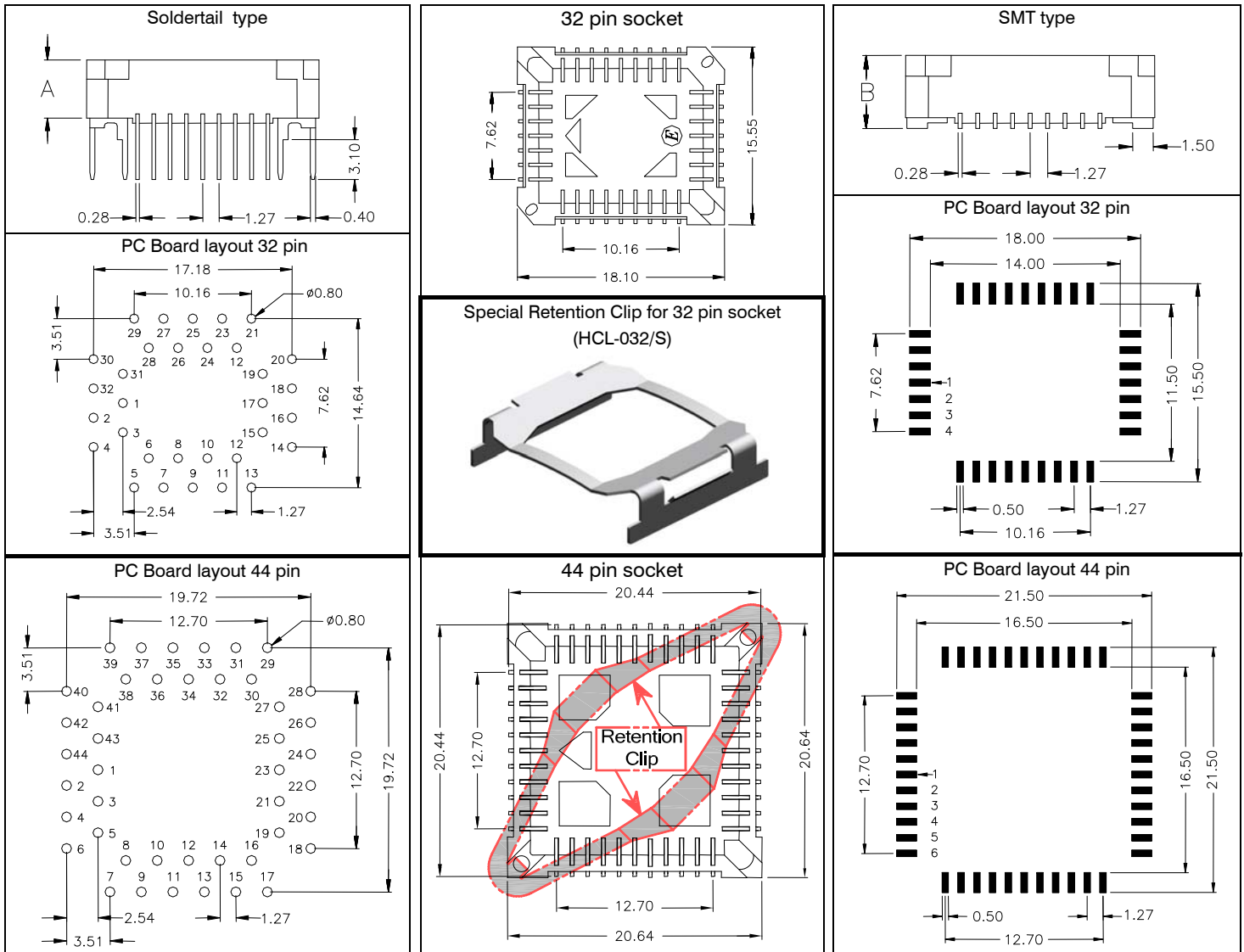
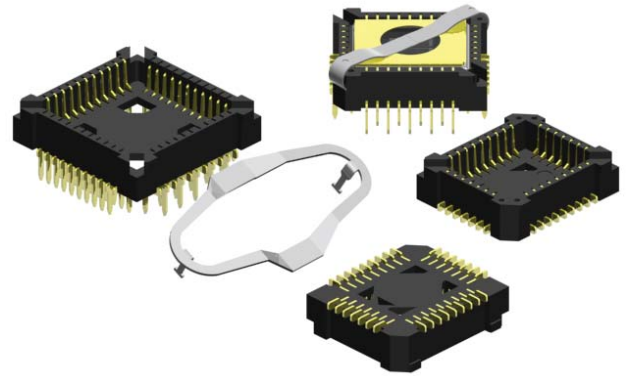
Socket design for automatic assembly and vacuum pick and place machines, available in soldertail and SMT version.

*In order to ensure compatibility with newer generation 44-pin LCC chip packages we have replaced the previous H200 contact style by new style H403. The previous generation 44-pin chip packages are also adapted to this new contact style.*

The SMT terminals extend beyond the side of the socket body, which permits direct access of the infrared heat to the terminal, thus preventing an undesired heat exposure of the insulator.

Optional retention clips are available, which can be mounted and demounted without any tools.

Chips can be easily removed with the Universal extraction tool PUL-200.



Pin	Soldertail Type Ordering Code	DIM "A"
32	<b>LCC-032-H210-55</b>	5,20/.244
44	<b>LCC-044-H210-55</b>	6,80/.268

Retention Clip Styles - Ordering Code	
32-pin	= <b>HCL-032/S</b> (square)
32-pin	= <b>HCL-032</b> (diagonal)
44-pin	= <b>HCL-044</b>

Pin	SMT Type Ordering Code	DIM "B"
32	<b>LCC-032-H200-55</b>	5,40/.213
44	<b>LCC-044-H403-55</b> previous OC: LCC-044-H200-55	6,00/.236

Specifications			
<b>Mechanical data</b>		<b>Electrical data</b>	
Contact material (RoHS compliant)	BeCu	Insulation resistance at 500V DC	1000 MΩ min.
Plating	Au over Ni over Cu (Sn on request)	Breakdown voltage at 60 Hz	700V AC for one min
Insulator (RoHS compliant)	high temp plastic UL 94 V-0	Contact resistance at 10 mA	30 mΩ max.
<b>Operating temperature</b>	-55°C to +125°C	Capacitance	1pF max.
<b>Processing temperature</b>	250°C +0/-5°C for 20-40 Sec.	Current rating	1 A max., 100V
		<b>Pitch</b>	1,27 mm (.050")

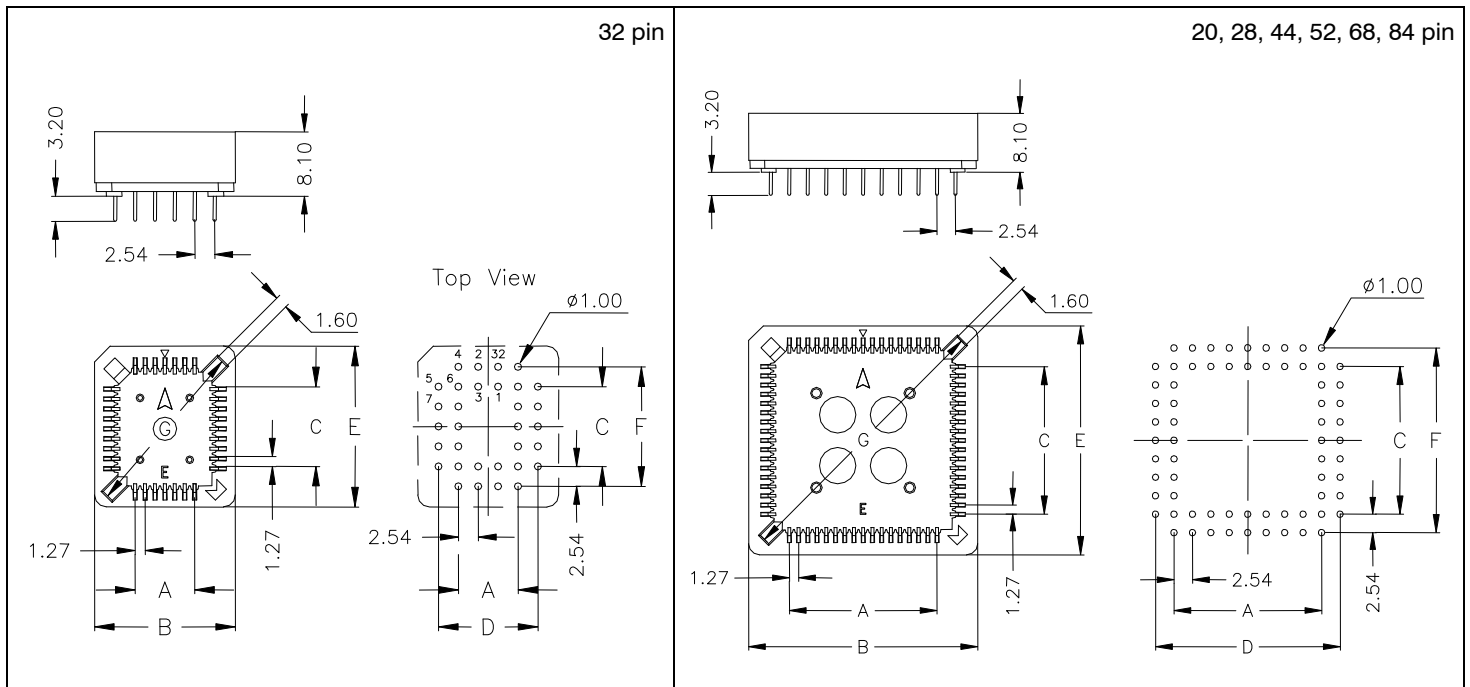
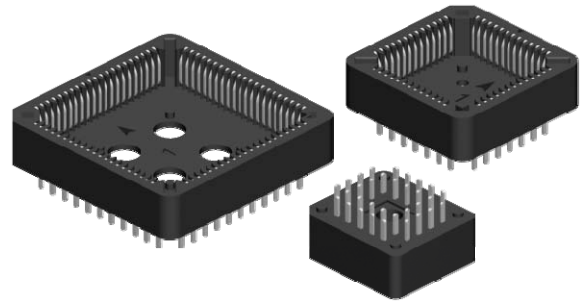


The „commercial“ PLE sockets have very solid solder legs for safe assembly to PCB.

The sockets are designed to accept PLCC Chips according to JEDEC standards.

The sockets are correctly oriented in the tubes for automatic pick and place.

Chips can be easily removed with the Universal extraction tool PUL - 200.



**Specifications**

**Mechanical data**

Insulator (RoHS compliant)	High temp plastic UL 94 V-0
Contact (RoHS compliant)	Copper Alloy
Plating	Sn (leadfree) over Ni
Insertion force	0.60N max.
Extraction force	0.15N min.
Mating cycles	50 min.

**Electrical data**

Withstanding voltage	600 V RMS for 1 Minute
Contact resistance	20 mΩ max.
Insulation resistance	1000 MΩ min.
Current rating	1 A max., 250V AC

**Operating temperature**

**Processing temperature** -40°C to +105°C  
260°C ±5°C for 5 Sec.

PIN	Ordering Code	Dimensions (mm)						
	"Commercial" PLCC through hole type	"A"	"B"	"C"	"D"	"E"	"F"	"G"
20	<b>PLE - 020 - N115 - 99</b>	5,08	15,50	5,08	10,16	15,50	10,16	17,06
28	<b>PLE - 028 - N115 - 99</b>	7,62	18,04	7,62	12,70	18,04	12,70	20,70
32	<b>PLE - 032 - N115 - 99</b> (rectangular)	7,62	18,04	10,16	12,70	20,60	15,24	22,56
44	<b>PLE - 044 - N115 - 99</b>	12,70	23,48	12,70	17,78	23,48	17,78	28,40
52	<b>PLE - 052 - N115 - 99</b>	15,24	25,88	15,24	20,32	25,88	20,32	31,76
68	<b>PLE - 068 - N115 - 99</b>	20,32	31,04	20,32	25,40	31,04	25,40	39,16
84	<b>PLE - 084 - N115 - 99</b>	25,40	36,04	25,40	30,48	36,04	30,48	46,22

**PUL - 200** Universal extraction tool for all socket sizes (see also page 44)



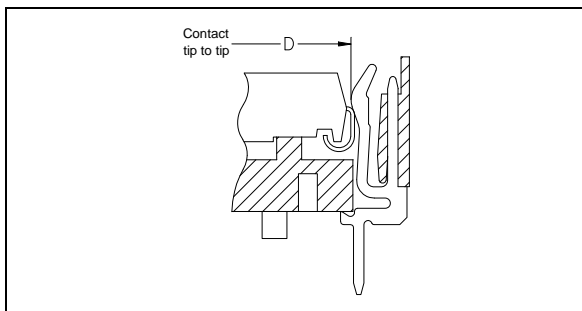
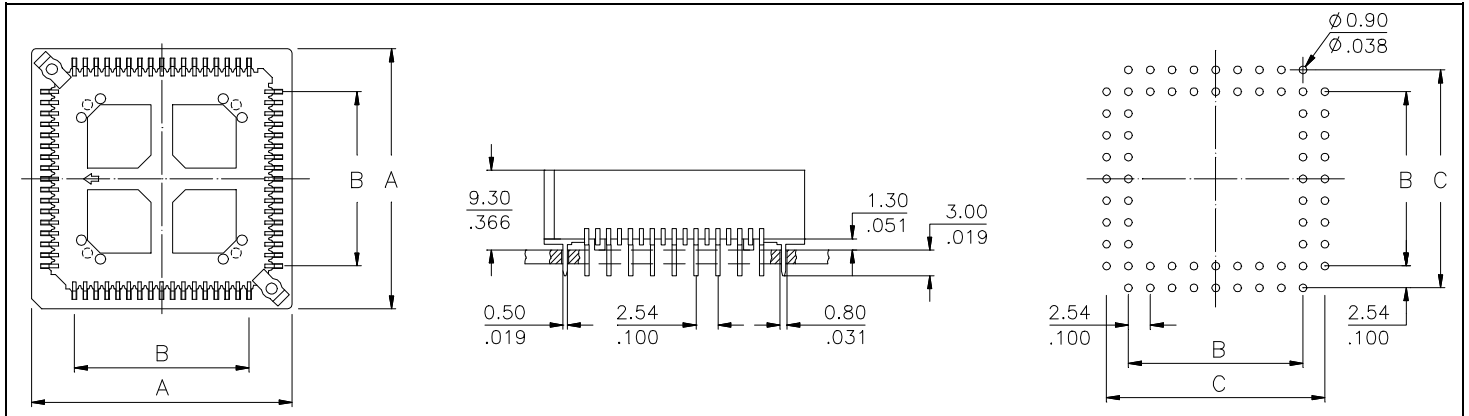
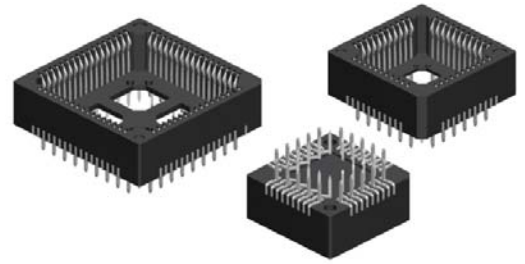
E-tec „hi-rel“ soldertail PLCC sockets correspond to JEDEC Norms. Precision stamped contact design provides special „push-down effect“ onto the leads of the chip.

Optional retention clips for very high shock and vibration applications.

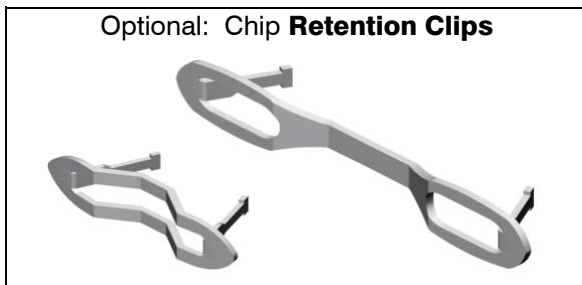
Inside polarisation corner prevents wrong insertion of the chips.

Stand-off's under the base prevent solder shorts.

Chips can be easily removed with the Universal extraction tool PUL - 200.



JEDEC Specification for Plastic Leaded Chip Carrier					
		Chip type "A"      Chip type "B"			
Jedec Nbr	Nbr of Pins	Dimensions mm/inch			
		"A" min.	"A" max.	„B“ min.	„B“ max.
MO-047 AB	28	12,32 / .485	12,57 / .495	1,37 / .054	2,36 / .093
MO-052 AE	32 rectang.	14,86 x 12,32 .585 x .485	15,11 x 12,57 .595 x .495	1,37 / .054	2,36 / .093
MO-047 AB	44	17,40 / .685	17,65 / .695	1,37 / .054	2,36 / .093
MO-047 AB	52	19,94 / .785	20,19 / .795	1,37 / .054	2,36 / .093
MO-047 AB	68	25,02 / .985	25,27 / .995	1,37 / .054	2,36 / .093
MO-047 AB	84	30,10 / 1.185	30,35 / 1.195	1,37 / .054	2,36 / .093



Specifications			
<b>Mechanical data</b>	Plating: Sn (leadfree) over Ni	<b>Temperature</b>	Operating temp. - 55° to +125 °C
Mating cycles: min. 50	Insertion force: max. 1,30N per contact	<b>Material</b>	Insulator (RoHS compliant): high temp plastic UL 94 V-0
Extraction force: min. 0,90N per contact		Contact (RoHS compliant): Phosphor Bronze	Retention Clip: Spring steel
		<b>Electrical data</b>	Operating voltage: 100 V RMS / 150V DC
		Breakdown voltage: >600 V RMS	Contact resistance: <20 mΩ
		Insulation resistance: >5000 MΩ	Current rating: 1 A max., 100V
		Capacitance: <2 pF	

PIN	Ordering Code	Dimensions mm/inch			
		"A"	"B"	"C"	"D"
28	<b>PLP - 028 - N110 - 99</b>	17,60/.693	7,62/.300	12,70/.500	11,50/.453
32	<b>PLP - 032 - N110 - 99</b> (rectangular)	17,60 x 20,14 .693 x .793	10,16 x 7,62 .400 x .300	12,70 x 15,24 .500 x .600	11,50 x 14,04 .453 x .553
44	<b>PLP - 044 - N110 - 99</b>	22,68/.893	12,70/.500	17,78/.700	16,58/.653
52	<b>PLP - 052 - N110 - 99</b>	25,22/.993	15,24/.600	20,32/.800	19,12/.753
68	<b>PLP - 068 - N110 - 99</b>	30,30/1.193	20,32/.800	25,40/1.000	24,20/.953
84	<b>PLP - 084 - N110 - 99</b>	35,38/1.393	25,40/1.000	30,48/1.200	29,28/1.153

Order Code for optional Retention Clip : **HCP - xxx** (replace "xxx" with nbr of pins. Example. -028 if for 28-pin Socket )

**PUL - 200**

Universal extraction tool for all socket sizes (see also page 44)



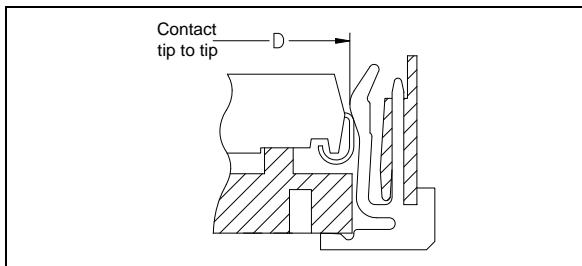
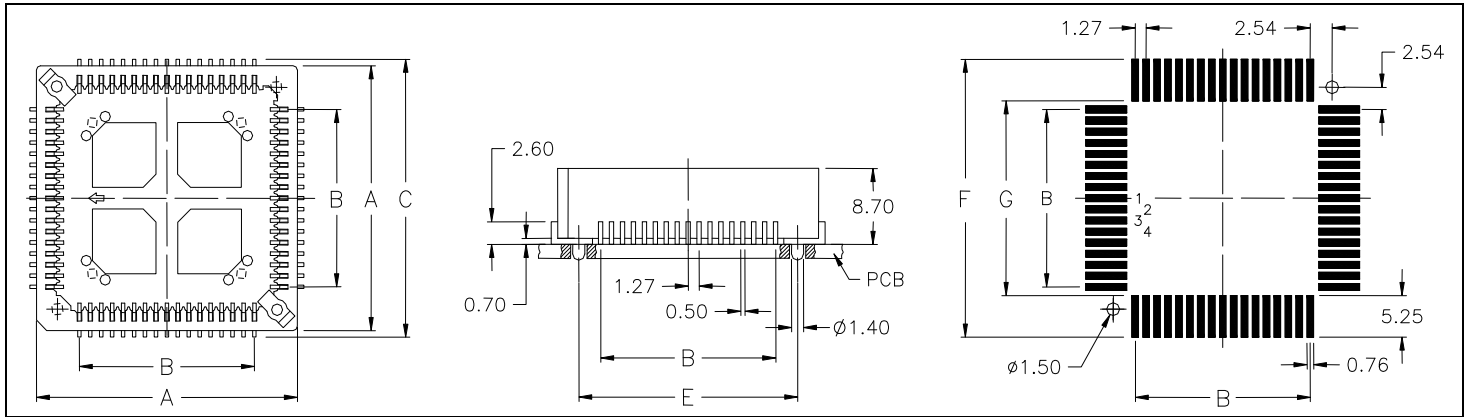
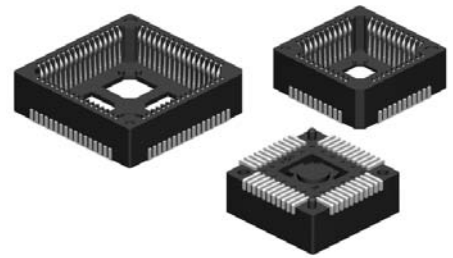
E-tec „hi-rel“ SMT PLCC sockets correspond to JEDEC Norms. Precision stamped contact design provides special „push-down effect“ onto the leads of the chip.

For very high shock and vibration applications a chip retention clip can be obtained on request.

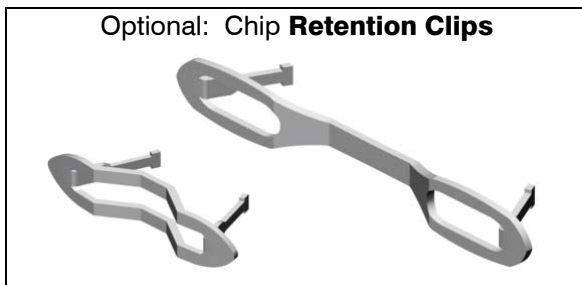
Inside polarisation corner prevents wrong insertion of the chips.

Stand-off's under the base prevent solder shorts.

Chips can be easily removed with the Universal extraction tool PUL-200.



JEDEC Specification for Plastic Leaded Chip Carrier					
Jedec Nbr	Nbr of Pin	Dimensions mm/inch			
		"A" min.	"A" max.	„B“ min.	„B“ max.
MO-047 AB	28	12,32 / .485	12,57 / .495	1,37 / .054	2,36 / .093
MO-052 AE	32 rectang.	14,86 x 12,32 .585 x .485	15,11 x 12,57 .595 x .495	1,37 / .054	2,36 / .093
MO-047 AB	44	17,40 / .685	17,65 / .695	1,37 / .054	2,36 / .093
MO-047 AB	52	19,94 / .785	20,19 / .795	1,37 / .054	2,36 / .093
MO-047 AB	68	25,02 / .985	25,27 / .995	1,37 / .054	2,36 / .093
MO-047 AB	84	30,10 / 1.185	30,35 / 1.195	1,37 / .054	2,36 / .093



Mechanical data		Temperature		Electrical data	
Plating	Sn (leadfree) over Ni; Au on request	Operating temp.	- 55°C to +125°C	Operating voltage	100 V RMS / 150V DC
Mating cycles	min. 50	Soldering temp.	+250°C +0/-5°C for 20~40 sec.	Breakdown voltage	>600 V RMS
Insertion force	max. 1,30N per contact	Material		Contact resistance	<20 mΩ
Extraction force	min. 0,90N per contact	Insulator (RoHS compliant)	high temp plastic UL 94 V-0	Insulation resistance	>5000 MΩ
		Contact (RoHS compliant)	Phosphor Bronze	Current rating	1 A max., 100V
		Retention Clip	Spring steel	Capacitance	<2 pF

PIN	Ordering Code PLCC SMT Type	Dimensions mm/inch						
		"A" <sup>+0.10</sup> / <sub>-0.20</sub>	"B"	"C" <sup>+0.10</sup> / <sub>-0.05</sub>	"D"	"E" <sup>+0.10</sup> / <sub>-0.15</sub>	"F" <sup>+0.05</sup> / <sub>-0.00</sub>	"G" <sup>+0.00</sup> / <sub>-0.05</sub>
28	<b>PLP - 028 - H100 - 99 ( /x )</b>	17,60/.693	7,62/.300	19,10/.752	11,50/.453	12,70/.500	19,60/.772	9,10/.358
32	<b>PLP - 032 - H100 - 99 ( /x )</b> (rectangular)	17,60 x 20,14 .693 x .793	7,62 x 10,16 .300 x .400	19,10 x 21,64 .752 x .852	11,50 x 14,04 .453 x .553	12,70 x 15,24 .500 x .600	19,60 x 22,14 .772 x .872	9,10 x 11,14 .358 x .438
44	<b>PLP - 044 - H100 - 99 ( /x )</b>	22,68/.893	12,70/.500	24,18/.952	16,58/.653	17,78/.700	24,68/.972	14,18/.558
52	<b>PLP - 052 - H100 - 99 ( /x )</b>	25,22/.993	15,24/.600	26,72/1.052	19,12/.753	20,32/.800	27,22/1.072	16,72/.658
68	<b>PLP - 068 - H100 - 99 ( /x )</b>	30,30/1.193	20,32/.800	31,80/1.252	24,20/.953	25,40/1.000	32,30/1.272	21,80/.858
84	<b>PLP - 084 - H100 - 99 ( /x )</b>	35,38/1.393	25,40/1.000	36,88/1.452	29,28/1.153	30,48/1.200	37,38/1.472	26,88/1.058

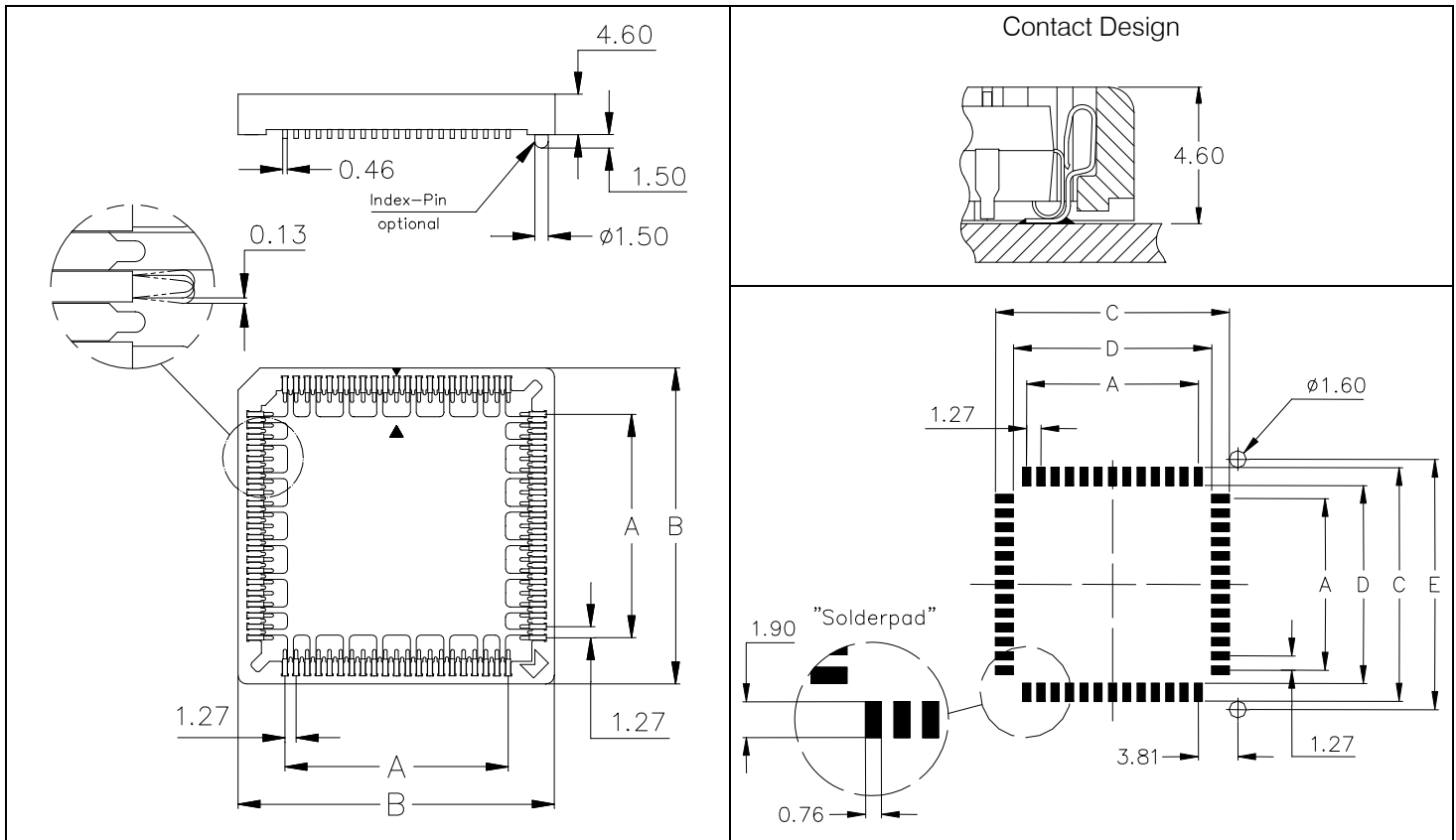
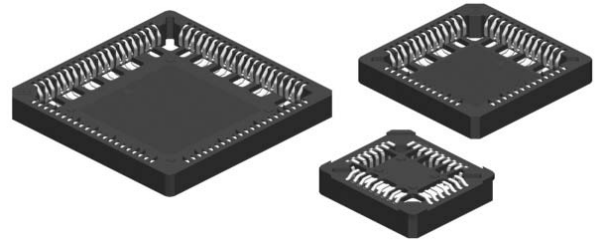
for sockets with index pins please add: /1 = 1 pin in right angle corner /2 = 1 pin in slanted corner /3 = 2 pins diagonal

Order Code for optional Retention Clip : HCP - xxx (replace "xxx" with nbr of pins. Example. -028 if for 28-pin Socket )

**PUL - 200** Universal extraction tool for all socket sizes (see also page 44)



Only 4.60mm height above board.  
 Identical PCB layout for socket and chip.  
 Solder terminals visible for post solder checks.  
 Available with index pins under the insulator for correct orientation of the sockets.  
 Diagonal slots for easy extraction of the chip with the Universal extraction tool PUL-200.  
 Sockets correspond to JEDEC Norms.  
 Also available in reel packaging.



**Specifications**

**Mechanical data**

Contact (RoHS compliant) Phosphor bronze  
 Plating Sn (leadfree) over Ni  
 Insulator (RoHS compliant) High temp plastic black UL 94 V-0  
**Temperature**  
 Operating temp. - 40°C to +105°C  
 Processing temp. +250°C +0/-5°C for 20~40sec.

**Electrical data**

Measuring voltage 100 V RMS / 150V DC  
 Breakdown voltage >600 V RMS  
 Contact resistance <20 mΩ  
 Insulation resistance >5000 MΩ  
 Current rating 1 A max., 100V  
 Capacitance <2 pF

PIN	Ordering Code		Dimensions mm				
	PLCC SMT without index pins	PLCC SMT with index pins	"A"	"B"	"C"	"D"	"E"
20	<b>PLS - 020 - H105 - 99</b>	<b>PLS - 020 - H105 - 99/4</b>	5,08	15,58	10,50	6,70	12,70
28	<b>PLS - 028 - H105 - 99</b>	<b>PLS - 028 - H105 - 99/4</b>	7,62	18,12	12,61	8,81	15,24
32	<b>PLS - 032 - H105 - 99</b> (rectangular)	<b>PLS - 032 - H105 - 99/4</b> (rectangular)	7,62 x 10,16	20,66 x 18,12	13,04 x 15,58	9,24 x 11,78	17,78
44	<b>PLS - 044 - H105 - 99</b>	<b>PLS - 044 - H105 - 99/4</b>	12,70	23,20	18,12	14,32	20,32
52	<b>PLS - 052 - H105 - 99</b>	<b>PLS - 052 - H105 - 99/4</b>	15,24	25,74	20,86	17,06	22,86
68	<b>PLS - 068 - H105 - 99</b>	<b>PLS - 068 - H105 - 99/4</b>	20,32	30,82	25,74	21,94	27,94
84	<b>PLS - 084 - H105 - 99</b>	<b>PLS - 084 - H105 - 99/4</b>	25,40	35,90	30,39	26,59	33,02
For reel packing pls. order with - 99/R							
<b>PUL -200</b>			Universal extraction tool for all sizes (see also page 44)				

# SM Series - SIMM Sockets

1,27mm pitch



SIMM sockets are made of hi-temp resistant LCP.

Single row types are available in vertical and slanted version ( 26°).

Insertion & extraction of the module can be made without any tools.

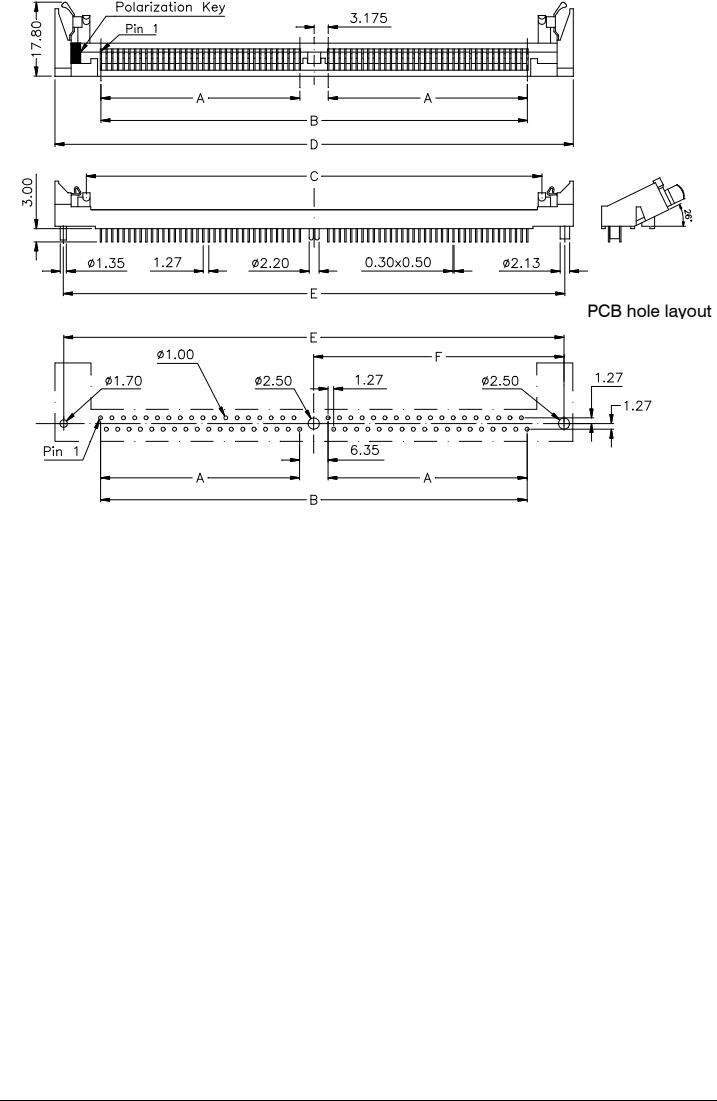
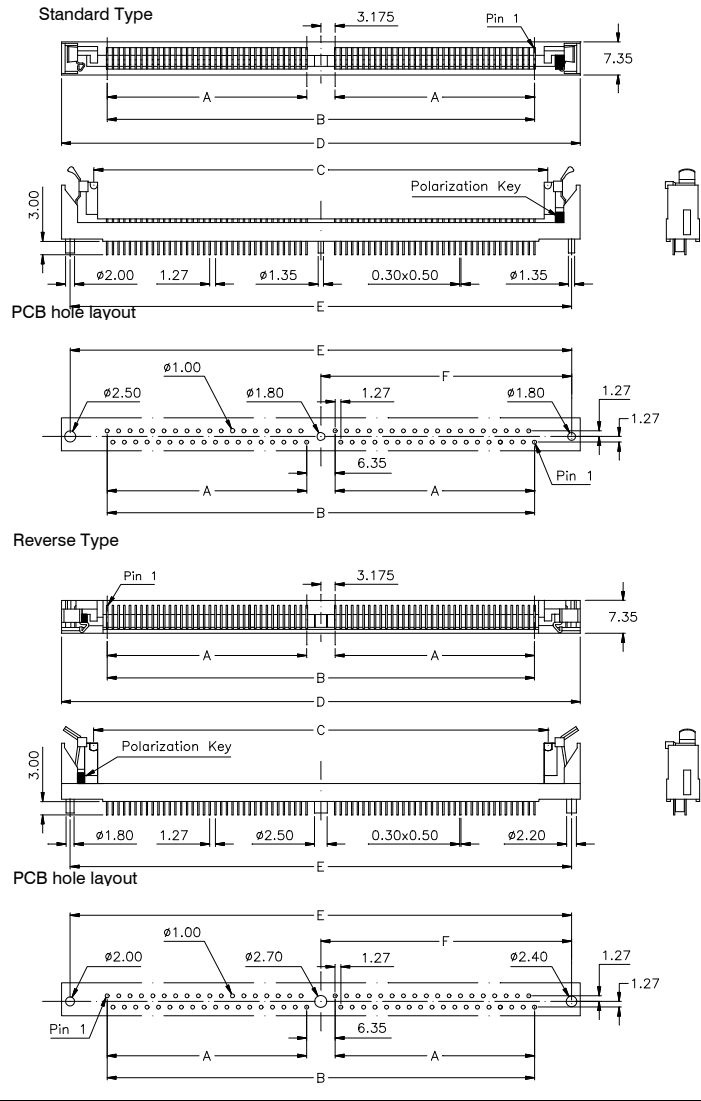
Positive polarization prevents wrong insertion of the module.

Contacts are designed with an anti-overstress feature.



## Single row - vertical

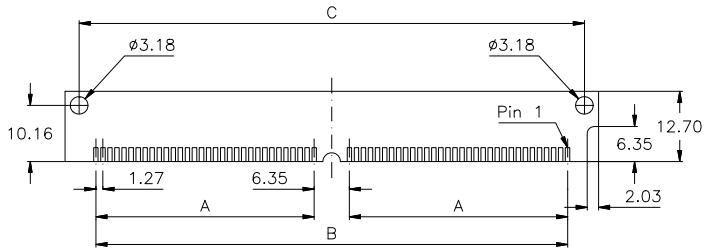
## Single row - 26° slanted



### Specifications

Current rating	: 1 A max., 100V
Contact resistance	: 30 mΩ max.
Breakdown voltage	: 1,5 KV RMS max.
Insulation resistance	: 10 <sup>4</sup> MΩ min.
Capacitance	: 2 pF max.
Contact force	: 2 N min. (Module: 1.19mm to 1.37mm thick)
Operating temperature	: -55 °C to + 150 °C min.
Insulator (RoHS compliant)	: high temp plastic (ivory) UL 94 V-0
Contact (RoHS compliant)	: Phosphor bronze
Plating	: Sn (leadfree) over Ni

### Dimensions for 1,27mm pitch SIMM Modules



Pin	Execution	Ordering Code		Dimensions mm					
		Standard Type	Reverse Type	"A" +/- 0.15	"B" +/- 0.15	"C" +0.60 / - 0.30	"D" +/- 0.30	"E" +/- 0.25	"F" +/- 0.25
72	vertical	<b>SM1 - 072 - TV99 - 99 / 1M</b>	<b>SM1 - 072 - TV99 - 99 / 1MR</b>	44,45	95,25	101,20	115,45	111,56	55,78
80	vertical	<b>SM1 - 080 - TV99 - 99 / 1M</b>	<b>SM1 - 080 - TV99 - 99 / 1MR</b>	49,53	105,40	111,35	125,75	121,80	60,90
72	26° slanted	<b>SM1 - 072 - TS99 - 99 / 1M</b>		44,45	95,25	101,20	115,45	111,56	55,78
80	26° slanted	<b>SM1 - 080 - TS99 - 99 / 1M</b>		49,53	105,40	111,35	125,75	121,80	60,90

# DM - Series DIMM Sockets

## vertical type 100-pin 4bit

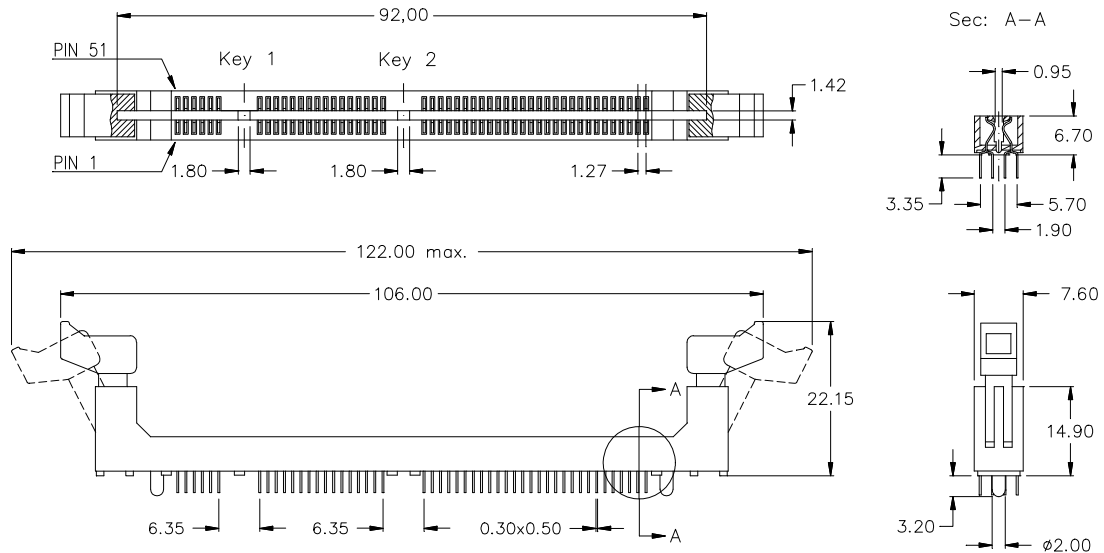
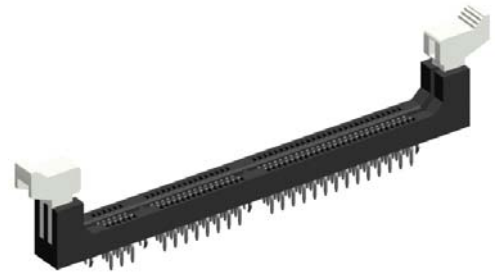


DIMM sockets are only available as long latch type  
( Module locking extractors ).

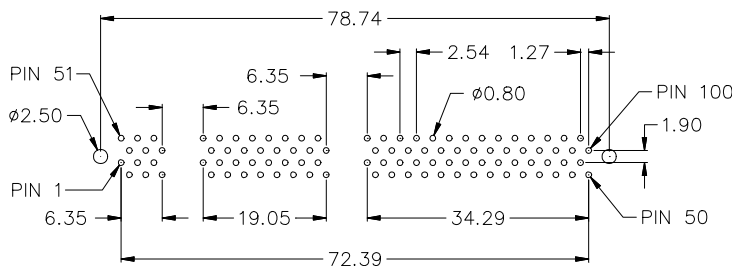
Insertion & extraction of the module can be made without any tools.

Positive polarization prevents wrong insertion of the module.

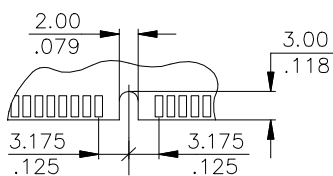
Contacts are designed with an anti-overstress feature for long contact life. Selective Gold/Tin plated. Gold only in contact area.



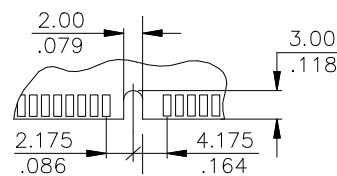
### PC Board hole layout



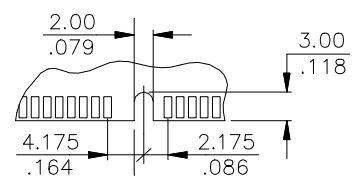
#### Module keying Type "A"



#### Module keying Type "B"



#### Module keying Type "C"



### Specification

Current rating 1 A max., 250V AC  
Contact resistance 30 mΩ max.  
Breakdown voltage 1,5 KV RMS max.  
Insulation resistance 10<sup>4</sup> MΩ min.  
Capacitance 1 pF max.

Operating temperature -55° C to +105° C min.  
Insulator (RoHS compliant) high temp plastic UL 94 V-0  
Contact (RoHS compliant) Copper Alloy  
Plating Au / Sn (leadfree) over Ni

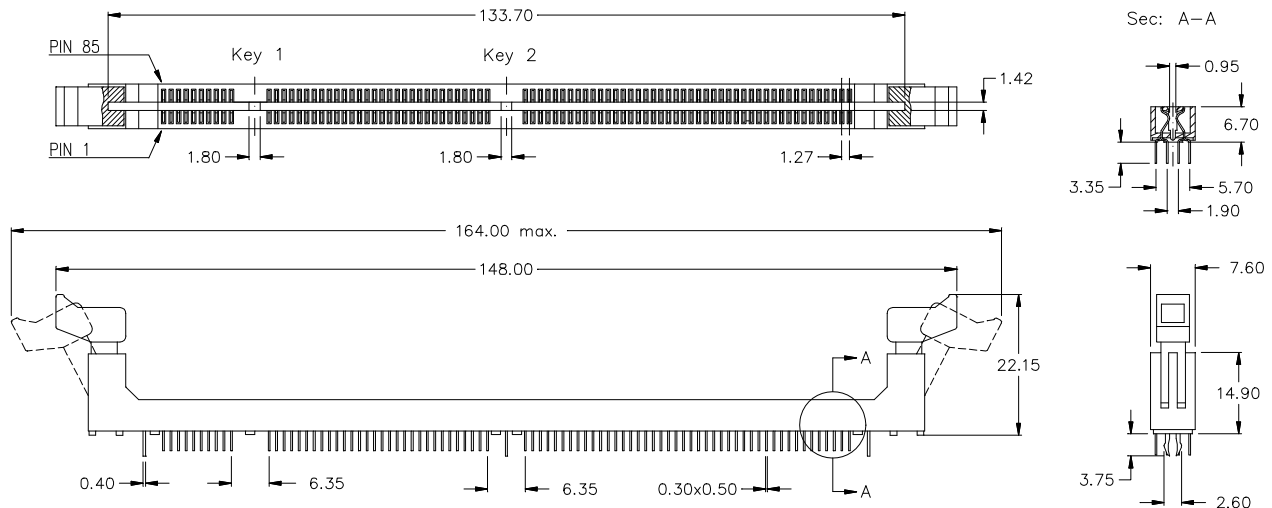
Pin	Socket Type	Key No. 1	Key No. 2	Ordering Code
100 pin	DRAM 5 Volt	Type "A"	Type "B"	Please contact E-tec sales office for availability.
100 pin	SDRAM 5 Volt	Type "B"	Type "B"	Please contact E-tec sales office for availability.
100 pin	UDRAM 5 Volt	Type "C"	Type "B"	Please contact E-tec sales office for availability.
100 pin	DRAM 3,3 Volt	Type "A"	Type "A"	Please contact E-tec sales office for availability.
100 pin	SDRAM 3,3 Volt	Type "B"	Type "A"	Please contact E-tec sales office for availability.
100 pin	UDRAM 3,3 Volt	Type "C"	Type "A"	<b>DM1 - 100 - VCA9 - 95/1L</b>

DIMM sockets are only available as long latch type  
( Module locking extractors ).

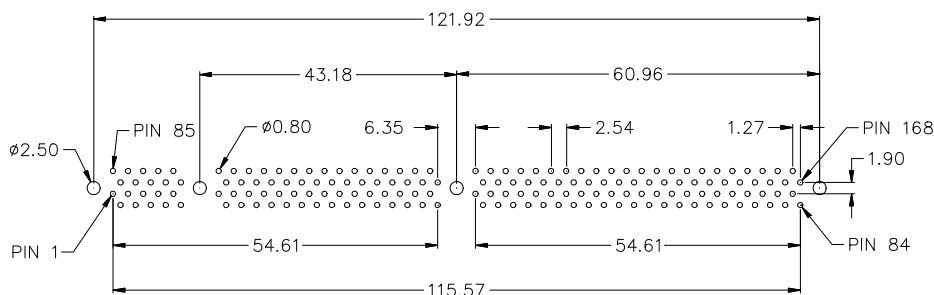
Insertion & extraction of the module can be made without any tools.

Positive polarization prevents wrong insertion of the module.

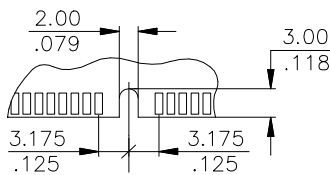
Contacts are designed with an anti-overstress feature for long contact life. Selective Gold/Tin plated. Gold only in contact area.



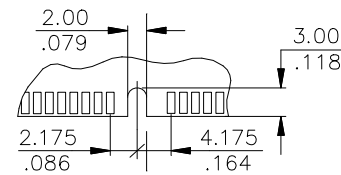
PC Board hole layout



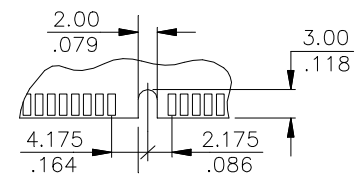
Module keying Type "A"



Module keying Type "B"



Module keying Type "C"



Specification

Current rating	1 A max., 250V AC	Operating temperature	-55° C to +105° C min.
Contact resistance	30 mΩ max.	Insulator (RoHS compliant)	high temp plastic UL 94 V-0
Breakdown voltage	1,5 KV RMS max.	Contact (RoHS compliant)	Copper Alloy
Insulation resistance	10 <sup>4</sup> MΩ min.	Plating	Au / Sn (leadfree) over Ni
Capacitance	1 pF max.		

Pin	Socket Type	Key No. 1	Key No. 2	Ordering Code
168 pin	DRAM 5 Volt	Type "A"	Type "B"	<b>DM1 - 168 - VAB9 - 95/1L</b>
168 pin	SDRAM 5 Volt	Type "B"	Type "B"	<b>DM1 - 168 - VBB9 - 95/1L</b>
168 pin	UDRAM 5 Volt	Type "C"	Type "B"	<b>DM1 - 168 - VCB9 - 95/1L</b>
168 pin	DRAM 3,3 Volt	Type "A"	Type "A"	<b>DM1 - 168 - VAA9 - 95/1L</b>
168 pin	SDRAM 3,3 Volt	Type "B"	Type "A"	<b>DM1 - 168 - VBA9 - 95/1L</b>
168 pin	UDRAM 3,3 Volt	Type "C"	Type "A"	<b>DM1 - 168 - VCA9 - 95/1L</b>



# DM - Series DIMM Sockets

## 25° slanted type 168-pin

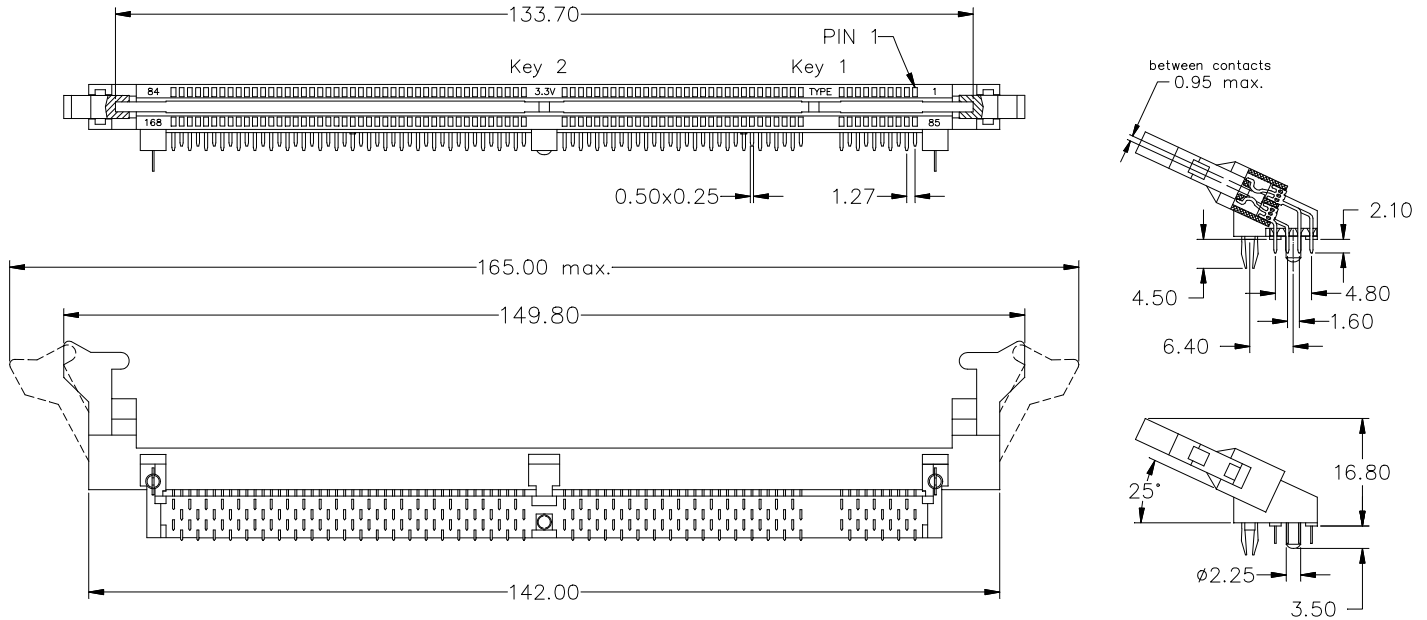


DIMM sockets are only available as long latch type  
( Module locking extractors ).

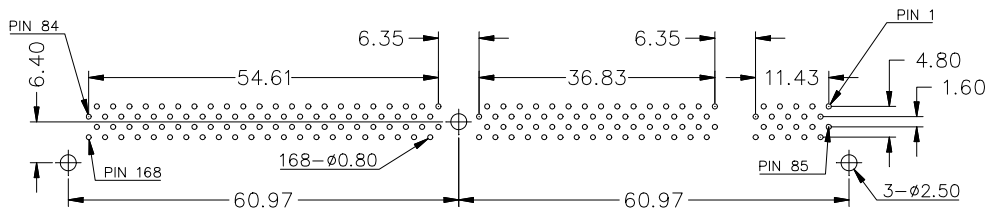
Insertion & extraction of the module can be made without any tools.

Positive polarization prevents wrong insertion of the module.

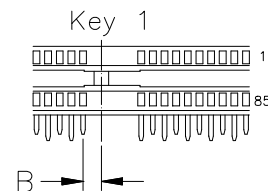
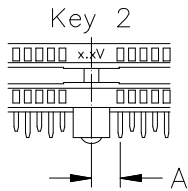
Contacts are designed with an anti-overstress feature for long contact life. Selective Gold/Tin plated. Gold only in contact area.



### PC Board hole layout



### Module keying



### Specification

Current rating: 1 A max., 250V AC  
 Contact resistance: 30 mΩ max.  
 Breakdown voltage: 1,5 KV RMS max.  
 Insulation resistance: 1000 MΩ min.  
 Capacitance: 1 pF max.

Operating temperature: -25° C to +105° C min.  
 Insulator (RoHS compliant): high temp plastic UL 94 V-0  
 Contact (RoHS compliant): Copper Alloy  
 Plating: Au / Sn (leadfree) over Ni

Pin	Socket Type	Key No. 1	Key No. 2	Type	Ordering Code
168 pin	DRAM 3,3 Volt	DIM "B" = 3.175 mm	DIM "A" = 3.175 mm	AA	<b>DM1 - 168 - SAA8 - 95/1L</b>
168 pin	SDRAM 3,3 Volt	DIM "B" = 4.175 mm	DIM "A" = 3.175 mm	BA	<b>DM1 - 168 - SBA8 - 95/1L</b>
168 pin	UDRAM 3,3 Volt	DIM "B" = 2.175 mm	DIM "A" = 3.175 mm	CA	<b>DM1 - 168 - SCA8 - 95/1L</b>

# DM - Series DIMM Sockets

## 90° right angle type 168-pin

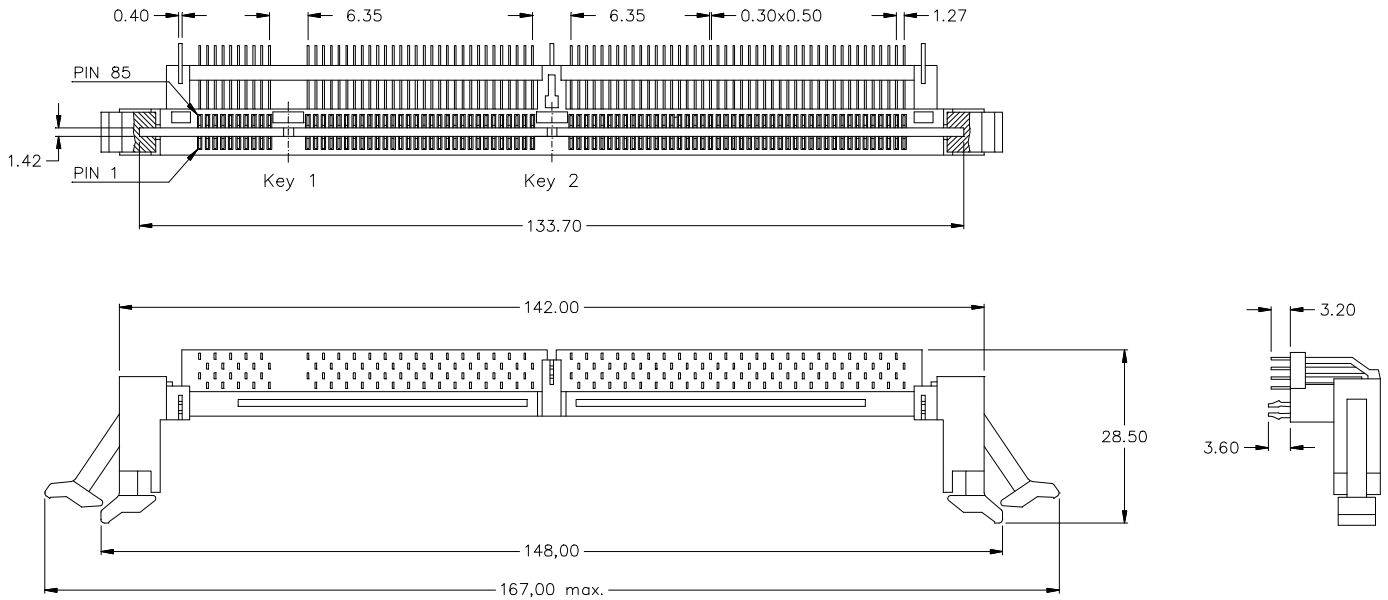
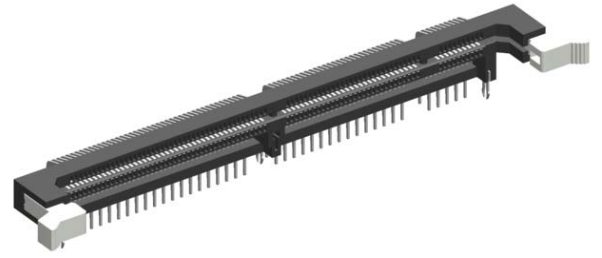


DIMM sockets are only available as long latch type  
( Module locking extractors ).

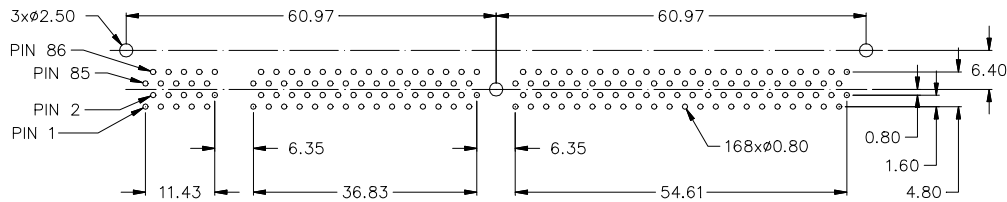
Insertion & extraction of the module can be made without any tools.

Positive polarization prevents wrong insertion of the module.

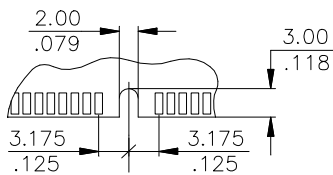
Contacts are designed with an anti-overstress feature for long contact life. Selective Gold/Tin plated. Gold only in contact area.



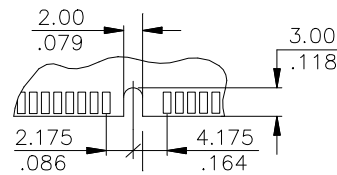
### PC Board hole layout



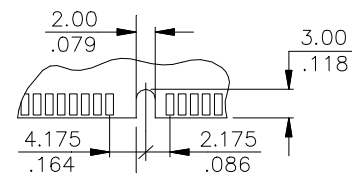
#### Module keying Type "A"



#### Module keying Type "B"



#### Module keying Type "C"



### Specification

Current rating 1 A max., 250V AC  
 Contact resistance 30 m $\Omega$  max.  
 Breakdown voltage 1,5 KV RMS max.  
 Insulation resistance 10<sup>4</sup> M $\Omega$  min.  
 Capacitance 1 pF max.

Operating temperature -55° C to +105° C min.  
 Insulator (RoHS compliant) high temp plastic UL 94 V-0  
 Contact (RoHS compliant) Copper Alloy  
 Plating Au / Sn (leadfree) over Ni

Pin	Socket Type	Key No. 1	Key No. 2	Ordering Code
168 pin	DRAM 5 Volt	Type "A"	Type "B"	Please contact E-tec sales office for availability.
168 pin	SDRAM 5 Volt	Type "B"	Type "B"	Please contact E-tec sales office for availability.
168 pin	UDRAM 5 Volt	Type "C"	Type "B"	Please contact E-tec sales office for availability.
168 pin	DRAM 3,3 Volt	Type "A"	Type "A"	Please contact E-tec sales office for availability.
168 pin	SDRAM 3,3 Volt	Type "B"	Type "A"	Please contact E-tec sales office for availability.
168 pin	UDRAM 3,3 Volt	Type "C"	Type "A"	<b>DM1 - 168 - RCA9 - 95/1L</b>

# DR - Series DIMM Sockets

## for DDR Module vertical type 184-pin

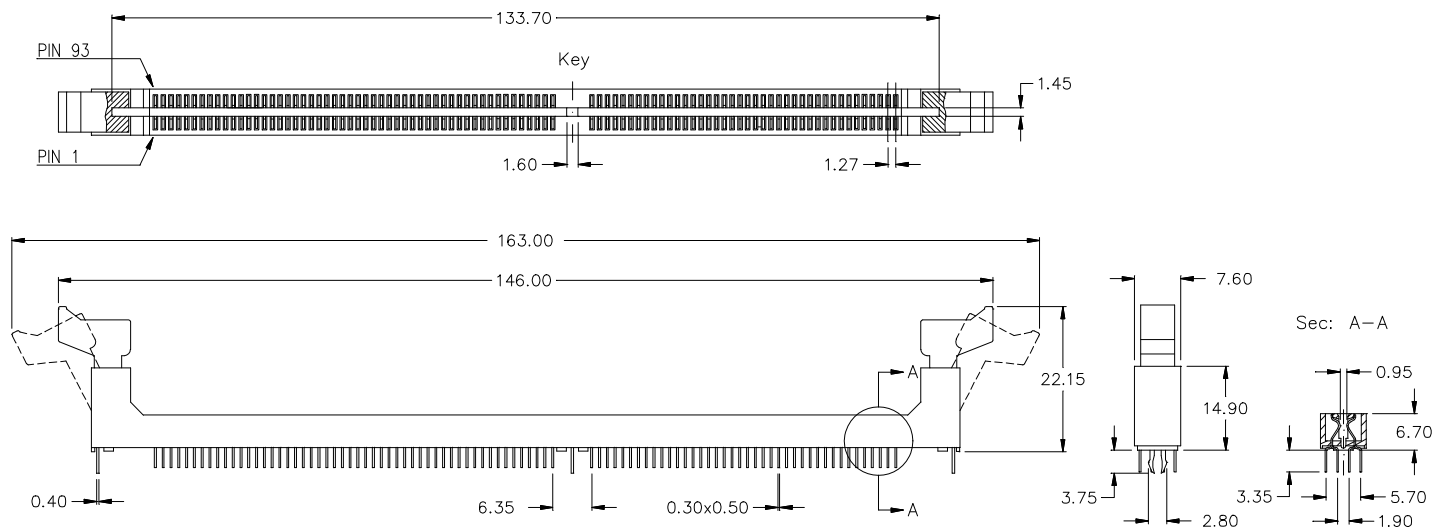


DIMM sockets for DDR module are only available as long latch type (Module locking extractors).

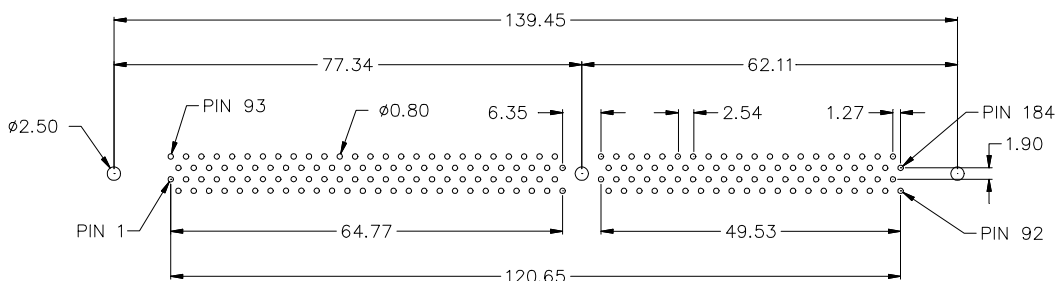
Insertion & extraction of the module can be made without any tools.

Positive polarization prevents wrong insertion of the module.

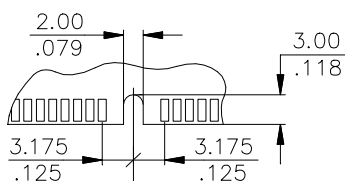
Contacts are designed with an anti-overstress feature for long contact life. Selective Gold/Tin plated. Gold only in contact area.



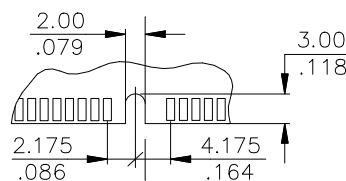
### PC Board hole layout



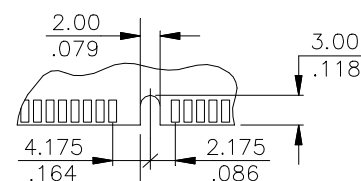
#### Module keying Type "A"



#### Module keying Type "B"



#### Module keying Type "C"



### Specification

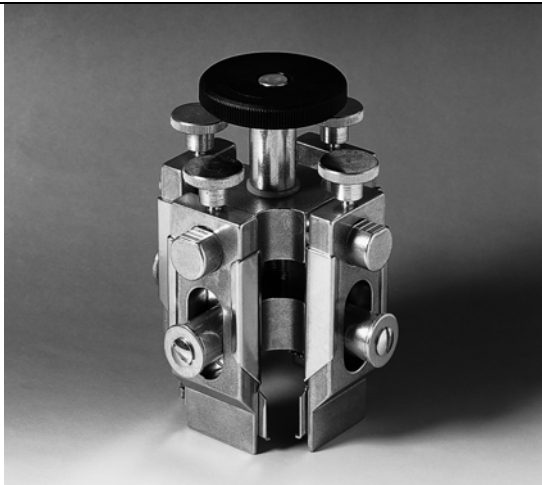
Current rating: 1 A max., 250V AC  
 Contact resistance: 30 mΩ max.  
 Breakdown voltage: 1,5 KV RMS max.  
 Insulation resistance: 10<sup>4</sup> MΩ min.  
 Capacitance: 1 pF max.

Operating temperature: -55° C to +105° C min.  
 Insulator (RoHS compliant): high temp plastic UL 94 V-0  
 Contact (RoHS compliant): Copper Alloy  
 Plating: Au / Sn (leadfree) over Ni

Pin	Socket Type	Voltage Key	Ordering Code
184 pin	1,8 Volt	Type "A"	Please contact E-tec sales office for availability.
184 pin	2,5 Volt	Type "B"	<b>DR1 - 184 - VBZ9 - 95/1L</b>
184 pin	3,3 Volt	Type "C"	Please contact E-tec sales office for availability.

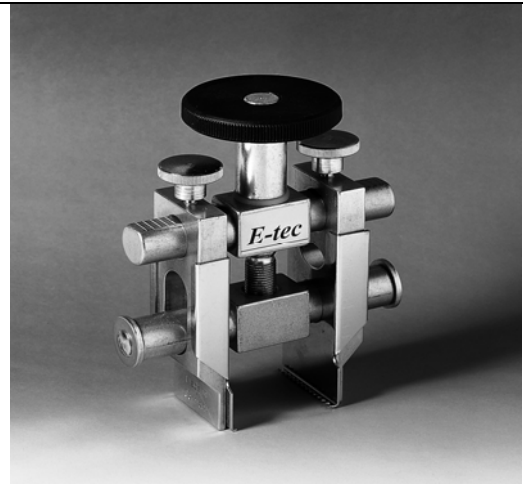
**PGA Extraction Tools**

for changing multi-pole PIN-GRID-ARRAYS



For extraction of PIN-GRID-ARRAYS from sockets with high extraction force, the **four side grip claw type** is recommended in order to prevent damaging the Array.

**Order Code: PUL – 2300 – D/26**



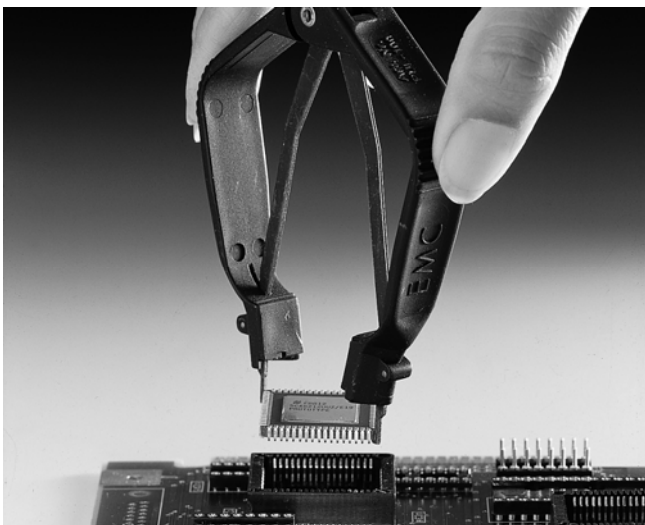
The multi-range tools have spindle actuation and a lifting mechanism with movable support jaws. Solid aluminium crossbars ensure even load distribution during the extraction operation. Their relatively large lift of approx. 15mm also permits safe extraction of arrays with bonded-on heat sinks.

**Order Code: PUL – 2300 – S**

**PLCC , SOJ & LCC “Universal” Extraction Tool  
WHY UNIVERSAL ?**

It only requires ONE tool for extracting PLCC & SOJ chips of all pin configurations and LCC 32- and 44-pin chips (E-PROM's). The plastic arms sit on the side, thus avoiding an extraction force on the socket itself. This is most important for SMD sockets, which would otherwise be torn off the board.

The same tool can be used for all sockets built according to JEDEC standards and having diagonal entry slots.



**Order Code: PUL – 200**

**PGA Insertion Tools  
for inserting multi-pole PIN-GRID-ARRAYS**

Inserting multi-pole PGA's into Sockets with precision contacts causes the same difficulties as extracting them.

When inserting a PGA into a corresponding socket, even pressure must be applied to the top of the PGA.

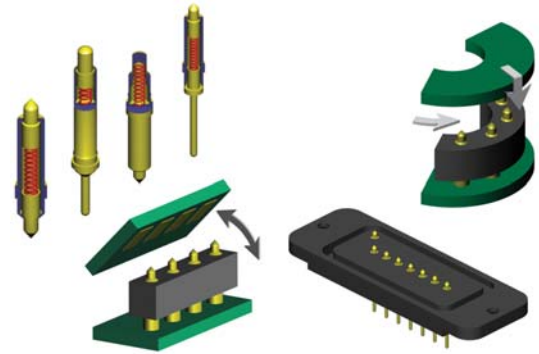
E-tec recommends the use of this PUS-2060 Series in order to avoid tilting and damaging the contact pins.



**Please consult your closest sales office for detailed information and order codes.**



Spring loaded contacts and connectors can be found in numerous environments for consumer and professional electronic applications in fixed or mobile equipments for communications, automotive, loading stations, SIM card connectors, docking stations, test & measurement instruments, cameras (picture & film), medical apparatus and many more. The probe pin and connector designs are generally specifically adapted to customer requirements.



	Plunger tip types (please circle your requirement below)				
	 Single point tip <input type="checkbox"/>	 Crown tip <input type="checkbox"/>	 Convex tip <input type="checkbox"/>	 Concave tip <input type="checkbox"/>	
	Probe pin types (please circle your requirement below)				
	Solderless		SMT		Thru-hole
	 Single point tip <input type="checkbox"/>	 Crown tip <input type="checkbox"/>	 Round tip <input type="checkbox"/>	 Flat tip <input type="checkbox"/>	 Solderetail <input type="checkbox"/>

**Probe pin and Connectors are generally produced to custom specifications.**

**Please supply a datasheet or a sketch of the required probe pin and/or connector dimensions and highlight the critical requirements for your application.**

**The list above and below covers some of the probe pin aspects which need to be determined or which may be critical for your application.**

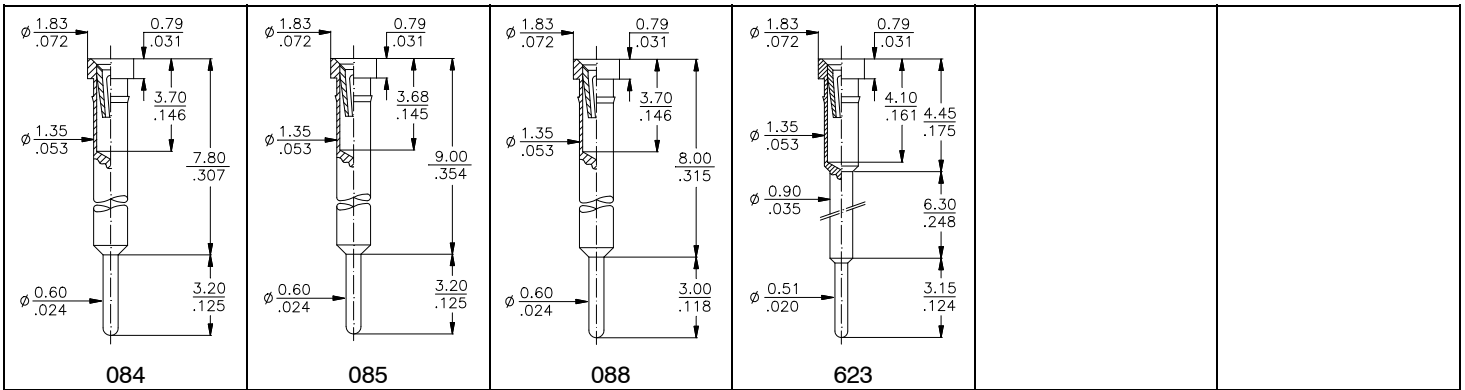
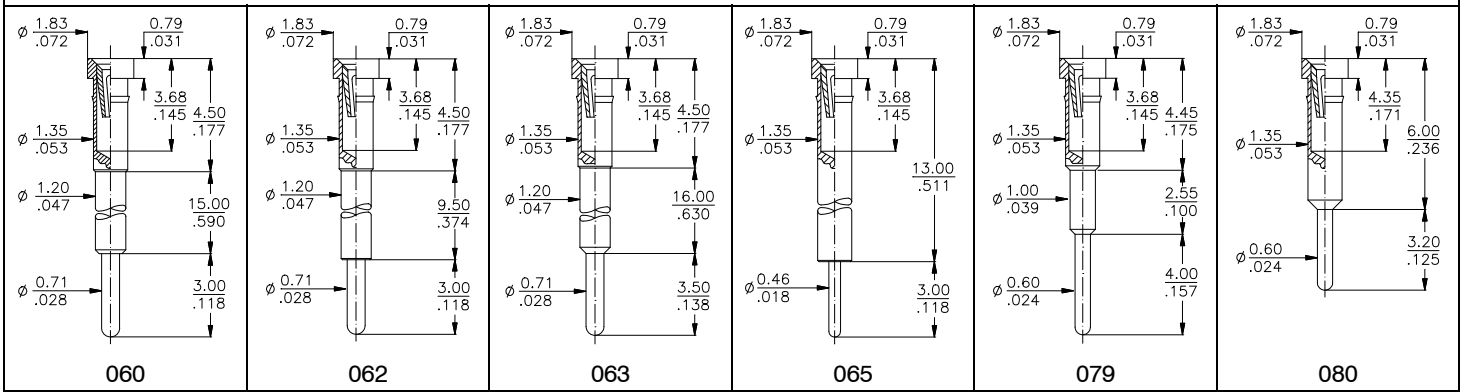
**Please complete and/or tick your requirements and send this page to your closest E-tec sales office. If you need any further assistance, please do not hesitate to call.**

Overall height DIM. "A"		Plunger travel (stroke) DIM "B"		Pitch	
Contact force		Current rating		Mechanical life	
Bandwidth		Operating temperature			
Material specs for plunger					
Material specs for spring					
Material specs for barrel					
Material specs for connector body					

## Socket Terminals

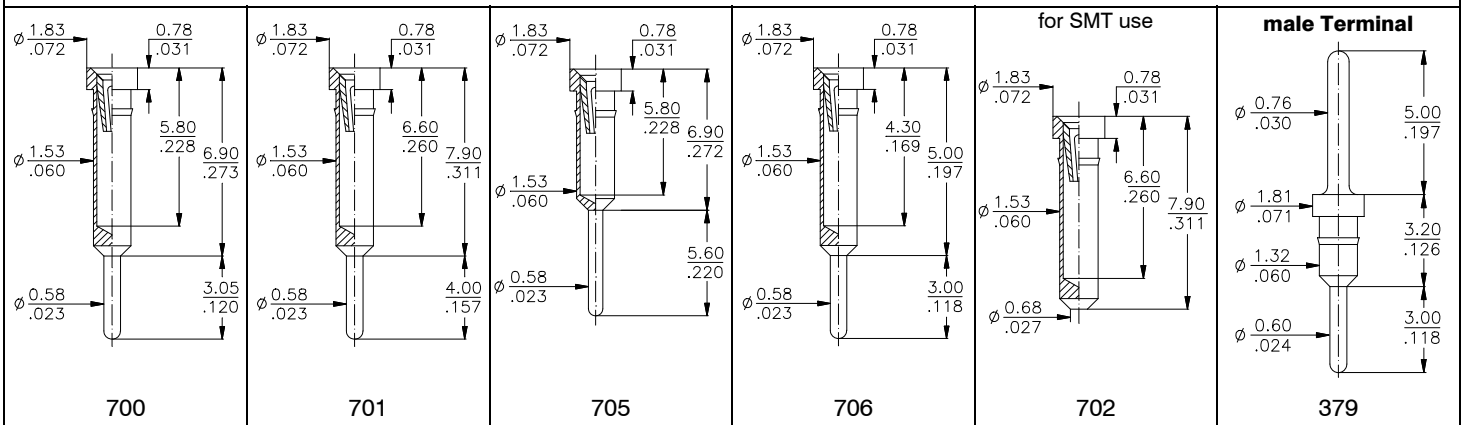
<p>001</p>	<p>008</p>	<p>009</p>	<p>010</p>	<p>Terminal for Carrier use</p> <p>012</p>	<p>047</p>
<p>083</p>	<p>095 (soft brass)</p>	<p>250</p>	<p>for pitch 1,27mm/.050" &amp; 1,50mm/.059"</p> <p>117</p>	<p>for pitch 1,778mm/.070" &amp; 2,00mm/.079"</p> <p>118</p>	
<p>for pitch 1,00mm/.039"</p> <p>172</p>	<p>for pitch 0,80mm/.031"</p> <p>174</p>	<p>for pitch 1,27mm/.050"</p> <p>148</p>	<p>for SMT pitch 1,27mm/.050" 1,50mm/.059" - 2,00mm/.079"</p> <p>119</p>	<p>for SMT pitch 1,00mm/.039"</p> <p>167</p>	<p>for SMT pitch 0,80mm/.031"</p> <p>169</p>
<p>for SMT use possible</p> <p>014</p>	<p>for SMT use possible</p> <p>016</p>	<p>for SMT use possible</p> <p>093</p>	<p>for SMT use possible</p> <p>144</p>	<p>for SMT use possible</p> <p>147</p>	<p>for SMT use possible</p> <p>157</p>
<h2>Wire Wrap Terminals</h2>					
<p>002</p>	<p>003</p>	<p>030 (Nail Head)</p>	<p>038</p>		

## Raised Terminals

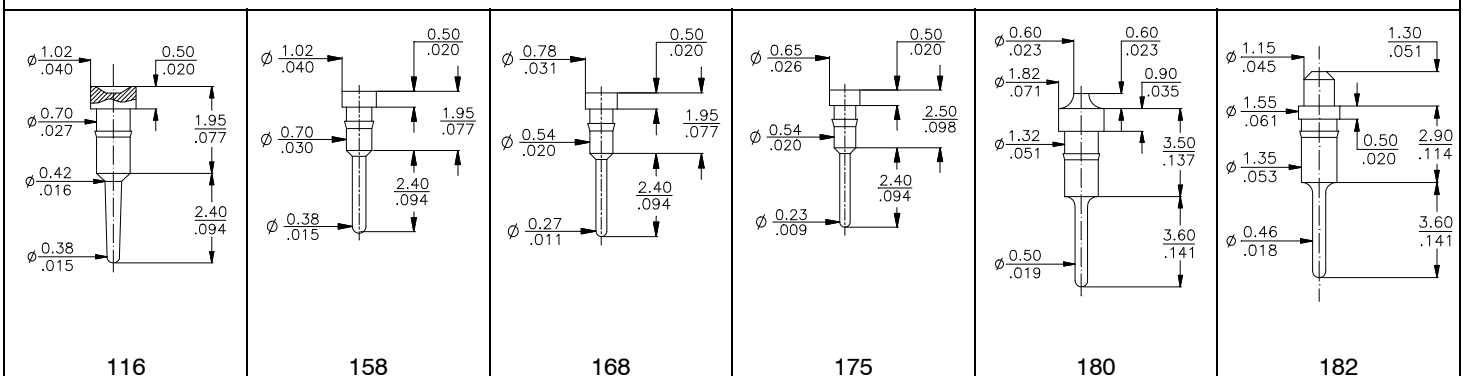


## „Jumbo“ Contact & Male Terminals

( Contact accepts 0,64mm/.025" sq. & 0,90mm/.036" dia. Pins )



## Solder Adapter Terminals



## Board to Board Terminals

<p>037</p>	<p>056</p>	<p>057</p>	<p>058</p>	<p>059</p>	
<p>077</p>	<p>078</p>	<p>220</p>	<p>372</p>	<p>377</p>	
<p>542</p>	<p>544</p>	<p>562</p>	<p>583</p>	<p>770</p>	<p>for pitch 1,27mm/.050"</p> <p>774</p>

## Header Terminals

<p>036</p>	<p>353</p>	<p>038 (Wire Wrap)</p>			
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## General Specifications for Precision Pin Sockets

### Mechanical data

Average forces for available clip types:	
Standard type	1.80N insertion / 0.90N extraction
Low force type	0.70N insertion / 0.25N extraction
Super low force type	0.40N insertion / 0.15N extraction
High force type	4.00N insertion / 2.50N extraction
„Jumbo“ contact	1.40N insertion / 0.25N extraction
<i>Other clips and forces available on request</i>	
Contact life	min. 100 cycles
Vibration as per EN60352-4	sinusoidal, 10 to 500 Hz, 10g, 1 octave/min, 10 cycles for each axis
Shock as per EN60352-4	half sine, 50g, 11ms, 3 shocks in 3 axes
Thermal shock as per IEC 60068-2-14	-55°C/+125°C, 5 cycles, 30 minutes
Solderability as per IEC 60068-2-58	245°C to 255°C 5 sec; Sn97Ag3 solder alloy
Dry heat steady state as per IEC 60068-2-2	260°C for 20 sec.
Cold steady state as per IEC 60068-2-1	-55°C, 2h
Damp heat cyclic as per IEC 60068-2-30	55°C, 90-100%rH, 24h
Moisture sensitivity Level (JEDEC J-STD-020C)	2 for PBT & Nylon 1 for all other materials
PCB holes for 2.54mm pitch standard connectors	1.00mm diameter
Coplanarity thru-hole	0.30mm
General tolerances	+/- 0.10mm

### Operating temperature (standard)

-55°C to +125°C

### Processing temperature

injection molded insulator (high temp)	+250°C +0/-5°C for 20~40 sec. (reflow solder)
injection molded insulator (PBT)	+250°C +0/-5°C for 10 sec. (wave solder only)
Epoxy FR4 (Standard)	+220°C min. for 10 sec.
Epoxy FR4 (hi temp)	+260°C min. for 60 sec.

### Electrical data

Contact resistance at 1A	4,3 mΩ typ.
Current rating (except „Jumbo“ contact)	1A max.
„Jumbo“ contact	3A max.
Contact capacitance at 1MHz	2pF max.
Insulation resistance at 500V DC for std & hi-temp	5 × 10 <sup>9</sup> Ω min.
Insulation resistance at 500V DC for FR4 Epoxy	> 10 <sup>4</sup> MΩ
Breakdown voltage at 60 Hz	500 V AC min.
Contact resistance after 1000 ins./ext. cycles	≤ 7 mΩ

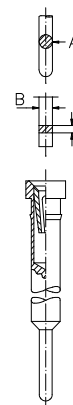
### Material (RoHS compliant)

Standard temperature plastic: PBT UL 94 V-0	14, 15, 16, 23, 17, 19, 20, 24 25, 26, 27, 29
High-temp plastic: Nylon, PCT, SPS, PPS, LCP UL 94 V-0	5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 20, 25, 26 27, 28, 33, 34, 35, 36, 37, 38 39, 40, 41, 42, 43
Epoxy FR4: UL 94 V-0 & UL 94 V-1	32, 5, 6, 7, 18, 22, 24, 29
PBT, Nylon, PCT, SPS, PPS, LCP & Epoxy FR4	If necessary pls. contact E-tec for Material specification.
Terminal: CuZn	
Contact: BeCu	

### Male pin dimensions for standard clip (except „Jumbo Contact“)

(DIN 41 870, IEC 191 for square IC-legs)

DIM	min.	max.
„A“ ∅	<u>0,42</u> .016"	<u>0,56</u> .022"
„B“ □	<u>0,36</u> .014"	<u>0,55</u> .023"
„C“ □	<u>0,20</u> .008"	<u>0,30</u> .014"



## General information concerning the E-tec interconnect products

### Plating:

- Standard tin plating:  
min. 2.50μm Sn (*leadfree*) over Ni
- Standard gold plating:  
flash, max. 0,10μm Au over Ni
- Higher gold platings are offered on request

### Specifications:

The data contained in this catalog is of general nature and refers to standard products. For example a „Current rating“ at an ambient temperature of 25° C reflects the value per individual contact. Should you require any further data or test reports, you can obtain this information from your nearest E-tec sales office.

The E-tec connectors conform with signal integrity requirements at high data and frequency rates. However we cannot offer a general information about the max. frequency or data transmission rate. For such a statement, it would require more information about the chosen configuration and pin-out, the length of the cable and/or any other specific requirements regarding the application itself and its related signal integrity.

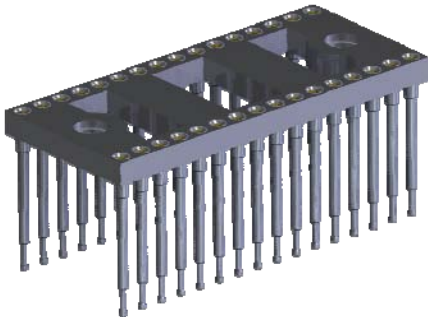
E-tec SMT connectors, male or female, are offered with a coplanarity of max. 0,10mm. They are adapted to all modern SMT soldering processes and they can be handled easily with all currently existing placing techniques. Customers may choose between various packaging options, such as tray, tube and tape & reel.

### GENERAL POLICY

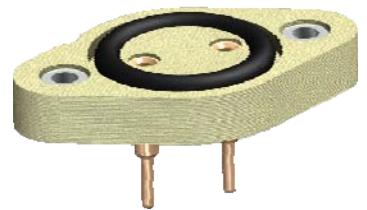
All information contained in this catalog, including illustrations, specifications and dimensions are accurate to the best of our knowledge, and reflect the status as at the date of publication. Due to technical progress, it is subject to change without notice. Application information is informational in nature and shall not be construed to warrant suitability of products for any particular purpose as performance may vary depending on the conditions to which a product is subjected. Unless otherwise confirmed at the time of order, all E-tec products are non cancellable and non returnable items (NCNR). E-tec products are warranted for 30 days and the warranty is limited strictly to replacement of products. This warranty does not cover any claims for natural wear and tear, nor for any compensations, such as loss of production, loss of use, loss of orders, loss of profit, nor any other direct or indirect damages.

Contact your closest office for customized products

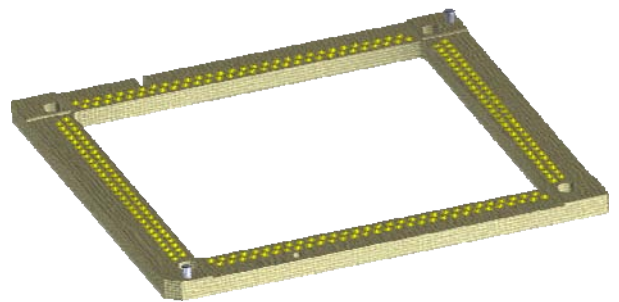
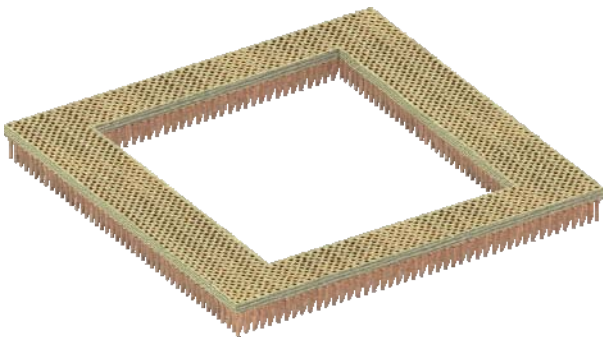
Consumer Electronics examples



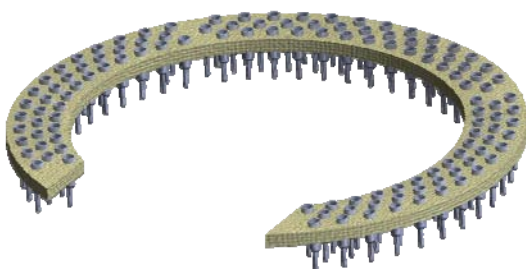
Industrial Electronics examples



Military & Aerospace Electronics examples

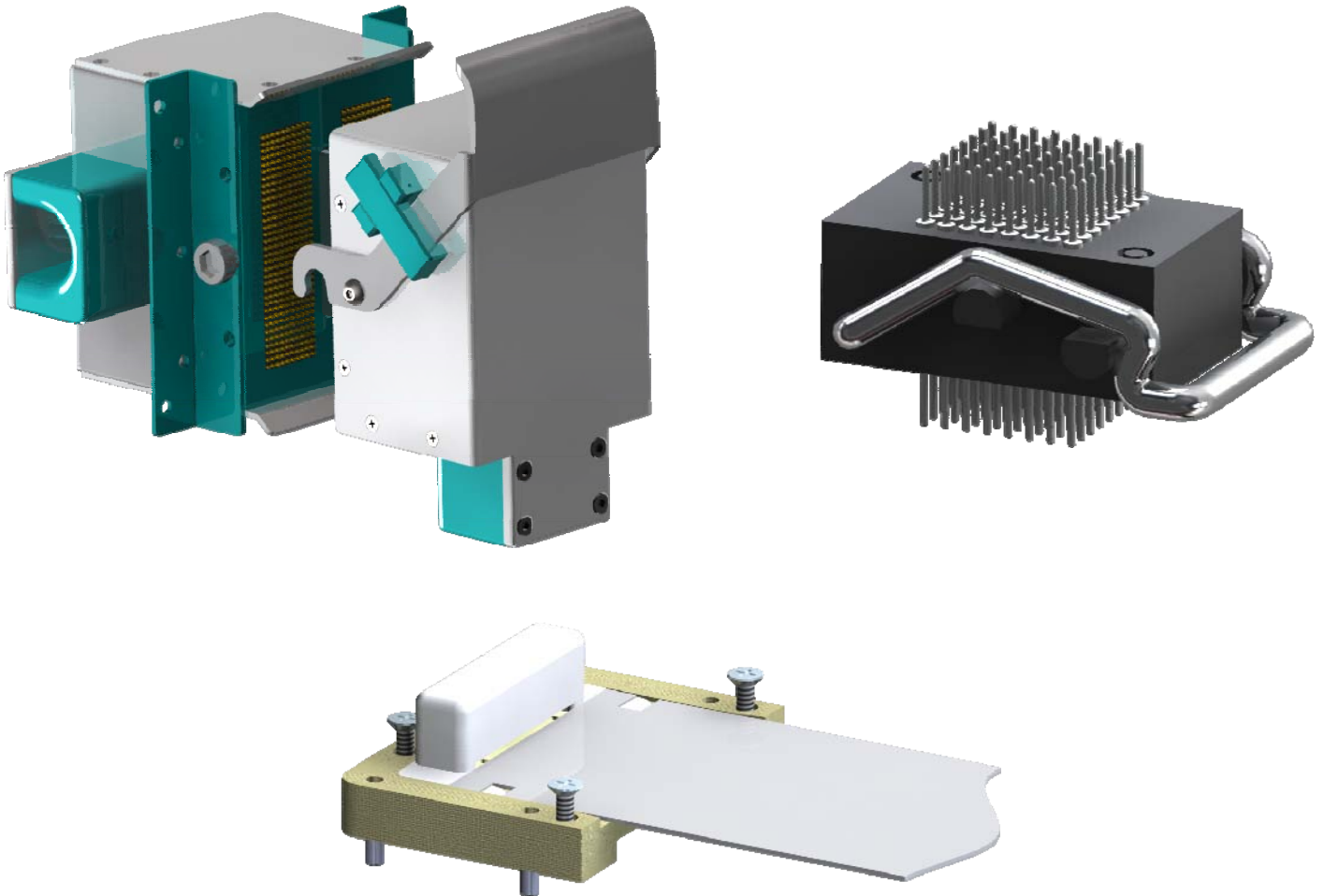


Test- & Measuring Electronics examples

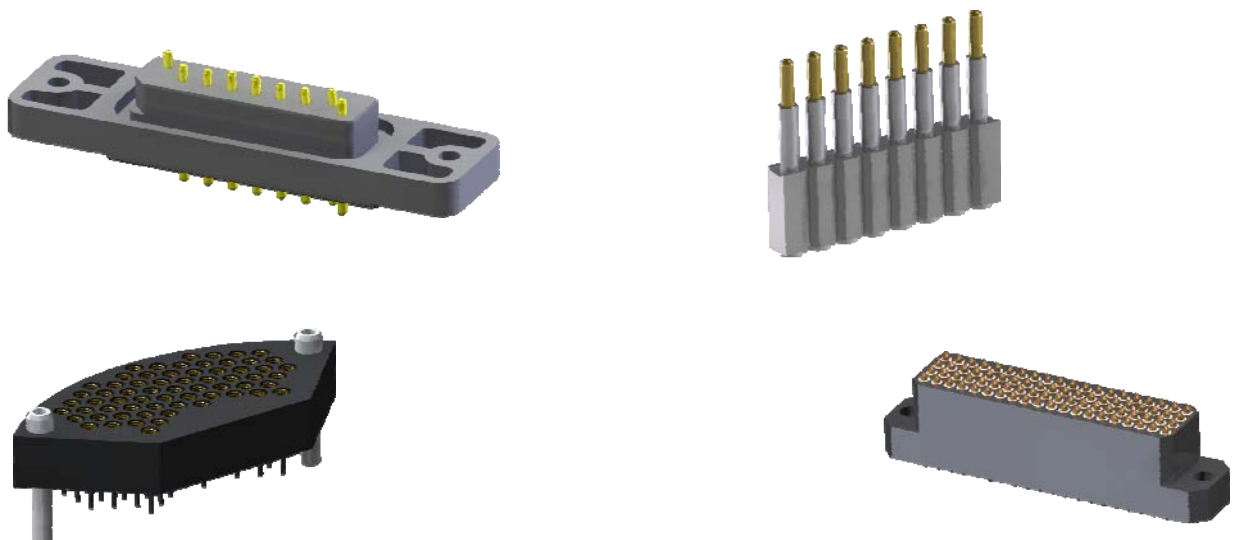


Contact your closest office for customized products

Medical Electronics examples



Telecommunication examples

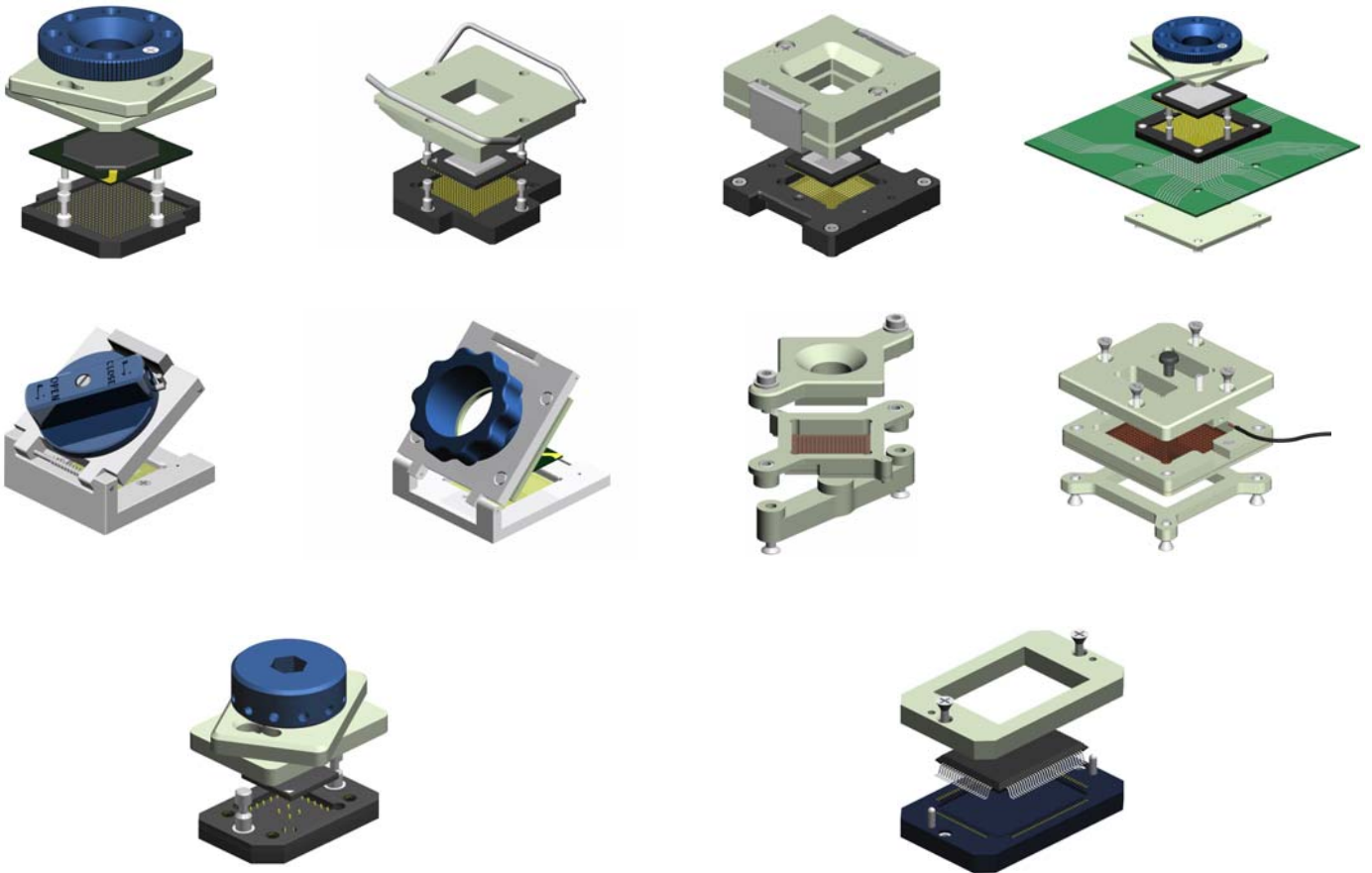


E-tec test sockets are custom made high temperature sockets to test IC packages on a PCB (BGA, LGA, CGA, QFN, GullWing type, etc.).

Generally used for prototyping, pre-production and test & burn-in, the E-tec test sockets allow the customer to insert an IC package into the socket, test it in its original condition and remove it again for final soldering to the PCB after all tests have been completed. The sockets are easily adaptable to customer requirements.

For more information please refer to our Test Socket catalog TS-01

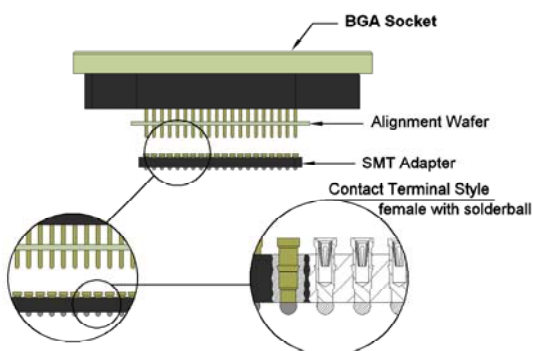
**Test Sockets (BGA, LGA, CGA, QFN, GullWing Type) available with a large variety of locking systems**



## Adapter Solutions

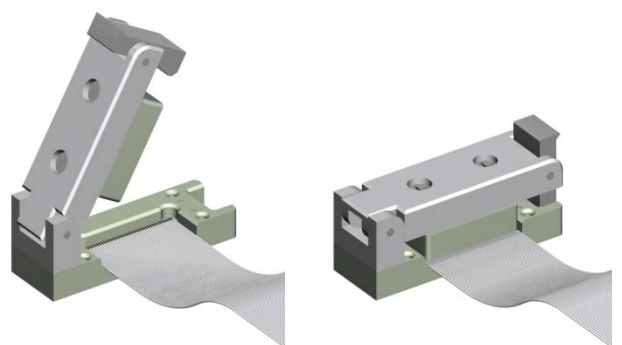
An alternative to direct soldering of test sockets to the PCB.

A light weight SMT adapter is soldered to the PCB first, and then the test socket can be plugged into this adapter and unplugged again.



## ZIF Test Sockets for Flex Cable

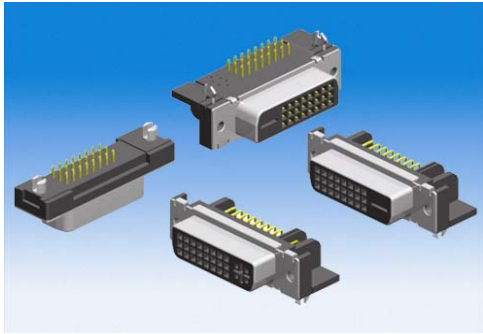
Used for testing components (scanner, membrane switch, etc) which need to be connected via a FFC/FPC cable.



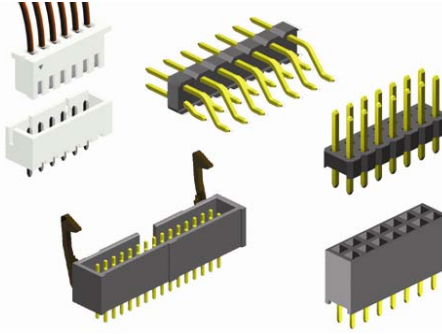


# Other products from E-tec

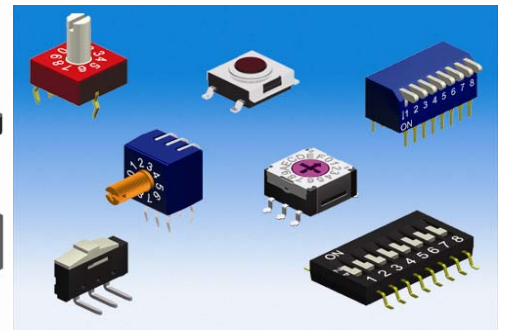
Please contact your closest sales office for further information.



DVI Connectors



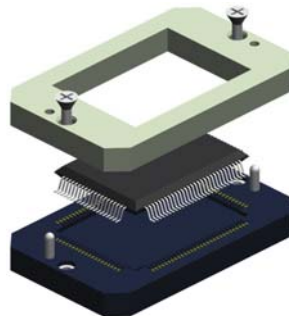
PCB Connectors



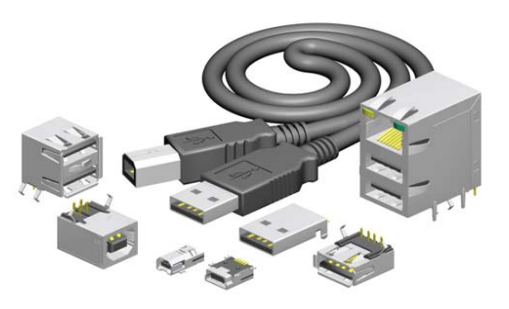
DIP Switch



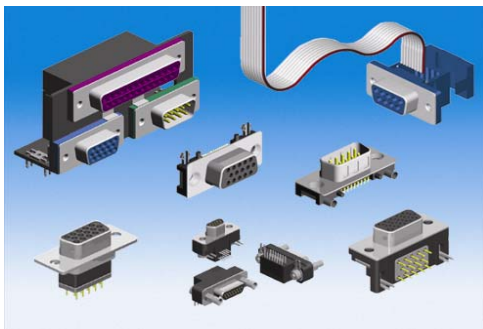
Mini DIN Connectors



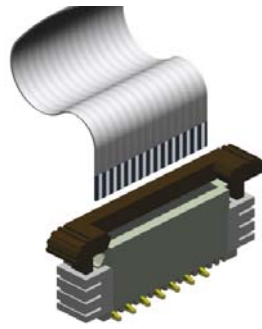
Gullwing Chip Sockets



USB & IEEE 1394 Connectors



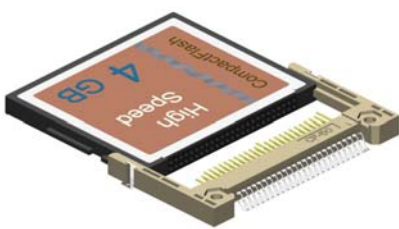
D-Sub Connectors



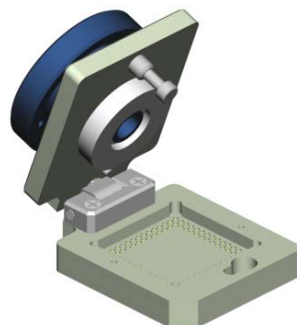
Flex Cable Connectors



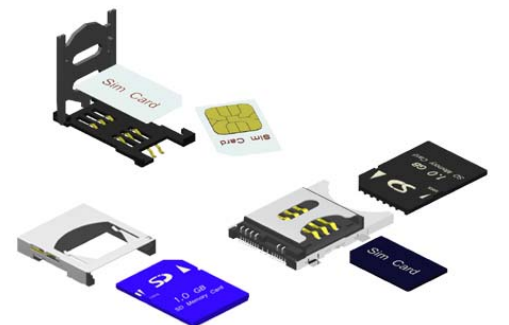
HDMI Connectors



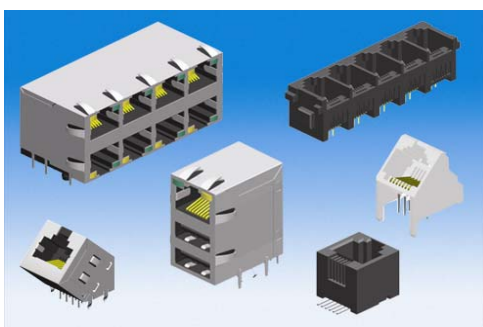
Compact Flash Connector



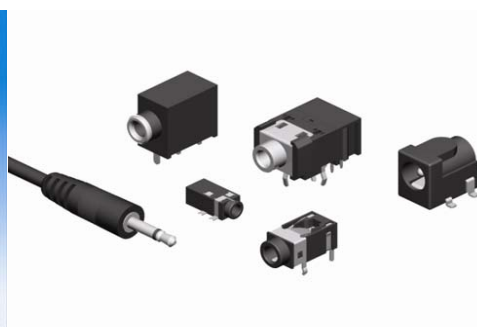
Ball / Land Grid Array Sockets



Multi Media Card Connectors



Modular Plugs & Jacks



Phono - & DC - Power Connectors



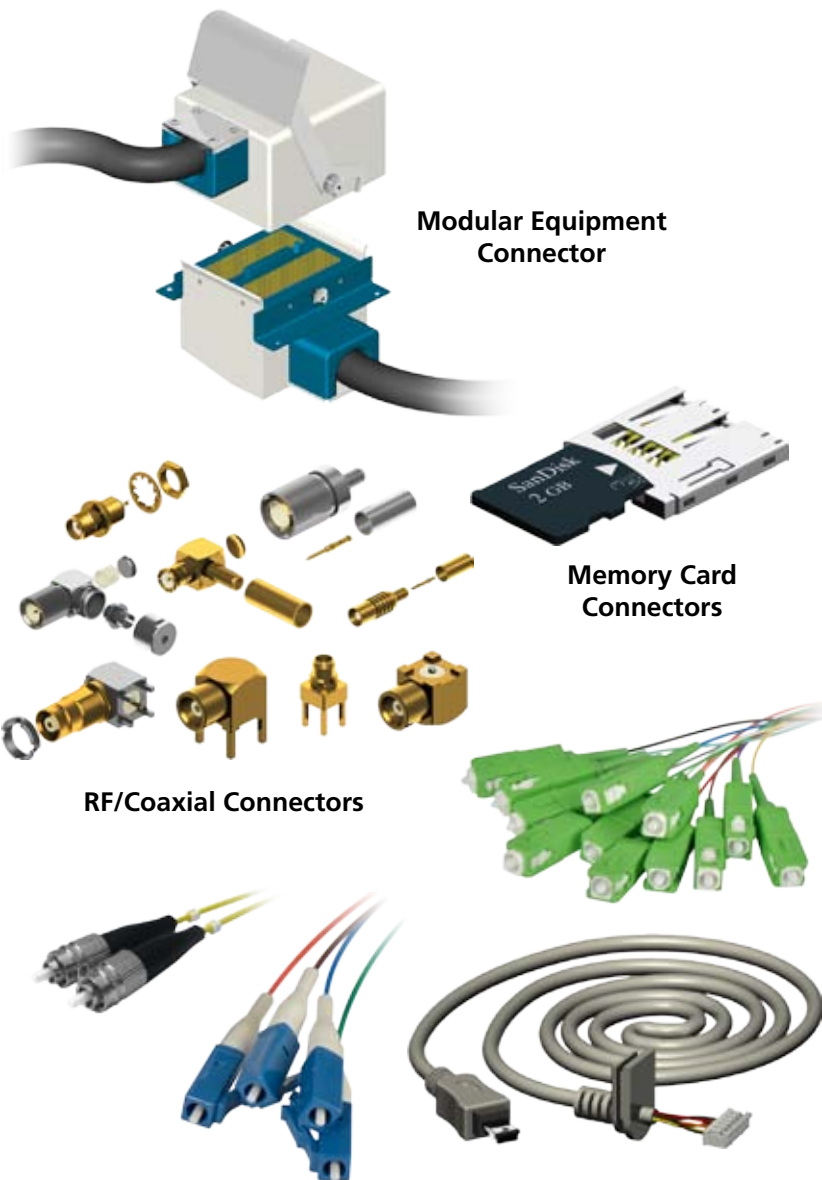
RF - Connectors

**E-tec Company Profile**

Since more than 40 years E-tec has been active in the electronics interconnection field (Test-Sockets, IC Sockets, PCB interconnect products, D-Sub's, Switches, RF Connectors, etc.) on a world-wide basis. E-tec offers a very comprehensive range of industry standard products as well as many customized products which can be found in a variety of application fields, such as aeronautics, military, medical, communications, automotive, multi-media and many others.

We offer very short delivery times from prototype small volume to large volume production series. Thanks to our own production facilities in Switzerland, Taiwan and China, we aim to offer a solution to all your problems. Quality assurance is an essential part of our production process, since our main objective is to offer products which correspond to the highest quality standards.

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