data sheet

CABGA/CTBGA/CVBGA

ChipArray® Packages:

Amkor's ChipArray® packages are laminate-based Ball Grid Array (BGA) packages that are compatible with established SMT mounting processes. The near-chip-size standard outlines offer a broad selection of ball array pitch, count, and body sizes. (See table on back.) In addition to the standard core ChipArray package (CABGA), Amkor offers thin core ball grid array packages (CTBGA and CVBGA) which, coupled with a thin mold cap, achieve package thicknesses down to 1.0 mm max. By utilizing a thin core laminate, much denser routing can be achieved, thereby enabling more I/Os in a given footprint. Amkor ChipArray packages, regardless of body size and thickness, utilize the same, flexible capacity which assures economical packaging solutions. Further, high volume processes and innovative design assure high quality and cutting edge technology. Due to their small size and I/O density, Amkor's ChipArray product family is an excellent choice for new devices requiring a small footprint size and low mounted height.

Applications:

The ChipArray package family is applicable for semiconductors such as memory, analog, ASICs, RF devices and simple PLDs requiring a smaller package size than conventional PBGAs. ChipArray packages fill the need for low cost, minimum space and high speed requirements of mobile phones and pagers, notebook and subnotebook personal computers, PDAs and other wireless systems.

Features:

Cutting edge technology and expanding package offerings provide a platform from prototype-to-production.

- Full, in-house design
- Square or rectangle packages available
- 4 mm to 21 mm body size available
- 8 to 449 ball counts
- 0.5, 0.65, 0.75, 0.80 & 1.0 mm ball pitch available
- JEDEC MO-216 compliant for 0.8 mm and 1.0 mm ball pitch
- JEDEC MO-195 compliant for 0.5 mm & 0.65 mm ball pitch
- PB free and Green package available
- Daisy Chain packages available
- Short traces for excellent electrical inductance
- Low inductance (modeled data)
  1.4nH (1.0 mm trace length)
  4.1nH (5.0 mm trace length)

Thermal Resistance:

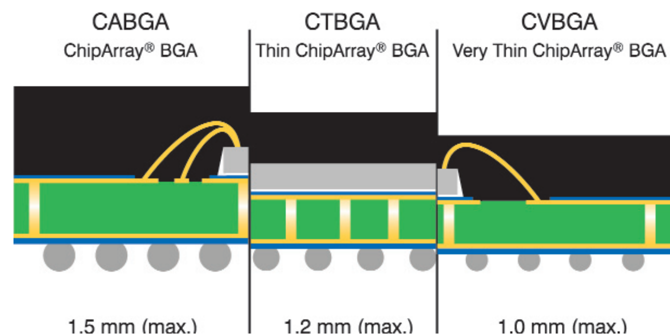
Theta JA at 1.0 Watt and 0 airflow (°C/Watt)

	CABGA	CTBGA	CVBGA
8 x 8	37.28	36.45	37.52
10 x 10	19.86	29.04	26.7
11 x 11	29	N/A	N/A
15 x 15	20.1	N/A	N/A
19 x 19	17.04	N/A	N/A

Reliability:

Amkor assures reliable performance by continuously monitoring key indices:

• Moisture sensitivity characterization	JEDEC Level 2 @ 240 °C JEDEC Level 3 @ 260 °C 85 °C/85% RH, 168 hours
• Temp/humidity	85 °C/85%, 1000 hours
• High temp storage	150 °C, 1000 hours
• HAST	130 °C/85% RH, 96 hours
• Temp cycle	-55/+125 °C, 1000 cycles



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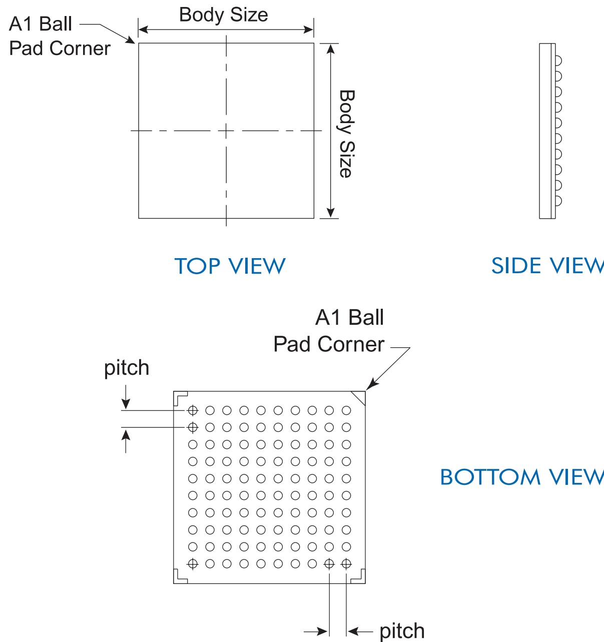

CABGA/CTBGA/CVBGA

Process Highlights

Die thickness (max)	0.27 mm (10.5 mils)
Bond pad pitch (min)	50 µm (2 mils)
Marking	Laser
Ball inspection	Optical
Pack options	Dry pack
Wafer backgrinding	Available

Standard Materials

Package substrate	
-Conductor	Copper
-Dielectric	Epoxy polyimide blend
Die attach adhesive	Low stress elastomer
Encapsulant	Epoxy mold compound
Solder ball	Eutectic SnPb/Pbfree

Test Services

Program Generation/Conversion
Product Engineering
Wafer sort
256 Pin x 20 MHz test system available
-55 °C to +165 °C Test available
Burn-in

Shipping

JEDEC trays
Tape and Reel services

CABGA/CTBGA/CVBGA Standard Package Offering

Ball Pitch	1.0	0.80	0.75	0.65	0.50
Body Size	Ball Count	Ball Count	Ball Count	Ball Count	Ball Count
4	16				49
4					40
5		25			40
5					57
6		36			48
6		49			56
6					64
6					84
7		48	44	81	104
7		49	46		108
7		64	48		64
7			64		84
7					96
8	42	64	48	105	108
8		72		111	132
8		81		113	144
8		94		96	
9	64	100	48	124	
9		72	64		
9		80			
9		81		180	180

Ball Pitch	1.0	0.80	0.65	0.50
Body Size	Ball Count	Ball Count	Ball Count	Ball Count
10	81	100		192
10		96		241
10		120		181
10		121		277
10		144		
10		97		
11	100	109	200	223
11	97	128		
11		169		
12	112	144	208	228
12	121	160		288
12		196		
13	108	200	277	289
13	144	224		320
13		225		417
14		192	300	287
14		220		

Ball Pitch	1.0	0.80	0.65	0.50
Body Size	Ball Count	Ball Count	Ball Count	Ball Count
15	160	208		256
15	176	273		
15	196	324		
15	144			
16		280	324	
16		285		
17	176	256		
17	208	272		
17	224	280		
17	228	292		
17	252	316		
17	256			
19	280	288		
19	289			
19	324			
21	256	449		
21	272			
21	316			
21	336			
21	400			

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