

Altera Device Package Information

04R-00449-1.0

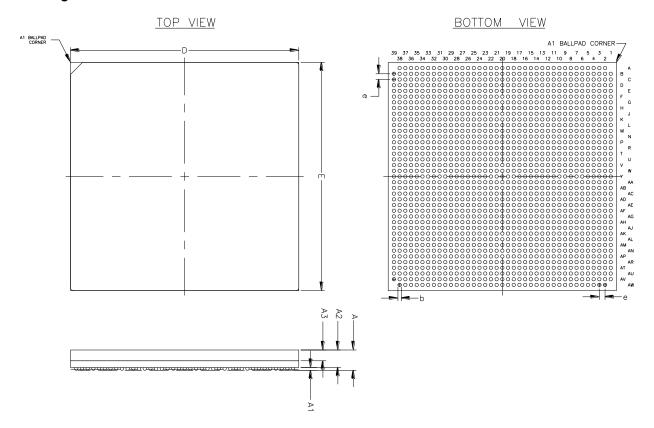
1517-Pin FineLine Ball-Grid Array (FBGA) - Flip Chip- Flat Top Single-Piece Lid - A:3.90

- 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: AAU-1	
Lead Coplanarity	0.010 inch (0.25 mm)	
Weight	28.3 g (Typ.)	
Moisture Sensitivity Level	Printed on moisture barrier bag	

Package Outline Dimension Table				
Ol	Millimeters			
Symbol	Min.	Nom.	Max.	
Α	3.50	3.70	3.90	
A1	0.40	0.50	0.60	
A2	2.90	3.20	3.50	
А3	1.85	1.90	1.95	
D	40.00 BSC			
E	40.00 BSC			
b	0.50	0.60	0.70	
е	1.00 BSC			

Package Outline



Document Revision History

Table 1 shows the revision history for this document.

Table 1. Document Revision History

Date	Version	Changes
July 2012	1.0	Initial release



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