

# **Altera Device Package Information**

04R-00301-2.0

### 1152-Pin FineLine Ball-Grid Array (FBGA) - Flip Chip - Lidless - A:2.60

- 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.

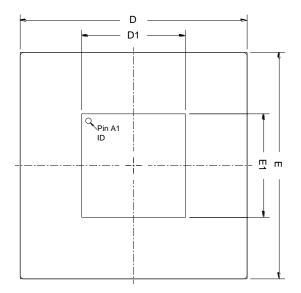
Package Information			
Description	Specification		
Ordering Code Reference	F		
Package Acronym	FBGA		
Substrate Material	ВТ		
Solder ball composition	Regular: 63Sn:37Pb (Typ.) Pb-free: Sn:3Ag:0.5Cu (Typ.)		
JEDEC Outline Reference	MS-034 Variation: AAR-1		
Lead Coplanarity	0.008 inch (0.20 mm)		
Weight	4.5 g (Typ.)		
Moisture Sensitivity Level	Printed on moisture barrier bag		

Package Outline Dimension Table					
	Millimeters				
Symbol	Min.	Nom.	Max.		
Α	2.20	2.40	2.60		
<b>A</b> 1	0.40	0.50	0.60		
A2	1.60	1.90	2.20		
А3	0.75	0.85	0.95		
D		35.00 BSC			
D1	Device Specific Dimension (see table below)				
E	35.00 BSC				
E1	Device Specific Dimension (see table below)				
b	0.50	0.60	0.70		
е	1.00 BSC				

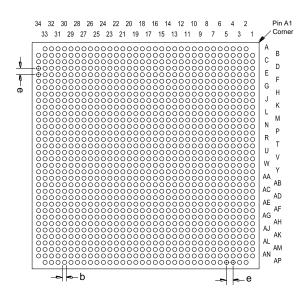
Device Specific Dimension Table						
Device	Millimeters		Device	Millimeters		
	D1	E1	Device	D1	E1	
EP2AGX95	13.40	13.10	EP2AGX125	13.40	13.10	
EP2AGX190	17.20	16.60	EP2AGX260	17.20	16.60	

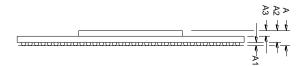
### Package Outline

### **TOP VIEW**



## **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	
November 2011	2.0	Add Device Specific Dimension Table at page 1.	



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