

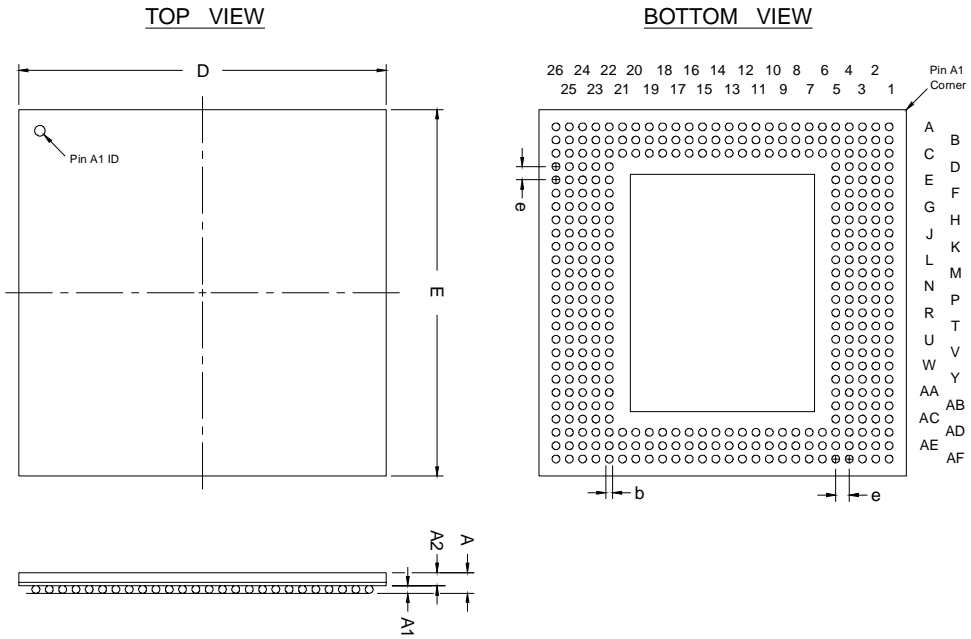
356-Pin Ball-Grid Array (BGA) - Wire Bond

- 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	B
Package Acronym	BGA
Substrate Material	BT or tape
Solder Ball Composition	Regular: 63Sn:37Pb (Typ.) Pb-free: Sn:3Ag:0.5Cu (Typ.)
JEDEC Outline Reference	MO-192 Variation: BAR-2
Maximum Lead Coplanarity	0.008 inches (0.20mm)
Weight	7.7 g
Moisture Sensitivity Level	Printed on moisture barrier bag

Package Outline Dimension Table			
Symbol	Millimeters		
	Min.	Nom.	Max.
A	–	–	1.70
A1	0.35	–	–
A2	0.25	–	1.10
D	35.00 BSC		
E	35.00 BSC		
b	0.60	0.75	0.90
e	1.27 BSC		

Package Outline





101 Innovation Drive
San Jose, CA 95134
(408) 544-7000
<http://www.altera.com>

Copyright © 2007 Altera Corporation. All rights reserved. Altera, The Programmable Solutions Company, the stylized Altera logo, specific device designations, and all other words and logos that are identified as trademarks and/or service marks are, unless noted otherwise, the trademarks and service marks of Altera Corporation in the U.S. and other countries. All other product or service names are the property of their respective holders. Altera products are protected under numerous U.S. and foreign patents and pending applications, maskwork rights, and copyrights. Altera warrants performance of its semiconductor products to current specifications in accordance with Altera's standard warranty, but reserves the right to make changes to any products and services at any time without notice. Altera assumes no responsibility or liability arising out of the application or use of any information, product, or service described herein except as expressly agreed to in writing by Altera Corporation. Altera customers are advised to obtain the latest version of device specifications before relying on any published information and before placing orders for products or services.



I.S. EN ISO 9001
