

## Fine Pitch BGA Packages (FBGA)

J-Devices wide array of FBGA portfolio can provide a solution for most any customer need.

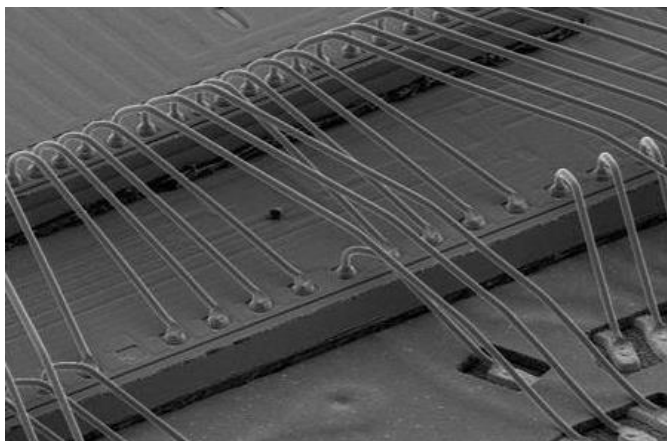
- Body size line-up covers 3 mm up to 22 mm
- Minimum BGA pitch is 0.35 mm
- Multi die integration is available with both side-by-side and stack-up type

## Applications

- Cell phones, games, handheld devices, memory, automotive, computer and industrial applications
- Applications where low profile, lightweight, minimum space, low cost and high density package is required

## Process Highlights

- Die thickness: 0.05-0.25 mm
- Marking: Laser mark
- Wafer back grinding: Available
- Encapsulated SMT components: Available
- Micro Pb-free covered LGA Pads/LGAs: Available



## FBGA

### Features

- Low cost option using J-Device standard FBGA bill of materials selection
- 3-22 mm body size
- Square or rectangle packages available
- 25-900 ball counts
- 1.0-0.35 mm ball pitch
- 2 and 4 layers substrate available
- 0.5-1.7 mm total package thickness
- JEDEC MO-216 compliant for 0.8 mm & 1.0 mm ball pitch
- JEDEC MO-195 compliant for 0.5 mm & 0.65 mm ball pitch
- JEDEC MO-298 compliant for 0.4 mm ball pitch
- RoHS-6 (green) BOM options for 100% of FBGA family

### Thermal Performance

Body Size (mm)	$\theta_{JA}$ at 1.0W 0 Airflow ( $^{\circ}\text{C}/\text{W}$ )		
	LFBGA	TFBGA	VFBGA
5 x 5	44.39	44.58	45.29
10 x 10	23.23	23.28	24.61
15 x 15	20.49	20.54	21.37

\*Additional thermal data available

### Reliability Qualification

- Moisture Sensitivity: Pre-condition of 30°C/60% RH, 192 hours, IR reflow 260°C 3X
- Temp/Humidity Bias: 85°C/85% RH, 1000 hours
- Temp/Humidity Unbiased: 110°C/85% RH, 500 hours
- Temp Cycle: -55°C/+125°C, 1000 cycles
- High Temp Storage: 150°C, 1000 hours

\*Board level reliability available

## FBGA

### Standard Materials

- Package substrate
  - Conductor: Cu
  - Dielectric: Epoxy resin glass reinforced
- Die attach: Adhesive Low stress elastomer
- Mold compound: Epoxy mold compound
- Low alpha material: Available
- Solder ball: Pb-free
- Wire type: Au, Cu

### Test Services

- Program conversion
- Product engineering
- Wafer sort
- 256 pin x 20 MHz test system available
- Burn-in capability
- Tape and reel services

### Shipping

- JEDEC outline trays, tape & reel



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