

ChipArray® (CVBGA) is a new package offering by Amkor that has a 0.4mm pitch. In addition to the standard core ChipArray® package (CABGA and CTBGA), Amkor offers thinner mold cap thickness of 1.0mm max. By utilizing a thin core laminate, much denser routing can be achieved, thereby enabling more I/O's in a given footprint. 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 and low mounted height.



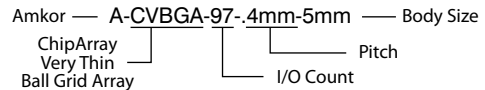
CVBGA Very Thin ChipArray® BGA

Part Number	I/O Count	Pitch	Body Size	Ball Matrix	Ball Alignment	Quantity Per Tray	Available Lead-Free Alloys
A-CVBGA97-.4mm-5mm	97	.4mm	5mm	10 x 10	Full Array	624	SAC405, SAC305 or SAC105
A-CVBGA360-.4mm-10mm	360	.4mm	10mm	23 x 23	Perimeter	250	SAC405, SAC305 or SAC105
A-CVBGA432-.4mm-13mm	432	.4mm	13mm	31 x 31	Perimeter	160	SAC405, SAC305 or SAC105

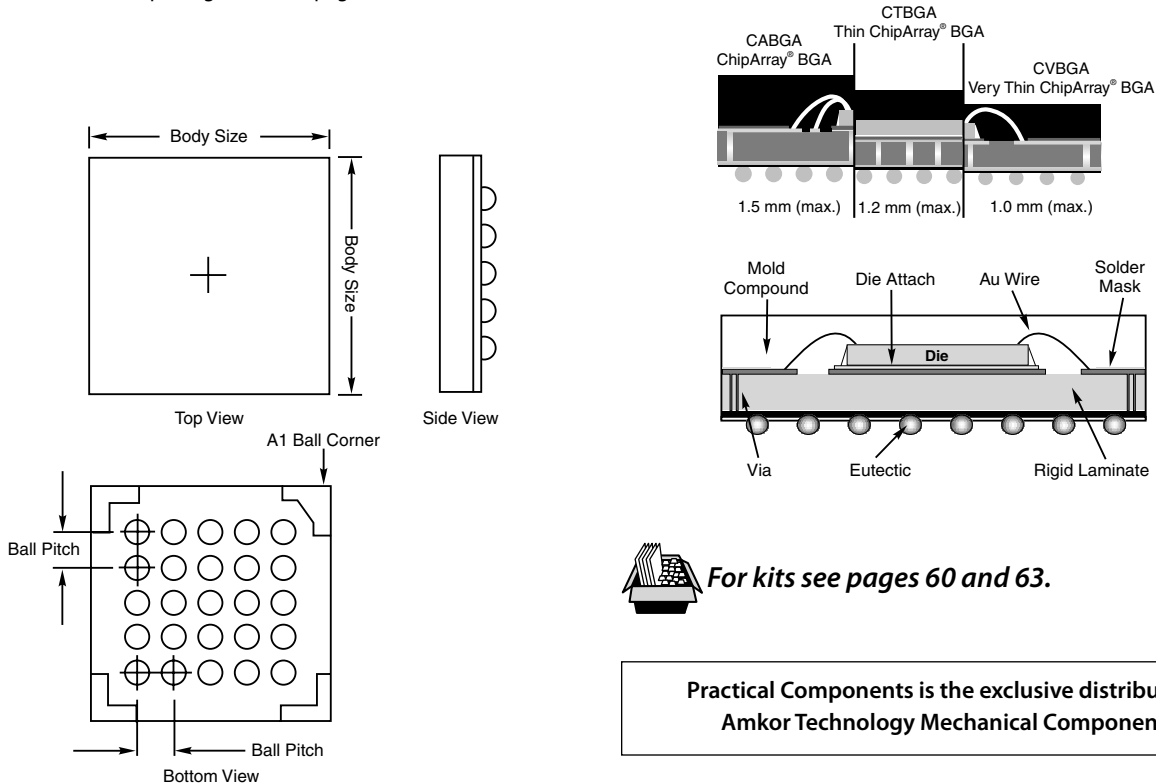
Notes

- Parts are packaged in JEDEC trays.
- All components are daisy-chained.
- Moisture sensitivity is JEDEC level 3.
- Solder ball material is available with Eutectic 63/37 SnPb.
- Lead-free parts are available with 95.5% Sn/ 4.0% Ag/ 0.5% Cu (SAC405) alloy or 96.5% Sn/ 3.0% Ag/ 0.5% Cu (SAC305) or (SAC105) 98.25%Sn/ 1.2%Ag/0.5%Cu/.05%Ni.
- New:** CVBGA ,CTBGA and CABGA parts are available without solder ball, which makes the package LGA. See page 15.

Part Number System



- Add "TR" to end of part number for Tape and Reel.
- Add "SAC405" or "SAC305" or "SAC105" to end of part number for Lead-Free.



For kits see pages 60 and 63.

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CTBGA ChipArray® Thin Core Ball Grid Array

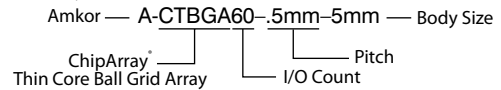
Part Number	I/O Count	Pitch	Body Size	Bal Matrix	Ball Alignment	Quantity Per Tray
.5mm Pitch						
A-CTBGA60-.5mm-5mm	60	.5mm	5mm	8 x 8	Perimeter	792
A-CTBGA84-.5mm-6mm	84	.5mm	6mm	10 x 10	Perimeter	608
A-CTBGA84-.5mm-7mm	84	.5mm	7mm	12 x 12	Perimeter	476
A-CTBGA108-.5mm-7mm	108	.5mm	7mm	12 x 12	Perimeter	476
A-CTBGA132-.5mm-8mm	132	.5mm	8mm	14 x 14	Perimeter	360
A-CTBGA228-.5mm-12mm	228	.5mm	12mm	22 x 22	Perimeter	189
.8mm Pitch						
A-CTBGA49-.8mm-6mm	49	.8mm	6mm	7 x 7	Full Array	608
A-CTBGA49-.8mm-7mm	49	.8mm	7mm	7 x 7	Full Array	476
A-CTBGA64-.8mm-7mm	64	.8mm	7mm	8 x 8	Full Array	476
A-CTBGA64-.8mm-8mm	64	.8mm	8mm	8 x 8	Full Array	360
A-CTBGA128-.8mm-11mm	128	.8mm	11mm	12 x 12	Perimeter	207
A-CTBGA160-.8mm-12mm	160	.8mm	12mm	14 x 14	Perimeter	198
A-CTBGA176-.8mm-13mm	176	.8mm	13mm	15 x 15	Perimeter	160
A-CTBGA192-.8mm-14mm	192	.8mm	14mm	16 x 16	Perimeter	476
A-CTBGA208-.8mm-15mm	208	.8mm	15mm	17 x 17	Perimeter	126
1.0mm Pitch						
A-CTBGA100-1.0mm-11mm	100	1.0mm	11mm	10 x 10	Full Array	207
A-CTBGA144-1.0mm-13mm	144	1.0mm	13mm	12 x 12	Full Array	160

Notes

- Parts are packaged in JEDEC trays when available.
- All components are available daisy-chained.
- <0.12mm (5 mil) coplanarity.
- Solder ball material is Eutectic 63/37 SnPb.
- BT (Bismaleimide-Triazine) substrates or equivalent.
- Package thickness is 1.2mm max for 0.8mm and 1.0mm pitch packages.
- Package thickness is 1.1mm max for 0.5mm pitch packages.
- New: CABGA, CVBGA and CTBGA parts are available without solder balls, which makes the package LGA. See page 15.
- Moisture sensitivity is JEDEC level 3.
- Lead-free parts are available with (SAC405) 95.5% Sn/ 4.0% Ag/0.5% Cu alloy or 96.5%Sn/3.0%Ag/0.5%Cu alloy (SAC305) or (SAC105) 98.25%Sn/ 1.2%Ag/0.5%Cu/.05%Ni is also available.



Part Number System



- Add "TR" to end of part number for Tape and Reel.
- Add "SAC405" or "SAC105" or "SAC305" to end of part number for Lead-Free.



For recommended kit see page 63.

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ChipArray® (CABGA) packages are offered in laminate format and are available as Ball Grid Array. The near chip size standard outlines offer fixed body sizes and ball counts. Established SMT mounting processes and techniques are compatibly with ChipArray®. The package size and design provides ideal RF operation (low inductance) for high speed applications requiring small footprints.

ChipArray® Ball Grid Array

Part Number	I/O Count	Pitch	Body Size	Ball Matrix	Ball Alignment	Quantity Per Tray	Available Lead-Free Alloys
.5mm Pitch							
A-CABGA40-.5mm-5mm	40	.5mm	5mm	8 x 8	Perimeter	624	SAC405, SAC105 or SAC305
A-CABGA56-.5mm-6mm	56	.5mm	6mm	10 x 10	Perimeter	408	SAC405, SAC105 or SAC305
.8mm Pitch							
A-CABGA36-.8mm-6mm	36	.8mm	6mm	6 x 6	Full Array	608	SAC405, SAC105 or SAC305
A-CABGA49-.8mm-7mm	49	.8mm	7mm	7 x 7	Full Array	476	SAC405, SAC105 or SAC305
A-CABGA64-.8mm-8mm	64	.8mm	8mm	8 x 8	Full Array	360	SAC405, SAC105 or SAC305
A-CABGA100-.8mm-10mm	100	.8mm	10mm	10 x 10	Full Array	250	SAC405, SAC105 or SAC305
A-CABGA160-.8mm-12mm	160	.8mm	12mm	14 x 14	Perimeter	198	SAC405, SAC105 or SAC305
A-CABGA176-.8mm-13mm	176	.8mm	13mm	15 x 15	Perimeter	160	SAC405, SAC105 or SAC305
A-CABGA192-.8mm-14mm	192	.8mm	14mm	16 x 16	Perimeter	476	SAC405, SAC105 or SAC305
A-CABGA208-.8mm-15mm	208	.8mm	15mm	17 x 17	Perimeter	126	SAC405, SAC105 or SAC305
A-CABGA288-.8mm-19mm	288	.8mm	19mm	22 x 22	Perimeter	84	SAC405, SAC105 or SAC305
1.0mm Pitch							
A-CABGA100-1.0mm-11mm	100	1.0mm	11mm	10 x 10	Full Array	207	SAC405, SAC105 or SAC305
A-CABGA144-1.0mm-13mm	144	1.0mm	13mm	12 x 12	Full Array	160	SAC405, SAC105 or SAC305
A-CABGA196-1.0mm-15mm	196	1.0mm	15mm	14 x 14	Full Array	126	SAC405, SAC105 or SAC305
A-CABGA256-1.0mm-17mm	256	1.0mm	17mm	16 x 16	Full Array	90	SAC405, SAC105 or SAC305

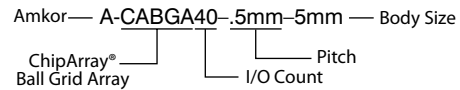
Notes

- Parts are packaged in JEDEC trays when available.
- All components are available daisy-chained.
- <0.12mm (5 mil) coplanarity.
- Solder ball material is Eutectic 63/37 SnPb.
- BT (Bismaleimide-Triazine) substrates or equivalent.
- Package thickness is 1.5mm max for 0.8mm and 1.0mm pitch packages.
- Package thickness is 1.34mm max for 0.5mm pitch packages.
- New: CABGA, CVBGA and CTBGA parts are available without solder balls, which makes the package LGA. See page 15.
- Moisture sensitivity is JEDEC level 3.
- Lead-free parts are available with (SAC405) 95.5% Sn/ 4.0% Ag/ 0.5% Cu alloy or 96.5%Sn/3.0%Ag/0.5%Cu alloy (SAC305) or (SAC105) 98.25%Sn/1.2%Ag/0.5%Cu/.05%Ni is also available.

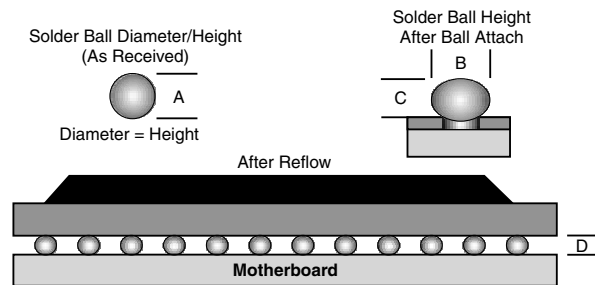


For recommended kits see pages 53, 62, 69 and 73.

Part Number System



- Add "TR" to end of part number for Tape and Reel.
- Add "SAC405" or "SAC305" or "SAC105" to end of part number for Lead-Free.



Package Pitch	A	B	C	D
1.00/0.80mm	0.46mm	0.48mm (± 0.05mm)	0.36mm (± 0.05mm)	0.30mm (± 0.05mm)
0.50mm	0.30mm	0.32mm (± 0.05mm)	0.19mm (± 0.05mm)	0.17mm (± 0.03mm)

Note: Typical motherboard non-solder mask defined pad:

- 0.50 pitch = 0.28
- 0.80 pitch = 0.30
- 1.00 pitch = 0.38