

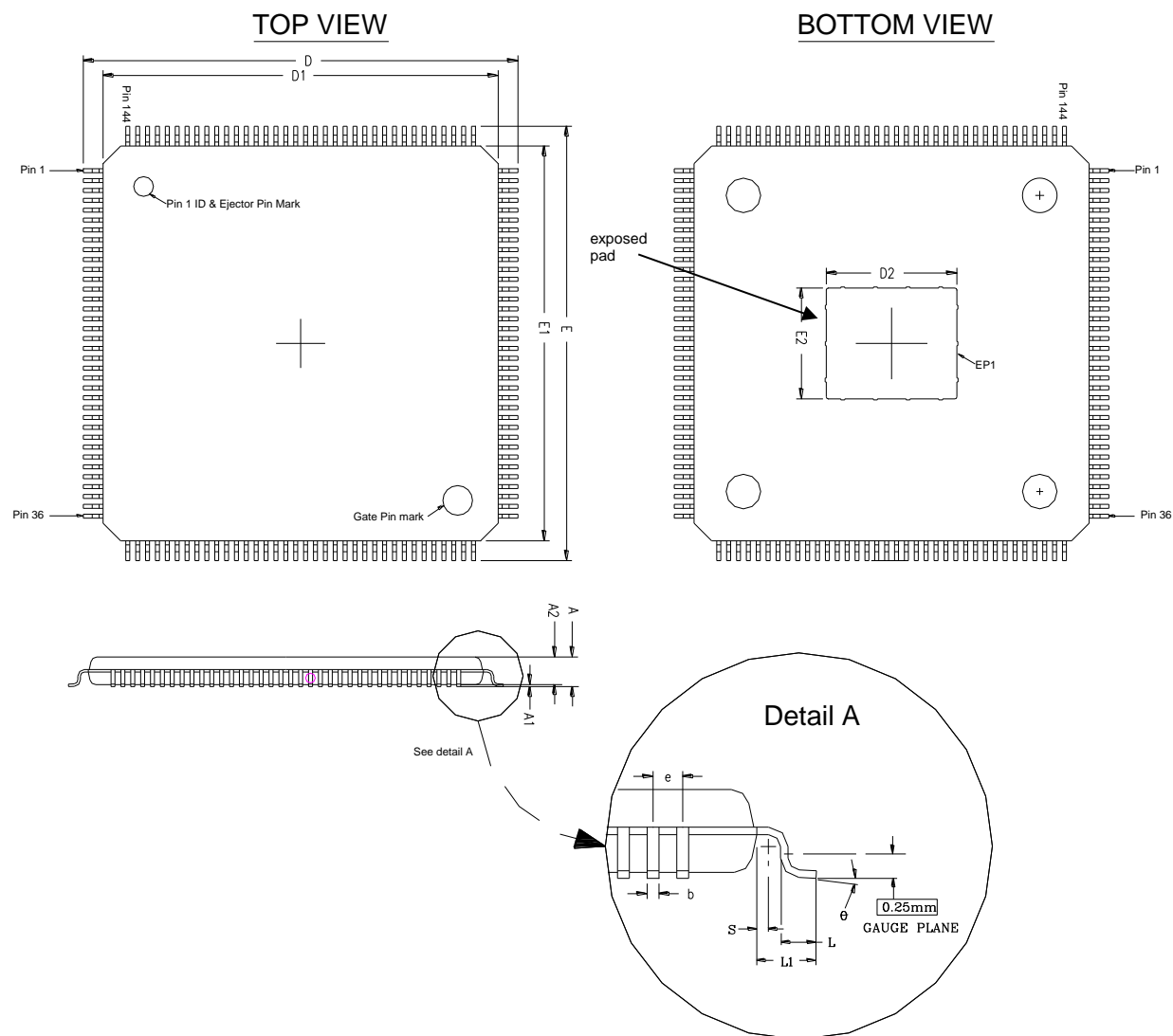
144-Pin Plastic Enhanced Quad Flat Pack (EQFP) - Wire Bond - A:1.65 - D2:4.00

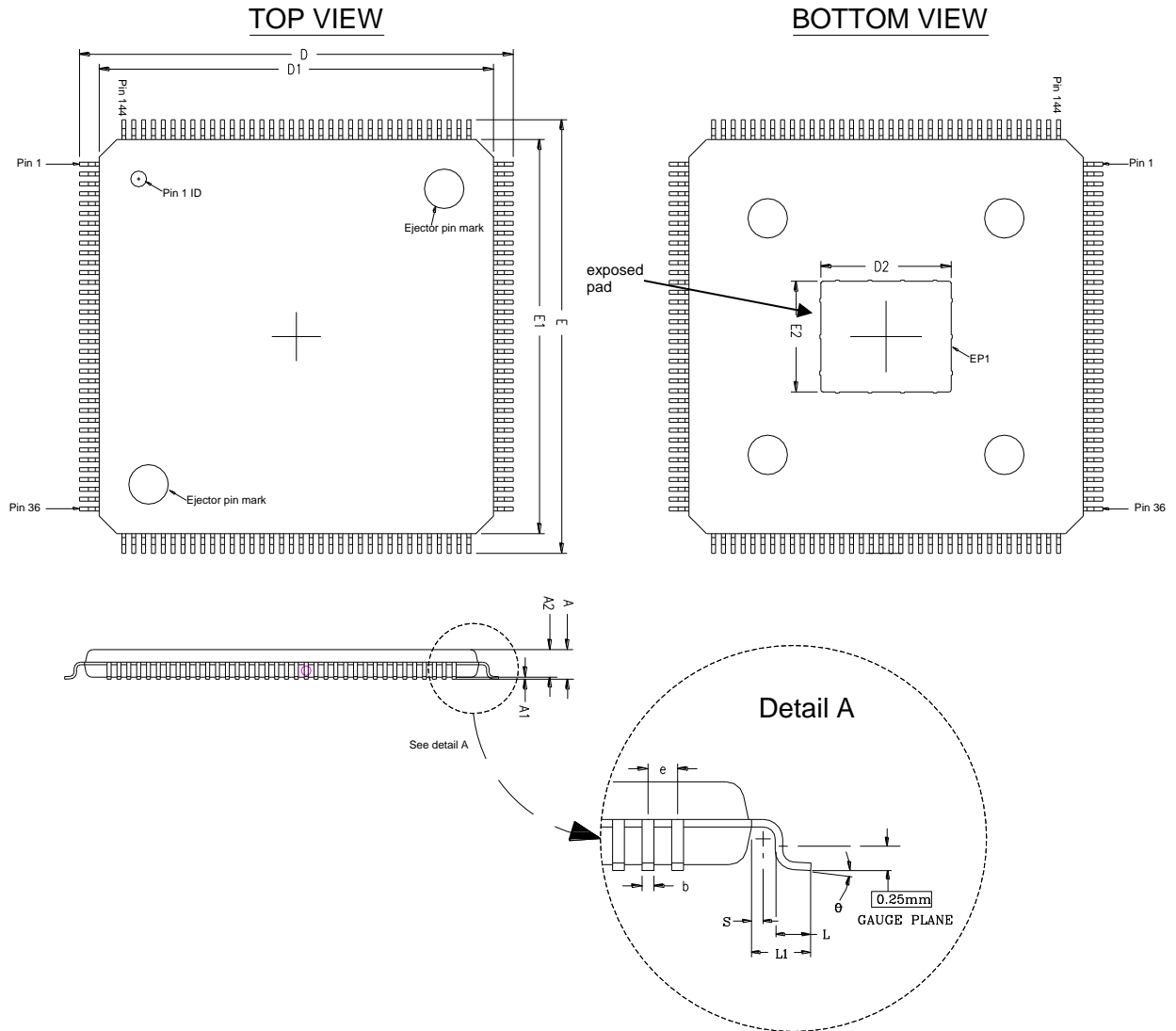
- All dimensions and tolerances conform to ASME Y14.5M – 1994.
- Controlling dimension is in millimeters.
- Pin 1 may be indicated by an ID dot, or a special feature, in its proximity on package surface.

Note: For more information about the exposed pad pin connection of 144-EQFP package, refer to the specific device pin-out file (<https://www.altera.com/support/literature/lit-dp.html>)

Package Information	
Description	Specification
Ordering Code Reference	E
Package Acronym	EQFP
Leadframe Material	Copper
Lead Finish (plating)	Regular: 85Sn:15Pb (Typ.) Pb-free: Matte Sn
JEDEC Outline Reference	MS-026 Variation: BFB-HD
Lead Coplanarity	0.003 inch (0.08mm)
Weight	1.3 g (Typ.)
Moisture Sensitivity Level	Printed on moisture barrier bag

Package Outline Dimension Table			
Symbol	Millimeters		
	Min.	Nom.	Max.
A	1.45	1.55	1.65
A1	0.05	0.10	0.15
A2	1.30	1.45	1.60
D	22.00 BSC		
D1	20.00 BSC		
D2	6.460	6.610	6.760
E	22.00 BSC		
E1	20.00 BSC		
E2	5.465	5.615	5.765
L	0.45	0.60	0.75
L1	1.00 REF		
S	0.20	-	-
b	0.17	0.22	0.27
c	0.09	-	0.20
e	0.50 BSC		
θ	0°	3.5°	7°

Package Outline (Option1)

Package Outline (Option 2)

Document Revision History

Table 1 shows the revision history for this document.

Table 1. Document Revision History

Date	Version	Changes
January 2015	1.0	Initial release
February 2015	2.0	Add in Option 2
March 2015	3.0	1. Add in label# exposed pad in package outline diagram at bottom view. 2. Add note, "Note: For more information about the exposed pad pin connection of 144-EQFP package, refer to the specific device pin-out file (https://www.altera.com/support/literature/lit-dp.html). " at first page.



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