



preci-dip

# PGA / BGA / PLCC SOCKETS

**SERIES**  
**510**

**510-PP-NNN-XX-XXX101**  
PGA  
Solder tail

Pin grid array sockets, standard solder version.



## TECHNICAL SPECS.:

|                            |   |
|----------------------------|---|
| <b>Insulator</b>           | Black glass filled polyester PCT-GF30-FR    |
| <b>Flammability</b>        | UL 94V-O                                    |
| <b>Sleeve</b>              | Brass CuZn36Pb3 (C36000)                    |
| <b>Contact</b>             | Clip (6 finger): Beryllium copper (C17200)  |
| <b>Accepted pin Ø</b>      | 0.40 to 0.56 mm                             |
| <b>Insertion force</b>     | 0.7 N typ.                                  |
| <b>Withdrawal force</b>    | 0.4 N typ. (polished steel gauge Ø 0.46 mm) |
| <b>Mechanical life</b>     | Min. 100 cycles                             |
| <b>Rated current</b>       | 1 A   |
| <b>Contact resistance</b>  | Max. 10 m                                   |
| <b>Dielectric strength</b> | Min. 1000 V RMS                             |

## ORDERING INFORMATION:

|                 |        |              |
|-----------------|--------|--------------|
| PP Plating code | Sleeve | Clip         |
| 87              | Tin    | Gold flash   |
| 83              | Tin    | Gold 0.75 µm |

Replace NNN with the number of poles and XX-XXX with body size and layout numbers as indicated here. For example a 17x17 pin configuration with window and 168 contacts as shown here becomes 510-83-168-17-101101. Options: please consult for availability.- PGA sockets with optional standoffs.- PGA sockets with solder tails, length 4.2 mm.- PGA sockets with low profile contacts and solder tails of 2.8 mm length.

# TECHNICAL ASSISTANCE

## GENERAL SPECIFICATIONS:

The values listed below are general specs applying for PRECI-DIP PGA, BGA and PLCC sockets. Please see individual catalog page for additional and product specific technical data.

|                             |                                 |
|-----------------------------|---------------------------------|
| Operating temperature range | -55 ... +125 °C                 |
| Climatic category (IEC)     | 55/125/21                       |
| Operating humidity range    | annual mean 75 %                |
| Max working voltage         | 100 VRMS/150 VDC (2.54 mm grid) |

PRECI-DIP sockets are recognized by Underwriters Laboratories Inc. and listed under "Connectors for Use in Data, Signal, Control and Power Applications", File Nr. E174442

## MECHANICAL CHARACTERISTICS:

|                                   |   |
|-----------------------------------|---|
| Clip retention                    | Min. 40 N (no displacement under axial force applied) |
| Contact (sleeve / clip) retention | Min. 3.3 N acc. to MIL-DTL-83734, pt 4.6.4.2          |

## ELECTRICAL CHARACTERISTICS:

|   |                            |
|---|----------------------------|
| Insulation resistance between any two adjacent contacts | Min. 10'000 M at 500 V AC  |
| Capacitance between any two adjacent contacts           | Max. 1 pF (PLCC max. 2 pF) |
| Self inductance per contact                             | Max. 2 nH                  |

## ENVIRONMENTAL CHARACTERISTICS:

The sockets withstand the following environmental tests without mechanical and electrical defects:

- Dry heat steady state IEC 60512-11-9.11i / 60068-2-2.Bb: 125 °C, 16h
- Damp heat cyclic IEC 60512-11-12.11m / 60068-2-30.Db: 25/55 °C, 90 – 100 %rH, 1 cycle of 24 h
- Cold steady state IEC 60512-11-10.11j / 60068-2-1.A: -55 °C, 2 h
- Thermal shock IEC 60512-11-4.11d / 60068-2-14.Na: -55/125 °C, 5 cycles 30 min
- Sinusoidal vibrations IEC 60512-6-4.6d / 60068-2-6.Fc: 10 to 500 Hz, 10 g, 1 octave/min, 10 cycles for each axis
- Shock IEC 60512-6-3.6c / 60068-2-27.Ea: 50 g, 11 ms, 3 shocks in three axis

During the above two tests no contact interruption >50 ns does appear.

- Solderability J-STD-002A, Test A, 245°C, 5 s solder alloy SnAg3.8Cu0.7
- Resistance to soldering heat J-STD-0020C, 260°C, 20 s
- Moisture sensitivity J-STD-020C level 1
- Resistance to corrosion :
  - 1) Salt spray test IEC 60068-2-11.Ka: 48 h
  - 2) Sulfur dioxide (SO<sub>2</sub>) test IEC 60068-2-42 Kc: 96 h at 25 ppm SO<sub>2</sub>, 25 °C, 75 %rH
  - 3) Hydrogen sulfide (H<sub>2</sub>S) test IEC 60068-2-43 Kd: 96 h at 12 ppm H<sub>2</sub>S, 25 °C, 75 %rH

## SOLDERLESS COMPLIANT PRESS-FIT CHARACTERISTICS:

### PRESS-FIT CHARACTERISTICS MEASURED ACC. TO IEC 60352-5

- Press-in force: 90 N max. (at min. hole dia.) / 65 N typ.
- Push-out force: 30 N min. (at max. hole dia.) / 50 N typ.
- Push-out 3rd cycle: 20 N min. (at max. hole dia.)

### PCB HOLE DIMENSIONS

- 2.54 mm grid: Finished hole Ø: 1 + 0.09/-0.06 mm | Drilled hole Ø: 1.15 ± 0.02 mm

- Interstitial grid: Finished hole  $\varnothing$ :  $0.7 + 0.09/-0.06$  mm | Drilled hole  $\varnothing$ :  $0.8 \pm 0.02$  mm

#### **PCB HOLE PLATING**

- PCB surface finish: Hole plating
- Tin: 5-15  $\mu\text{m}$  tin over min. 25  $\mu\text{m}$  copper
- Copper: min. 25  $\mu\text{m}$  copper
- Gold over nickel: 0.05-0.2  $\mu\text{m}$  gold over 2.5-5  $\mu\text{m}$  nickel over min. 25  $\mu\text{m}$  copper