

Plastic Ball Grid Array (PBGA)

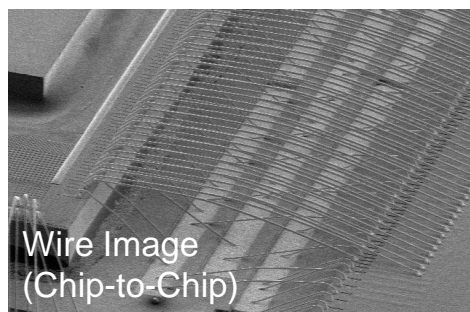
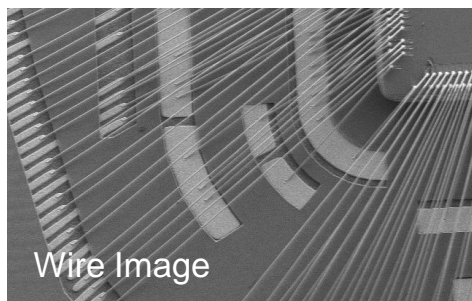
J-Devices PBGA package is designed for cost/performance applications with flexibility and efficiency in substrate utilization. PBGA design incorporates low inductance, improved thermal operation, enhanced SMT ability and significant improvement in electrical responses due to increase in I/O capability and more direct routing of power, ground and signal traces.

Thermally Enhanced PBGA (TEPBGA)

This PBGA option with built-in heat slug is available for applications requiring increased heat dissipation.

Applications

- TV, gaming, PC, network, automotive and industrial applications
- Applications where high pin count, high density, high heat dissipation and higher electrical performances are required



PBGA

Features

Innovative designs and expanding package offerings provide a platform from prototype-to-production.

- Custom ball counts up to 814
- 0.80-1.27 mm ball pitch
- 21-35 mm body sizes
- Thin Au wire and Cu wire available
- Chip-on-Chip (CoC)
- Large mold cap for quality enhancement
- Low profile and lightweight
- Improved thermal properties and electrical enhancement
- Highly flexible internal routing of signal, power and ground for device performance and system compatibility
- HDI designs possible
- Suitable substrate for multi-die (MCM) and integrated SMT structures
- Mature high yielding strip based manufacturing process
- Perimeter, staggered rows, and full ball array options
- Multi-layer, ground/power
- Excellent reliability
- Pb-free solder balls

Thermal Performance

Body Size (mm)	θ_{JA} at 1.0W 0 Airflow ($^{\circ}\text{C}/\text{W}$)	
	PBGA	TEPBGA
23	18.6	14.2
27	16.9	13.7
31	16.0	12.4
35	15.5	11.9

*Additional thermal data available

*Die size 8.0 x 8.0 mm

*Die thickness 0.29 mm

*Ta 25 $^{\circ}\text{C}$

PBGA

Process Highlights

- Die thickness: 0.29 mm
- Bond pad pitch: 40 μm
- Au wire diameter: 15-23 μm
- Cu wire diameter: 18-23 μm
- Marking: Laser mark
- Wafer back grinding: Available

Reliability Qualification

- Moisture Sensitivity: Pre-condition of: 30°C/60% RH, 192 hours, IR reflow 260°C 3X
- uHAST: 130°C/85% RH, 96 hours
- Temp Cycle: -55°C/+125°C, 1000 cycles
- High Temp Storage: 150°C, 1000 hours

Standard Materials

- Package substrate
 - Conductor: Cu
 - Dielectric: Epoxy resin glass reinforced
- Die attach: Conductive epoxy
- Mold compound: Epoxy mold compound
- Solder ball: Pb-free

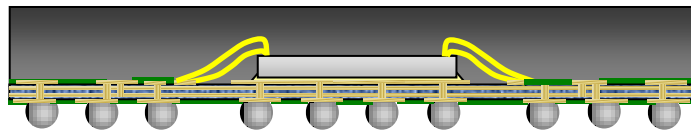
Test Services

- Program conversion
- Product engineering
- Wafer sort
- 256 pin x 20 MHz test system available
- -55°C to +125°C test available
- Burn-in capabilities
- Tape and reel services

Shipping

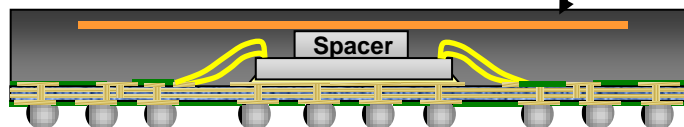
- JEDEC outline trays

Cross-section PBGA vs TEPBGA



TEBGA

(Thermally Enhanced BGA)



J-Devices' TEPBGA is able to convey the heat from the chip directly to the heat slug. This spreads the heat in the package, resulting in efficient dissipation.

