

## **Altera Device Package Information**

04R-00388-1.0

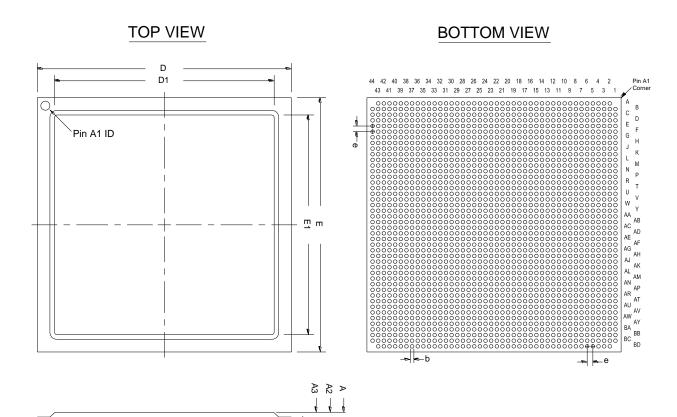
## 1932-Pin FineLine Ball-Grid Array (FBGA) - Flip Chip - Single-Piece Lid - A:3.40 - D1:38.9

- 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: AAW-1	
Lead Coplanarity	0.010 inch (0.25 mm)	
Weight	19.6 g (Typ.)	
Moisture Sensitivity Level	Printed on moisture barrier bag	

Symbol	Millimeters			
	Min.	Nom.	Max.	
Α	3.00	3.20	3.40	
A1	0.40	0.50	0.60	
A2	2.40	2.70	3.00	
А3	1.30	1.40	1.50	
D		45.00 BSC		
D1		38.90 BSC		
E	45.00 BSC			
E1	38.90 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
May 2011	1.0	Initial release



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