

Chipscale Package (CSP) Series



- Open top, zero insertion force suitable for automated load/un-load
- Reliable pinching action contact minimizes solder ball damage
- Small socket outline to maximize burn-in board density and process through-put
- Low actuation force
- Changeable adapter stage to allow a variety of package sizes

The CSP employs a "pinch" or dual-beam style contact that interfaces the sides of each solder ball at multiple points. Excessive disruption of the package solder ball geometry, on the bottom surface, can lead to assembly and reliability problems farther down the line. By interfacing the non critical sides of each solder ball and incorporating a superior contact design, the socket ensures electrical continuity, minimizes ball deformation, and eliminates potential manufacturing and reliability problems in the end package.

Since TI's burn-in test is cost-effective and available in high volume, manufacturers no longer have to rely on random testing to ensure quality.

Design Features

- Open top auto-load cover actuated socket
- Mechanical contacts touch each solder ball individually and independently
- Contact protrusions pierce oxide on solder ball and give reliable contact
- Contacts touch the upper side of the solder balls to minimize ball damage
- Once the IC package is properly seated in the socket, latches clamp the IC package in position to prevent movement caused by vibration

Spec Overview

Open-Top Socket Specifications	<i>Socket sizes vary by application</i> <ul style="list-style-type: none"> ● uBGA 0.75 mm
Mechanical Characteristics	<ul style="list-style-type: none"> ● Contact system: normally closed ● Package insertion force: ZIF ● Contact Force: Approximately 15g/pin typ.; 12–18 g/pin range ● Durability: 10,000 cycles min. ● Temperature range: -55°C to 150°C ● Contact point: side of solder ball ● Maximum acceptable IC shift: ± 0.97 mm in x or y axis (dropped from 4.1 mm height over seating plane)

Electrical Characteristics	<ul style="list-style-type: none"> • Insulation resistance: 1000mohms at 500V DC • Dielectric withstand voltage: for 1 minute at 700V AC • Contact resistance: 50mohm max. at 10mA initial, 1 ohm max at 10mA after 10,000 cycles • Inductance: 6nH (approximately) at 50 MHz
Product Availability	<p>Variety of pitch sockets available in:</p> <ul style="list-style-type: none"> • 0.75 mm • 0.80 mm

CSP Burn-In Testing Chart

Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
19	0.75	0.75	6.000	10.000	20.00	20.00	17.00
19	0.75	0.75	6.000	6.000	20.00	20.00	17.00
27	0.75	0.75	6.900	8.500	20.00	20.00	17.00
36	0.75	0.75	8.000	6.000	19.00	18.00	15.40
36	0.75	0.75	8.900	6.900	30.00	26.50	15.40
36	0.75	0.75	6.000	10.000	20.00	20.00	17.00
36	0.75	0.75	6.000	6.000	20.00	20.00	17.00
36	0.75	0.75	5.600	8.060	23.00	20.00	15.40
36	0.75	0.75	14.000	8.000	30.00	26.50	15.40
38	0.75	0.75	8.500	7.500	20.00	20.00	17.00
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
40	0.75	0.75	9.100	5.550	30.00	26.50	15.40
40	0.75	0.75	9.100	5.550	30.00	26.50	15.40
44	0.75	0.75	14.350	7.750	30.00	26.50	15.40
44	0.75	0.75	14.350	7.750	30.00	26.50	15.40
45	0.75	0.75	7.340	6.360	19.00	18.00	15.40
48	0.75	0.75	8.200	5.900	19.00	18.00	15.40
48	0.75	0.75	8.870	7.240	19.00	18.00	15.40
48	0.75	0.75	7.000	7.000	19.00	18.00	15.40
48	0.75	0.75	7.000	7.000	19.00	18.00	15.40
48	0.75	0.75	7.340	6.360	19.00	18.00	15.40
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
48	0.75	0.75	8.000	6.000	19.00	18.00	15.40
48	0.75	0.75	8.500	7.000	19.00	18.00	15.40
48	0.75	0.75	13.750	6.200	30.00	26.50	15.40
48	0.75	0.75	11.650	7.200	30.00	26.50	15.40
48	0.75	0.75	8.000	6.000	30.00	26.50	15.40
48	0.75	0.75	8.700	8.200	30.00	26.50	15.40
48	0.75	0.75	8.900	6.100	30.00	26.50	15.40
48	0.75	0.75	13.750	6.200	30.00	26.50	15.40

48	0.75	0.75	12.400	8.400	30.00	26.50	15.40
48	0.75	0.75	7.286	7.286	30.00	26.50	17.30
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
48	0.75	0.75	7.286	7.286	30.00	26.50	17.30
48	0.75	0.75	6.900	8.500	20.00	20.00	17.00
48	0.75	0.75	14.000	8.000	30.00	26.50	15.40
48	0.75	0.75	9.250	6.670	30.00	26.50	15.40
48	0.75	0.75	7.140	9.000	30.00	26.50	15.40
48	0.75	0.75	9.450	7.430	30.00	26.50	15.40
48	0.75	0.75	12.000	7.000	22.00	16.80	15.90
48	0.75	0.75	8.680	6.290	30.00	26.50	15.40
48	0.75	0.75	9.000	12.000	30.00	26.50	15.40
52	0.75	0.75	11.000	6.600	30.00	26.50	15.40
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
52	0.75	0.75	6.200	11.000	19.00	14.20	15.90
52	0.75	0.75	6.200	11.000	20.00	19.90	15.90
56	0.75	0.75	16.370	7.870	30.00	26.50	17.30
60	0.75	0.75	8.000	10.240	30.00	26.50	17.30
74	0.75	0.75	8.270	13.500	28.00	27.00	16.40
74	0.75	0.75	8.270	13.500	28.00	27.00	16.40
74	0.75	0.75	12.600	7.600	30.00	26.50	15.40
74	0.75	0.75	12.400	6.800	30.00	26.50	15.40
74	0.75	0.75	11.690	6.936	30.00	26.50	15.40
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
74	0.75	0.75	8.870	14.100	22.00	16.80	15.90
74	0.75	0.75	16.000	8.500	22.00	16.80	15.90
74	0.75	0.75	12.400	6.800	22.00	16.80	15.90
74	0.75	0.75	12.400	6.800	22.00	16.80	15.90
74	0.75	0.75	13.842	8.012	22.00	16.80	15.90
74	0.75	0.75	7.080	12.440	22.00	16.80	16.30
48	0.80	0.80	8.000	13.000	22.00	18.00	15.90
48	0.80	0.80	6.000	8.000	22.00	18.00	15.90
56	0.80	0.80	9.000	12.000	22.00	18.00	15.90
56	0.80	0.80	9.000	12.000	23.00	23.00	15.90
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
56	0.80	0.80	6.550	12.250	22.00	16.00	15.90
60	0.80	0.80	16.800	8.800	26.00	26.00	15.40
60	0.80	0.80	9.000	8.000	26.00	26.00	15.40
64	0.80	0.80	8.000	11.000	22.00	18.00	15.90
72	0.80	0.80	12.000	8.000	22.00	18.00	15.90
80	0.80	0.80	10.200	17.150	26.00	18.00	17.00

92	0.80	0.80	17.500	10.500	26.00	26.00	15.40
92	0.80	0.80	9.057	17.340	26.00	18.00	17.00
54	1.00	0.80	13.000	13.000	26.00	26.00	15.40
54	1.00	0.80	9.670	10.240	26.00	26.00	17.20
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
54	1.00	0.80	9.670	10.240	26.00	26.00	17.20
54	1.00	0.80	13.000	13.000	25.00	23.50	16.20
54	1.00	0.80	13.000	13.000	25.00	23.50	16.20
54	1.00	0.80	10.5/15.5	11/5.6	24.00	20.00	17.10
62	1.00	0.80	12.600	13.150	26.00	26.00	15.40
62	1.00	0.80	11.500	13.150	26.00	26.00	15.40
62	1.00	0.80	12.700	12.400	26.00	26.00	15.40
62	1.00	0.80	12.700	12.400	26.00	26.00	15.40
62	1.00	0.80	10.200	12.000	26.00	26.00	15.40
62	1.00	0.80	12.920	11.660	19.50	24.00	17.00
Pin Count	Pitch (x)	Pitch (y)	IC size (x)	IC size (y)	Socket size (x)	Socket size (y)	Socket size (z)
62	1.00	0.80	13.000	11.260	19.50	24.00	17.00
62	1.00	0.80	13.000	11.260	19.50	24.00	17.00
62	1.00	0.80	12.090	11.150	19.50	24.00	17.00
62	1.00	0.80	12.800	8.000	22.00	22.00	15.40
62	1.00	8.00	11.800	11.900	22.00	22.00	15.40
62	1.00	0.80	12.400	12.700	22.00	22.00	15.40
72	1.00	0.80	12.600	13.150	26.00	26.00	15.40