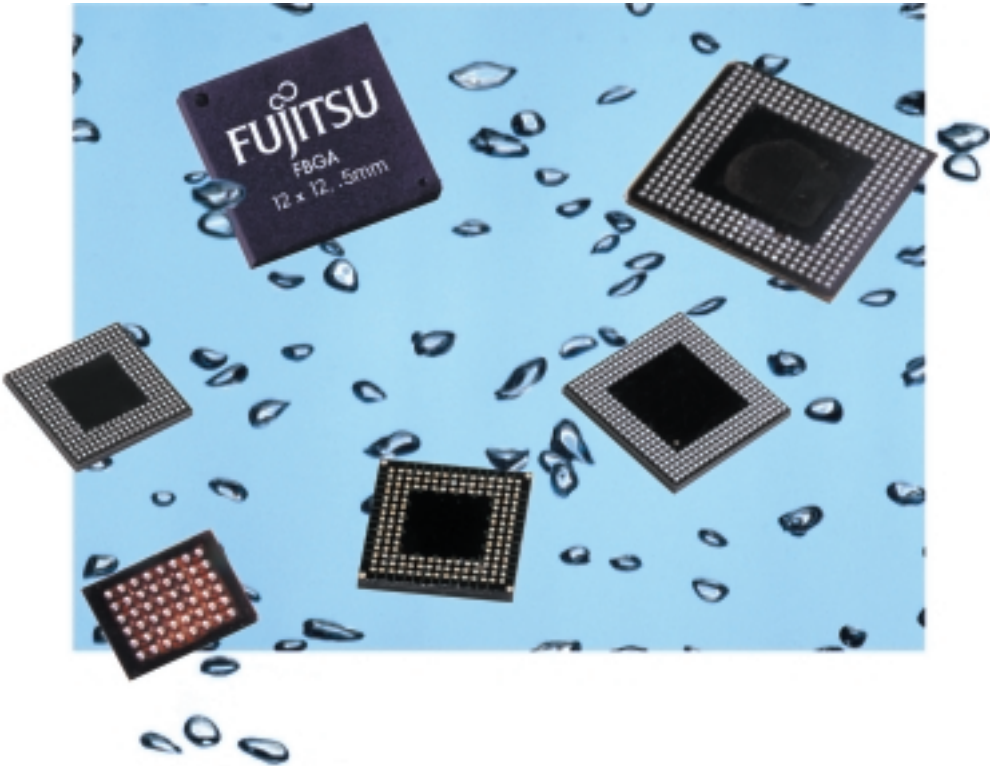
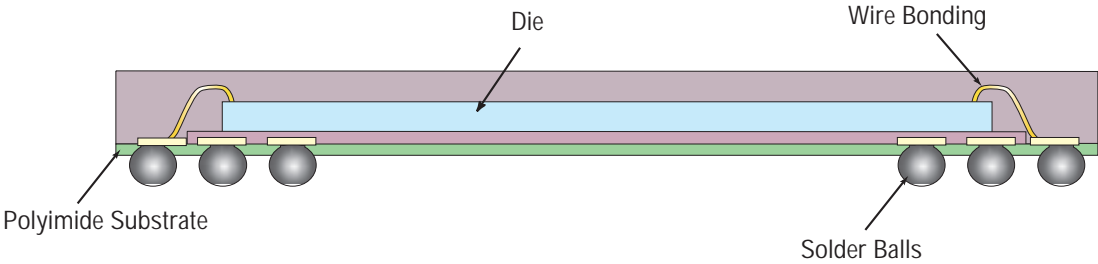


# FBGA

Fine Pitch BGA (FBGA) is a wire bonded BGA face-up configuration package that is near chip size, low cost and fine pitch compatible. It is suitable for consumer electronics requiring lightweight and compact size. The package uses a one layer metal polyimide interposer with wire bond technology that is capable of producing 0.7 mm wire length, and optimized mold resin compound with CTE matching that of the motherboard. Package size is reduced by using short wires, 70  $\mu$  bond pad pitch and 0.5 mm ball pitch. The package is only 1.5 mm larger than chip size and is available in both fan-in and fan-out design which addresses die shrink issues that occur in memory devices. The package is also manufactured with lead-free solder balls, which can be mounted at 260°C.



- Standard Chip Scale Package
- Reliable proven technology
- Low cost
- Numerous standard configurations
- Lead-free at 260°C



# FBGA

## Logic (0.5mm Pitch)

Body Size (mm)	2 Rows	3 Rows	4 Rows
6.0 x 6.0	72	96	112
7.0 x 7.0	88	120	144
8.0 x 8.0	104	144	192
9.0 x 9.0	120	168	208
10.0 x 10.0	136	192	240
11.0 x 11.0	152	216	272
12.0 x 12.0	168	240	304
13.0 x 13.0	184	264	336
14.0 x 14.0	200	288	368
15.0 x 15.0	216	312	400
16.0 x 16.0	232	336	432
17.0 x 17.0	248	360	464
18.0 x 18.0	264	384	496

Custom configurations are available upon request.

## Package Reliability (FBGA 168)

Test item	Condition	Cycle	Result
Temperature cycle*	-65°C ~ 150°C*	200 cycles	Pass
HTS	+150°C	1000 hours	Pass
THB	85°C/85%*	1000 hours	Pass
Thermal Shock	0°C ~ 100°C	200 cycles	Pass
PTHS	121°C, 85%*	168 hours	Pass
PTHB	121°C, 85%, 5V	96 hours	Pass

\* Pre-condition: Baking 125°C, 24 hours + 85°C/85%, 24 hours + IR 235°C max.

## Thermal Performance

Package	Pitch (mm)	Package Size (mm)	Chip Size (mm)	$\theta$ -ja (°C/W)		
				0m/sec	1m/sec	3m/sec
FBGA168	0.8	12 x 12	9.0	43	39	35
FBGA288	0.75	18 x 18	9.0	43	38	34
FBGA192	0.5	10 x 10	9.0	33	29	26
FBGA304	0.5	12 x 12	9.0	31	28	25

Test power: low, test PCB: 4-layers

## Electrical Characteristics

Package	Body Size (mm)	Pitch (mm)	Inductance L(15MHz)	Capacitance C(15MHz)	Resistance R (DC)
FBGA192	10 x 10	0.50	2.45 nH	0.32 pF	89.6 mΩ
FBGA224	16 x 16	0.80	4.21 nH	0.42 pF	124.8 mΩ
PBGA256 (over-molded)	27 x 27	1.27	8.50 nH	0.45 pF	164.0 mΩ