

# Ball / Land Grid Array Sockets

## ClamShell "Professional" Type

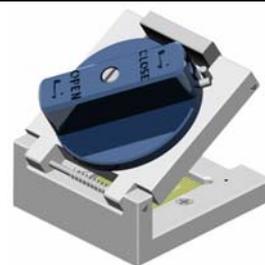


**E-tec is now the leading BGA socket manufacturer.**

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

Professional ClamShell sockets are available for any chip size and grid pattern. 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	Soldertail style	Solderless Compression style
<p><b>PCB Pad Layout</b></p> <p>Pitch</p> <p>solder pad</p> <p>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</p>	<p><b>PCB Hole Layout</b></p> <p>Pitch</p> <p>solder hole</p> <p><b>Soldertail dimension:</b>            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</p> <p><b>PCB solder hole:</b>            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 0,50mm            Ø 0,25mm/.010" if pitch 0,40mm</p>	<p><b>PCB Pad Layout</b></p> <p>Pitch</p> <p>Solder Pad</p> <p>You may request any specific socket dimension from <a href="mailto:info@e-tec.com">info@e-tec.com</a></p> <p>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</p>

### 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

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](http://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 C    x x x x - x x    x x - x x    X X    x x    L    ← optional for locating pegs

<b>Device Type</b> <b>B</b> = Ball Grid <b>L</b> = Land Grid <b>C</b> = Column Grid	<b>Socket Type</b> <b>P</b> = socket for LGA, CGA and BGA chips with standard diameter solderballs (see dimensions in table above) <b>U</b> = socket for small diameter solderballs	<b>Pitch</b> <b>04</b> = 0,40mm <b>10</b> = 1,00mm <b>05</b> = 0,50mm <b>12</b> = 1,27mm <b>06</b> = 0,65mm <b>15</b> = 1,50mm <b>07</b> = 0,75mm <b>08</b> = 0,80mm <i>others on request</i>	<b>Grid Code</b>   <b>Config Code</b> <i>will be given by the factory after receipt of the chip datasheet</i>	<b>Plating</b> <b>95</b> = tin/gold (tin leadfree) <b>55</b> = 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)