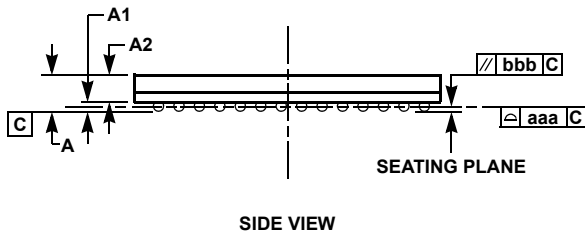
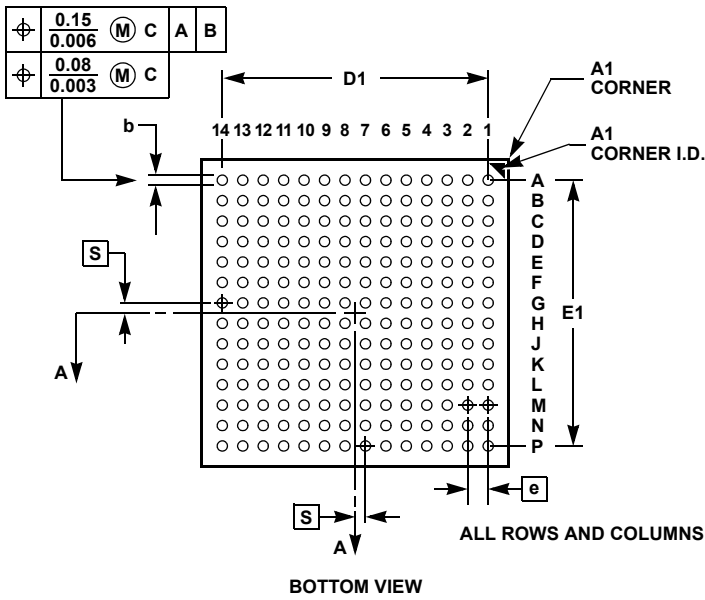
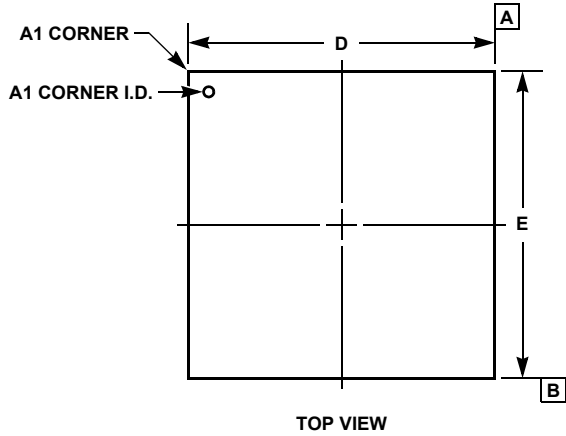


Plastic Packages for Integrated Circuits

Plastic Ball Grid Array Packages (BGA)



V196.15x15

196 BALL PLASTIC BALL GRID ARRAY PACKAGE

| SYMBOL | INCHES | | MILLIMETERS | | NOTES |
|--------|-----------|-------|-------------|-------|-------|
| | MIN | MAX | MIN | MAX | |
| A | - | 0.059 | - | 1.50 | - |
| A1 | 0.012 | 0.016 | 0.31 | 0.41 | - |
| A2 | 0.037 | 0.044 | 0.93 | 1.11 | - |
| b | 0.016 | 0.020 | 0.41 | 0.51 | 7 |
| D/E | 0.587 | 0.595 | 14.90 | 15.10 | - |
| D1/E1 | 0.508 | 0.516 | 12.90 | 13.10 | - |
| N | 196 | | 196 | | - |
| e | 0.039 BSC | | 1.0 BSC | | - |
| MD/ME | 14 x 14 | | 14 x 14 | | 3 |
| bbb | 0.004 | | 0.10 | | - |
| aaa | 0.005 | | 0.12 | | - |

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NOTES:

- Controlling dimension: MILLIMETER. Converted inch dimensions are not necessarily exact.
- Dimensioning and tolerancing conform to ASME Y14.5M-1994.
- "MD" and "ME" are the maximum ball matrix size for the "D" and "E" dimensions, respectively.
- "N" is the maximum number of balls for the specific array size.
- Primary datum C and seating plane are defined by the spherical crowns of the contact balls.
- Dimension "A" includes stand-off height "A1", package body thickness and lid or cap height "A2".
- Dimension "b" is measured at the maximum ball diameter, parallel to the primary datum C.
- Pin "A1" is marked on the top and bottom sides adjacent to A1.
- "S" is measured with respect to datum's A and B and defines the position of the solder balls nearest to package centerlines. When there is an even number of balls in the outer row the value is "S" = e/2.