

Altera Device Package Information

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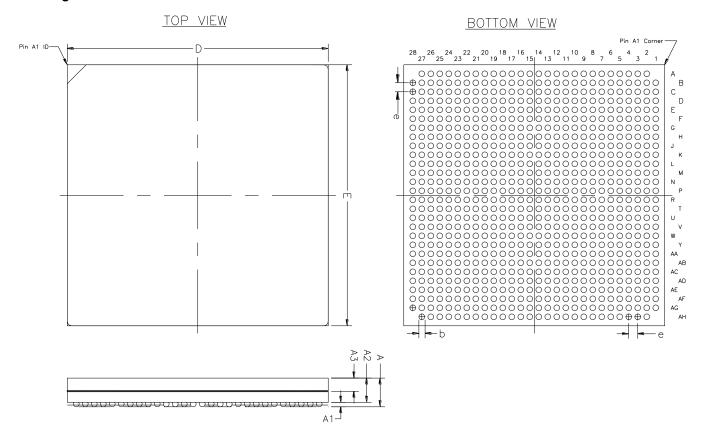
780-Pin FineLine Ball-Grid Array (FBGA) - Flip Chip - Flat Top Single-Piece Lid - A:3.35

- 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	Pb-free: Sn:3Ag:0.5Cu (Typ.)	
JEDEC Outline Reference	MS-034 Variation: AAM-1	
Lead Coplanarity	0.008 inch (0.20 mm)	
Weight	10.6 g (Typ.)	
Moisture Sensitivity Level	Printed on moisture barrier bag	

Package Outline Dimension Table				
Q	Millimeters			
Symbol	Min.	Nom.	Max.	
Α	2.95	3.15	3.35	
A1	0.40	0.50	0.60	
A2	2.35	2.65	2.95	
A3	1.40	1.45	1.50	
D	29.00 BSC			
E	29.00 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
November 2014	1.0	Initial Release



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