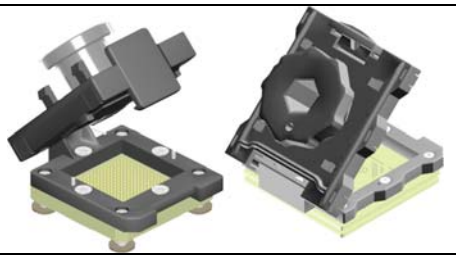
Ball / Land Grid Array Sockets
ClamShell "Injection Molded" Type

RoHS 2002/95/EC compliant

E-tec Interconnect

E-tec is now the leading BGA socket manufacturer.

EP patents 0829188, 0897655 US patents 6190181, 6249440 Patented in other countries.

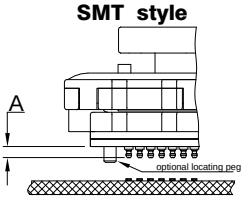


Professional ClamShell sockets "**Injection Molded Type**" are available for chip size and grid pattern up to 35x35. They are available in SMT, thru-hole and solderless compression type versions. The SMT socket is simply placed and reflowed onto the PCB in the same way as the chip.

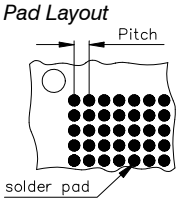
We aim to solve your requirements - many different terminals and configurations are available. Your custom sets our standards!

Please note, we will always request the chip data to ensure we offer a compatible socket.

SMT style

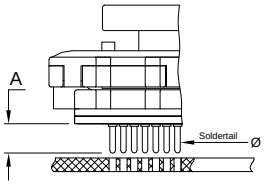


PCB Pad Layout



Ø 0,60mm/.024" if pitch 1,27mm
Ø 0,50mm/.020" if pitch 1,00mm
Ø 0,40mm/.016" if pitch 0,80mm
Ø 0,35mm/.014" if pitch 0,75mm
Ø 0,35mm/.014" if pitch 0,65mm
Ø 0,30mm/.012" if pitch 0,50mm

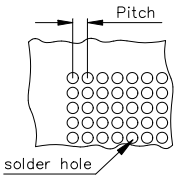
Soldertail style



Soldertail dimension:

Ø 0,42mm/.016" if pitch 1,27mm
Ø 0,29mm/.011" if pitch 1,00mm
Ø 0,29mm/.011" if pitch 0,80mm
Ø 0,27mm/.010" if pitch 0,75mm
Ø 0,27mm/.010" if pitch 0,65mm
Ø 0,27mm/.010" if pitch 0,50mm
Ø 0,17mm/.007" if pitch 0,40mm

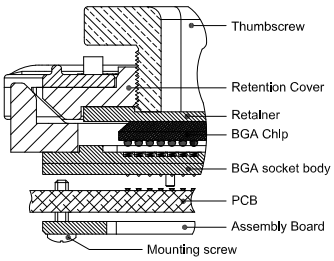
PCB Hole Layout



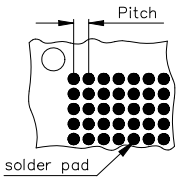
PCB solder hole:

Ø 0,60mm/.024" if pitch 1,27mm
Ø 0,50mm/.020" if pitch 1,00mm
Ø 0,40mm/.016" if pitch 0,80mm
Ø 0,35mm/.014" if pitch 0,75mm
Ø 0,35mm/.014" if pitch 0,65mm
Ø 0,35mm/.014" if pitch 0,50mm
Ø 0,25mm/.010" if pitch 0,40mm

Solderless Compression style



PCB Pad Layout



You may request any specific socket dimension from info@e-tec.com

gold plated pads Ø 0,70mm/.027" if pitch 1,27mm
gold plated pads Ø 0,60mm/.024" if pitch 1,00mm
gold plated pads Ø 0,50mm/.020" if pitch 0,80mm
gold plated pads Ø 0,45mm/.018" if pitch 0,75mm
gold plated pads Ø 0,40mm/.016" if pitch 0,65mm
gold plated pads Ø 0,35mm/.012" if pitch 0,50mm
gold plated pads Ø 0,25mm/.010" if pitch 0,40mm

Important Note:

Please check the ball diameters & heights of your chip prior to ordering the standard E-tec BGA (BPC) sockets. Any deviation has to be communicated to E-tec in order to check compatibility with the standard socket design and if necessary to obtain a special order code adapted to your chip dimensions.

The standard solderball diameters & heights are the following:

Pitch	*ball diameters min/max*	*ball height min/max*
0.50mm	*0.25mm / 0.35mm*	*0.20mm / 0.30mm*
0.65mm	*0.25mm / 0.45mm*	*0.20mm / 0.30mm*
0.75mm	*0.25mm / 0.45mm*	*0.20mm / 0.40mm*
0.80mm	*0.40mm / 0.55mm*	*0.25mm / 0.45mm*
1.00mm	*0.50mm / 0.70mm*	*0.30mm / 0.50mm*
1.27mm & higher	*0.60mm / 1.00mm*	*0.50mm / 1.00mm*

If the minimum ball diameter of a given chip falls below the above indications, then a BUC socket will generally be proposed.

Specifications

Mechanical data

Contact life	10'000 cycles min.
Retention System life	10'000 cycles min.
Solderability	as per IEC 60068-2-58
Individual contact force	40 grams max.

Material

Insulator *(RoHS compliant)*	High temp plastic or epoxy FR4
Terminal *(RoHS compliant)*	Brass
Contact *(RoHS compliant)*	BeCu

Electrical data

Contact resistance	< 100 mΩ
Current rating	500 mA max.
Insulation resistance at 500V DC	100 MΩ if 0.50 to 0.80mm pitch 500 MΩ 1.00mm pitch upwards
Breakdown voltage at 60 Hz	500V min.
Capacitance	< 1 pF
Inductance	< 2 nH
Operating temperature	–55°C to +125°C; 260°C for 60 sec.

Recommendations:

Solder paste – Please use a solder paste w/o any silver! Solder profile – Please refer to our website www.e-tec.com

E-tec solderless sockets are adapted to a standard PCB thickness of 1.60mm. For a different PCB thickness, please inform E-tec first!

SMT ClamShell sockets are recommended to be ordered with locating pegs for soldering to the PCB, to avoid the solderjoints from being stressed during the opening/closing of the retainer. If used without locating pegs, the life cycle of the socket may be heavily reduced.

For high pincount SMT sockets, E-tec recommends the use of a pluggable thru-hole socket mounted into a MiniGrid Adapter (see also page 10, 11 & 12 for more details)

How to order

X X M xxxx - xx xx - xx XX xx L ← optional for locating pegs

Device Type

B = Ball Grid

L = Land Grid

Socket Type

P = socket for LGA, CGA and BGA chips with standard diameter solderballs (see dimensions in table above)

U = socket for small diameter solderballs

Pitch

04 = 0,40mm
05 = 0,50mm
06 = 0,65mm
07 = 0,75mm
08 = 0,80mm
10 = 1,00mm
12 = 1,27mm
15 = 1,50mm
others on request

Grid Code | Config Code

will be given by the factory after receipt of the chip datasheet

Plating

95 = tin/gold *(tin leadfree)*

55 = gold *only for Compression Type*

Nbr of contacts

depends on ballcount of chip

Contact Type

30 = standard SMT....(„A" = 1,20mm if 1,27mm pitch; 0,80mm if 1,00mm pitch, 0.60 if 0,80mm pitch; 0,40mm if <0.80mm pitch)
29 = raised SMT...(„A" = 5,00mm if 1,27mm pitch; 3,20mm if 1,00mm pitch; 2,80mm if 0,80mm pitch, 2.30mm if <0.80mm pitch)
28 = special raised SMT - only for 1.00 & 0.80mm pitch..... („A" = 4,50mm)
70 = standard solder tail.....(„A" = 3.30 if 1.27mm pitch, 2.80 if 1.00mm or 0.80mm pitch, 2,30mm if <0.80mm pitch)
90 & **91** = compression type *(see page 8 for more details)*