



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.

CABGA/CTBGA/CVBGA

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:

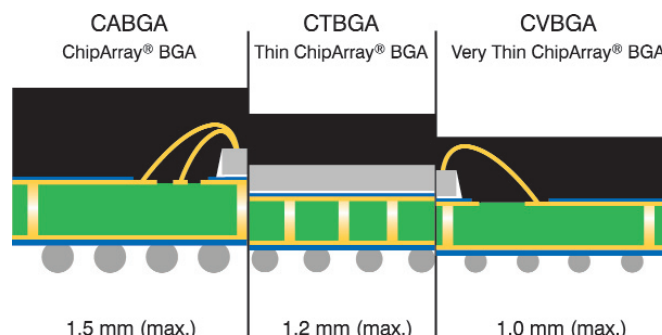
Theta JA at 1.0 Watt and 0 airflow (°C/Watt)

	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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www.amkor.com



DS550N
Rev Date: 01'07

CABGA/CTBGA/CVBGA

Process Highlights

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

Standard Materials

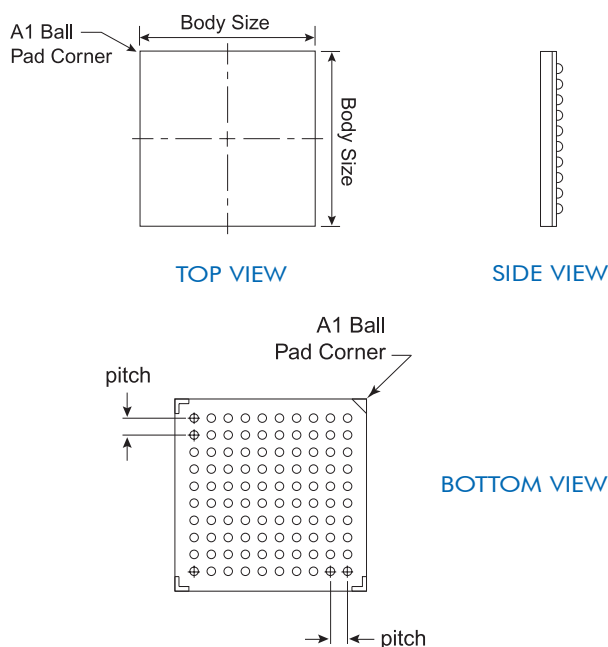
Package substrate	
-Conductor	Copper
-Dielectric	Epoxy polyimide blend
Die attach adhesive	Low stress elastomer
Encapsulant	Epoxy mold compound
Solder ball	Eutectic SnPb/Pbfree

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	Ball Pitch	1.0	0.80	0.65	0.50	Ball Pitch	1.0	0.80	0.65	0.50
Body Size	Ball Count	Ball Count	Ball Count	Ball Count	Ball Count	Body Size	Ball Count	Ball Count	Ball Count	Ball Count	Body Size	Ball Count	Ball Count	Ball Count	Ball Count
4	16				49	10	81	100		192	15	160	208		256
4					40	10		96		241	15	176	273		
5		25			40	10		120		181	15	196	324		
5					57	10		121		277	15	144			
6		36			48	10		144			16		280	324	
6		49			56	10		97			16		285		
6					64	11	100	109	200	223	17	176	256		
6					84	11	97	128			17	208	272		
7		48	44	81	104	11		169			17	224	280		
7		49	46		108	12	112	144	208	228	17	228	292		
7		64	48		64	12	121	160		288	17	252	316		
7			64		84	12		196			17	256			
7					96	13	108	200	277	289	19	280	288		
8	42	64	48	105	108	13	144	224		320	19	289			
8		72		111	132	13		225		417	19	324			
8		81		113	144	14		192	300	287	21	256	449		
8		94		96		14		220			21	272			
9	64	100	48	124							21	316			
9		72	64								21	336			
9		80									21	400			
9		81		180	180										

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