



Altera Device Package Information

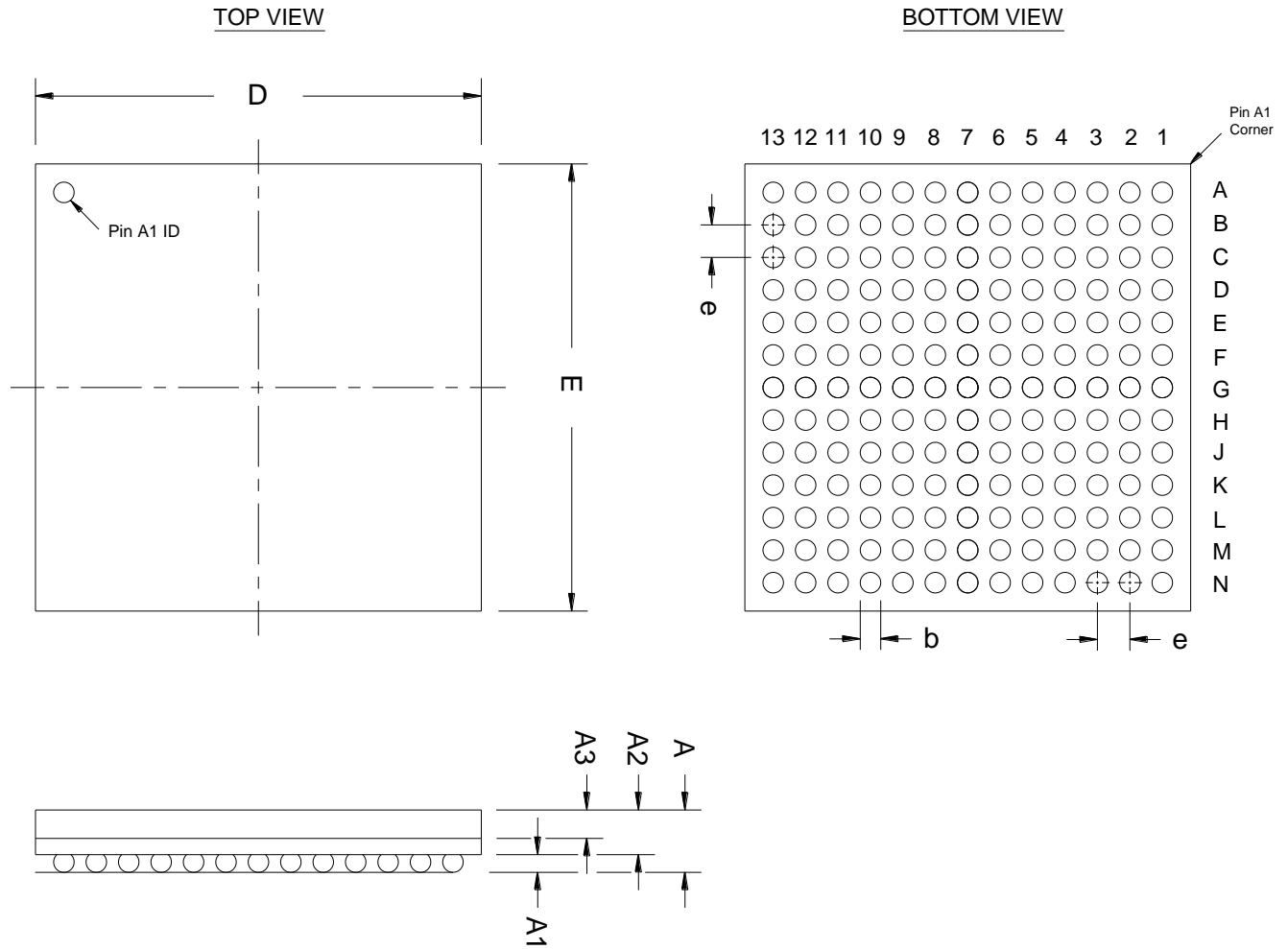
04R-00470-2.0

169-Pin Ultra FineLine Ball-Grid Array (UBGA) - Wire Bond - A:1.55

- All dimensions and tolerances conform to ASME Y14.5M – 1994.
- Controlling dimension is in millimeters.
- Pin A1 may be indicated by an ID dot, or a special feature, in its proximity on package surface.

Package Information	
Description	Specification
Ordering Code Reference	U
Package Acronym	UBGA
Substrate Material	BT
Solder ball composition	Pb-free: Sn:3Ag:0.5Cu (Typ.)
JEDEC Outline Reference	MO-275 Variation: FFAA-1
Lead Coplanarity	0.005 inch (0.12 mm)
Weight	0.34 g (Typ.)
Moisture Sensitivity Level	Printed on moisture barrier bag

Package Outline Dimension Table			
Symbol	Millimeters		
	Min.	Nom.	Max.
A	1.25	1.40	1.55
A1	0.35	0.40	0.45
A2	0.80	1.00	1.20
A3	0.65	0.70	0.75
D	11.00 BSC		
E	11.00 BSC		
b	0.40	0.50	0.60
e	0.80 BSC		

Package Outline

Document Revision History

Table 1 shows the revision history for this document.

Table 1. Document Revision History

Date	Version	Changes
May 2014	1.0	Initial release
October 2014	2.0	Revise dimension "A" from "1.20/1.35/1.50"mm to "1.25/1.40/1.55"mm and dimension "A2" from "0.75/0.95/1.15"mm to "0.80/1.00/1.20"mm



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