

# **Altera Device Package Information**

04R-00374-2.0

# 358-Pin Ultra FineLine Ball-Grid Array (UBGA) - Flip Chip - Lidless - A:1.70

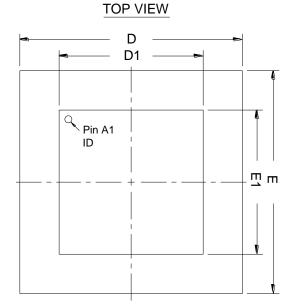
- All dimensions and tolerances conform to ASME Y14.5M 1994.
- Controlling dimension is in millimeters.
- Pin A1 may be indicated by an ID dot, or a special feature, in its proximity on package surface.

Package Information			
Description	Specification		
Ordering Code Reference	U		
Package Acronym	UBGA		
Substrate Material	ВТ		
Solder ball composition	Regular: 63Sn:37Pb (Typ.) Pb-free: Sn:3Ag:0.5Cu (Typ.)		
JEDEC Outline Reference	MO-275 Variation: MMAB-2		
Lead Coplanarity	0.006 inch (0.15 mm)		
Weight	0.95 g (Typ.)		
Moisture Sensitivity Level	Printed on moisture barrier bag		

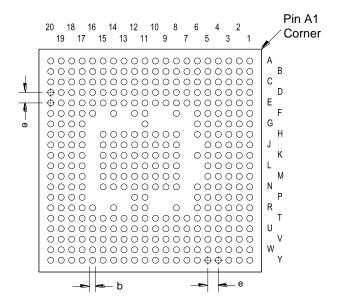
S. mah al	Millimeters			
Symbol	Min.	Nom.	Max.	
Α	1.40	1.55	1.70	
A1	0.30	0.35	0.40	
A2	1.00	1.20	1.40	
А3	0.45	0.55	0.65	
D	17.00 BSC			
D1	Device Specific Dimension (see table below)			
E	17.00 BSC			
E1	Device Specific Dimension (see table below)			
b	0.41	0.46	0.51	
е		0.80 BSC		

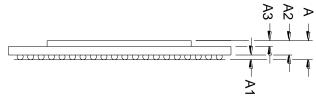
Device Specific Dimension Table							
Device -	Millimeters		Device	Millimeters			
	D1	E1	Device	D1	E1		
EP2AGX45	11.10	10.50	EP2AGX65	11.10	10.50		

# Package Outline



## **BOTTOM VIEW**





## **Document Revision History**

Table 1 shows the revision history for this document.

Table 1. Document Revision History

Date	Version	Changes
June 2011	1.0	Initial release
December 2011	2.0	Add Device Specific Dimension Table at page 1. Change dimension "b" from 0.40/0.50/0.60 to 0.41/0.46/0.51. Change the JEDEC Outline Reference from MO-216 Variation: BAM-1 to MO-275 Variation: MMAB-2



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