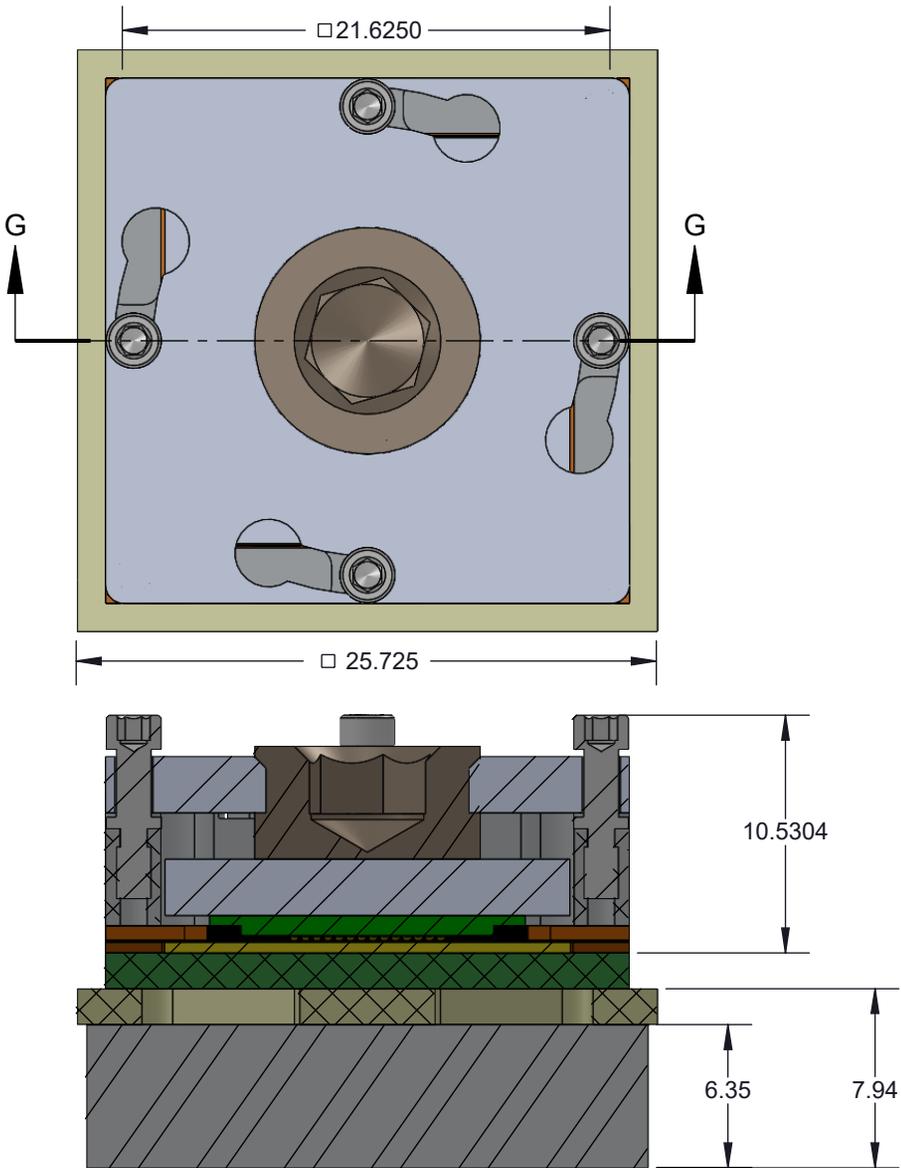


GHz BGA DIRECT MOUNT, SOLDERLESS SOCKET FOR TEST APPLICATIONS

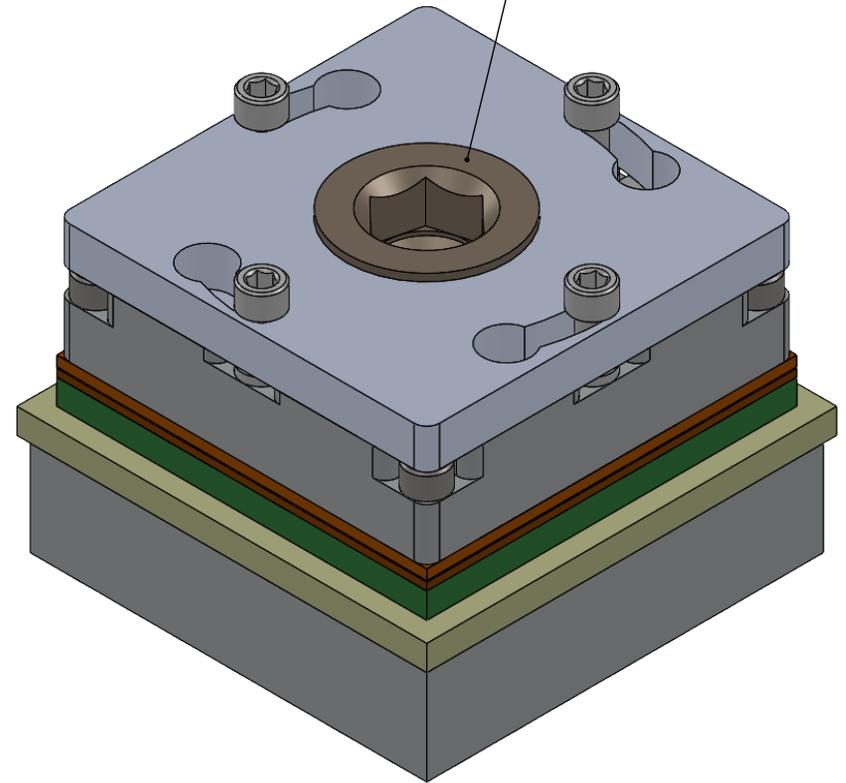


**SECTION G-G
SCALE 2 : 1**

FEATURES:

- Directly mounts to target PCB (needs tooling holes) with hardware.
- High speed, reliable Elastomer connection
- Minimum real estate required
- Compression plate distributes forces evenly
- Easily removable swivel socket lid

Recommended Torque 0.5 in.-lbs. (8 in.-oz.)

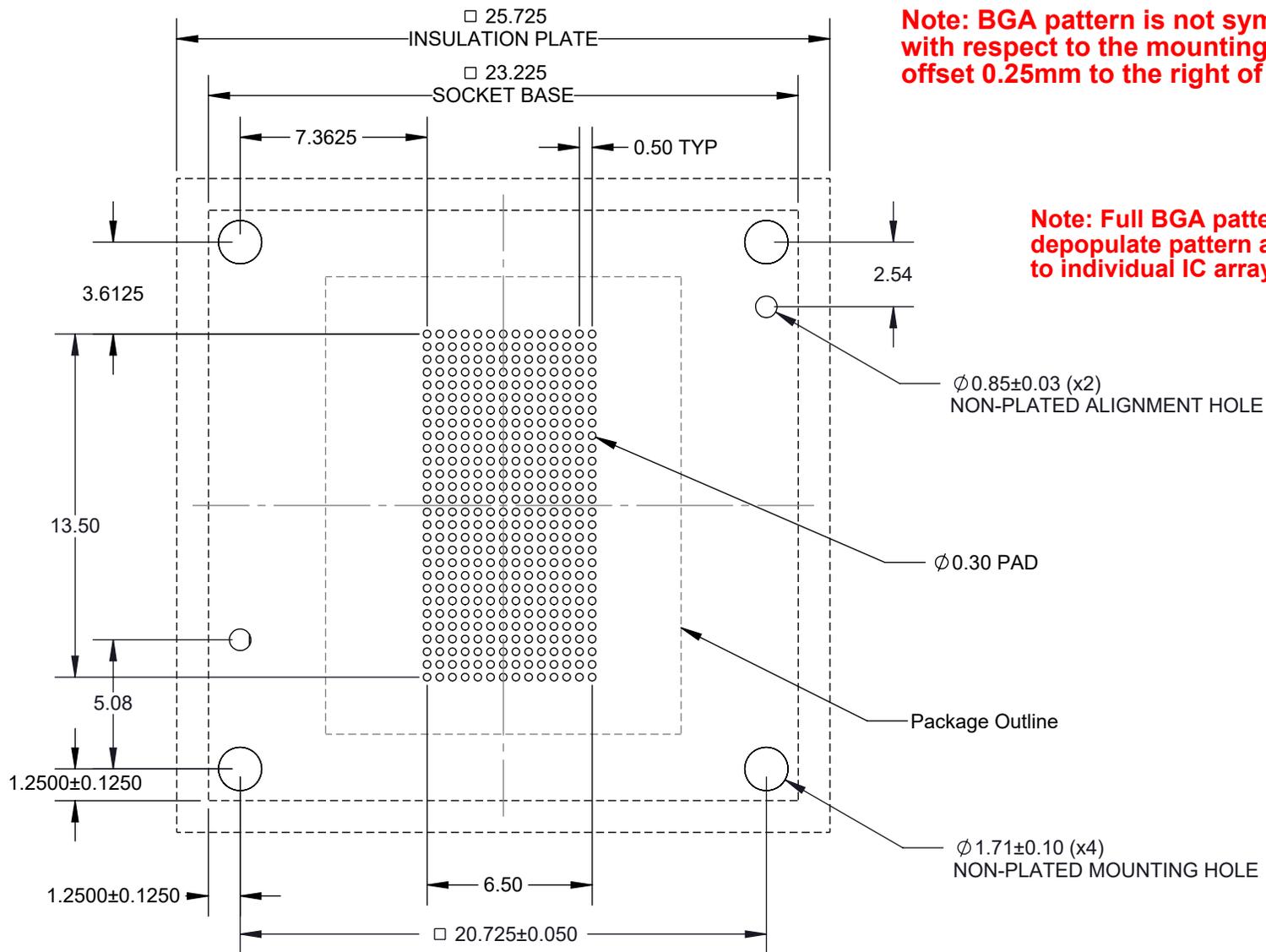


Description: SG-BGA socket 0.5mm pitch 12x16mm, 14x18mm eMMC

Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

Tolerances: Hole diameters $\pm 0.03\text{mm}$ [$\pm 0.001"$], Pitches (from true position) $\pm 0.025\text{mm}$ [$\pm 0.001"$], substrate thickness tolerance $\pm 10\%$, all other tolerances $\pm 0.13\text{mm}$ [$\pm 0.005"$] unless stated otherwise. Materials and specifications are subject to change without notice.

 SG-BGA-7219 Drawing Ironwood Electronics, Inc. Tele: (800) 404-0204 www.ironwoodelectronics.com	Material: N/A Finish: N/A Weight: 23.95	STATUS: Released	SHEET: 1 OF 6	REV. C
		ENG:	DRAWN BY: M. Raske	SCALE: 3:1
		FILE: SG-BGA-7219	DATE: 9/28/2011	



Note: BGA pattern is not symmetrical with respect to the mounting holes. It is offset 0.25mm to the right of center.

Note: Full BGA pattern shown depopulate pattern according to individual IC array.

Target PCB Recommendations

Total thickness: 1.6mm min.
Plating: Gold or Solder finish
PCB Pad height: same or higher than solder mask

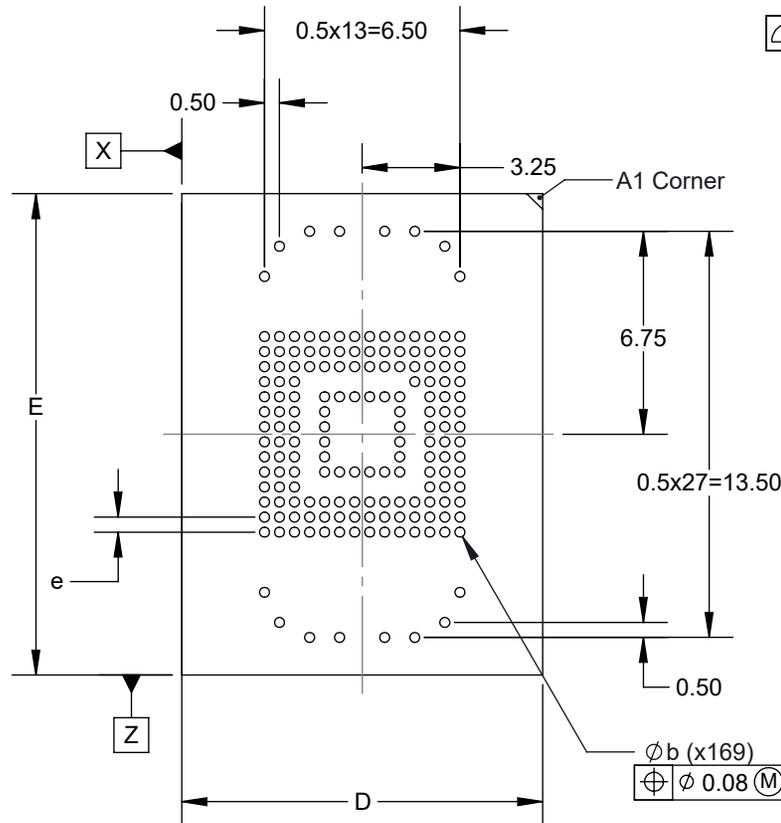
Description: Recommended PCB Layout

Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

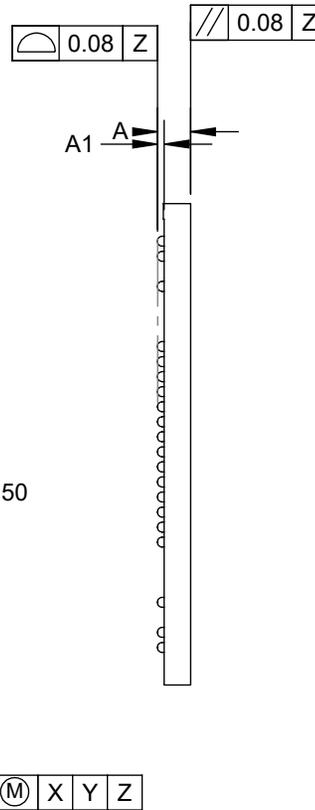
Tolerances: Hole diameters ±0.03mm [±0.001"], Pitches (from true position) ±0.025mm [±0.001"], substrate thickness tolerance ±10%, all other tolerances ±0.13mm [±0.005"] unless stated otherwise. Materials and specifications are subject to change without notice.

 <p>SG-BGA-7219 Drawing Ironwood Electronics, Inc. Tele: (800) 404-0204 www.ironwoodelectronics.com</p>	<p>Material: N/A Finish: N/A Weight: 23.95</p>	STATUS: Released	SHEET: 2 OF 6	REV. C
		ENG:	DRAWN BY: M. Raske	SCALE: 2:1
		FILE: SG-BGA-7219	DATE: 9/28/2011	

BOTTOM VIEW



SIDE VIEW



14x18mm BGA Outline

DIM	Minimum	Maximum
A		2.5
A1	0.15	
b		0.37
D	14.0 BSC	
E	18.0 BSC	
e	0.5 BSC	

12x18mm BGA Outline

DIM	Minimum	Maximum
A		2.5
A1	0.15	
b		0.37
D	12.0 BSC	
E	18.0 BSC	
e	0.5 BSC	

12x16mm BGA Outline

DIM	Minimum	Maximum
A		2.5
A1	0.15	
b		0.37
D	12.0 BSC	
E	16.0 BSC	
e	0.5 BSC	

1. Dimensions are in millimeters.
2. Interpret dimensions and tolerances per ASME Y14.5M-1994.
3. Dimension b is measured at the maximum solder ball diameter, parallel to datum plane Z.
4. Datum Z (seating plane) is defined by the spherical crowns of the solder balls.
5. Parallelism measurement shall exclude any effect of mark on top surface of package.

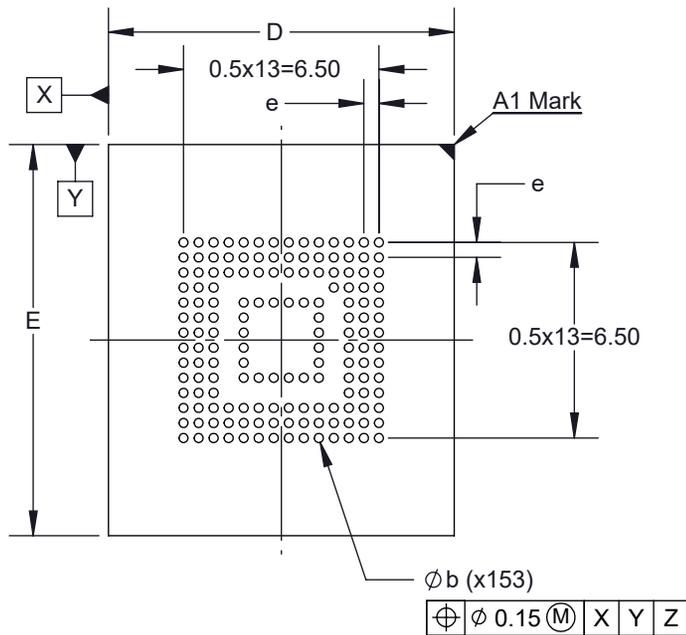
Description: Compatible IC

Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

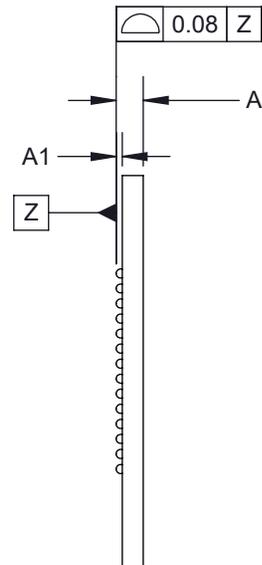
Tolerances: Hole diameters $\pm 0.03\text{mm}$ [$\pm 0.001"$], Pitches (from true position) $\pm 0.025\text{mm}$ [$\pm 0.001"$], substrate thickness tolerance $\pm 10\%$, all other tolerances $\pm 0.13\text{mm}$ [$\pm 0.005"$] unless stated otherwise. Materials and specifications are subject to change without notice.

 <p>SG-BGA-7219 Drawing Ironwood Electronics, Inc. Tele: (800) 404-0204 www.ironwoodelectronics.com</p>	<p>Material: N/A Finish: N/A Weight: 23.95</p>	STATUS: Released	SHEET: 3 OF 6	REV. C
		ENG:	DRAWN BY: M. Raske	SCALE: 4:1
		FILE: SG-BGA-7219	DATE: 9/28/2011	

BOTTOM VIEW



SIDE VIEW



11x10mm BGA Outline

DIM	Minimum	Maximum
A		2.5
A1	0.15	
b		0.37
D	11.0 BSC	
E	10.0 BSC	
e	0.5 BSC	

11.5x13mm BGA Outline

DIM	Minimum	Maximum
A		2.5
A1	0.15	
b		0.37
D	11.5 BSC	
E	13.0 BSC	
e	0.5 BSC	

ϕb (x153)
 $\oplus \phi 0.15$ (M) X Y Z

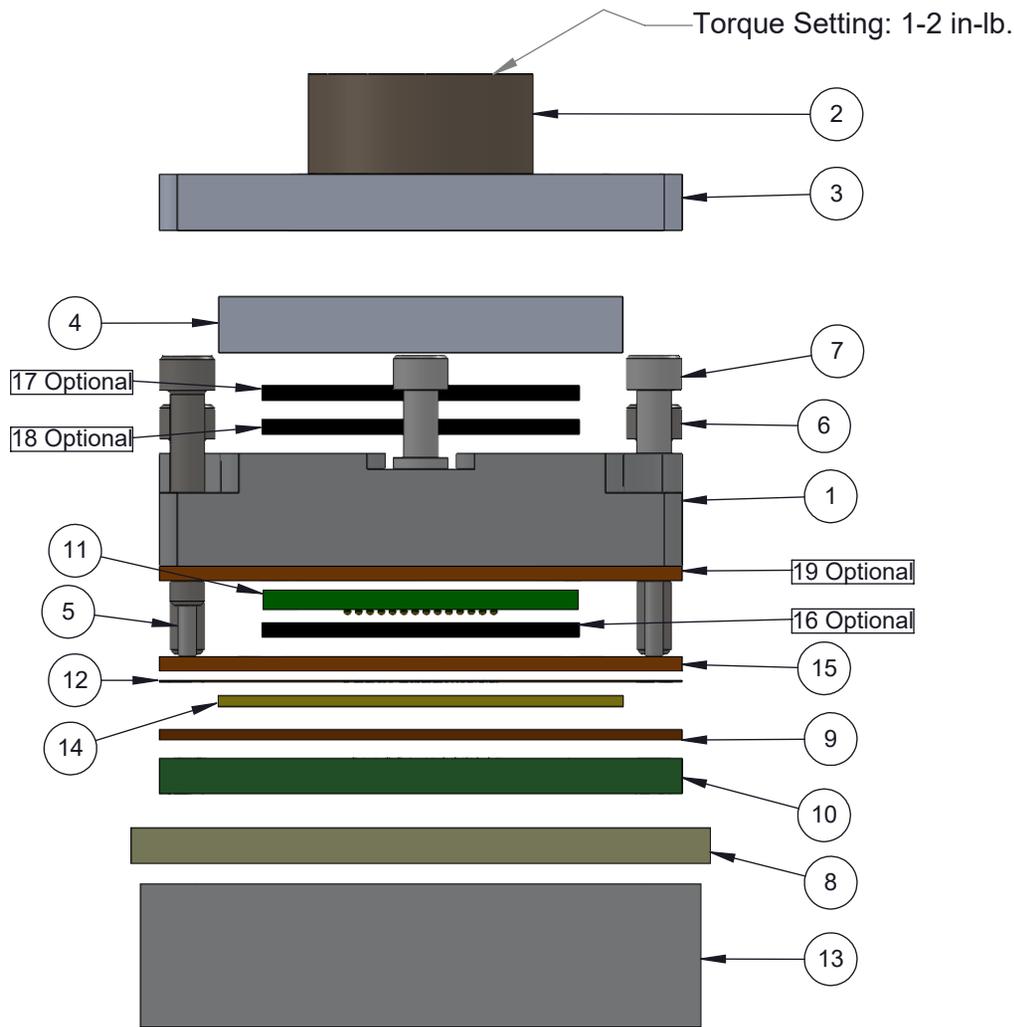
1. Dimensions are in millimeters.
2. Interpret dimensions and tolerances per ASME Y14.5M-1994.
3. Dimension b is measured at the maximum solder ball diameter, parallel to datum plane Z.
4. Datum Z (seating plane) is defined by the spherical crowns of the solder balls.
5. Parallelism measurement shall exclude any effect of mark on top surface of package.

Description: Compatible IC cont

Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

Tolerances: Hole diameters $\pm 0.03\text{mm}$ [± 0.001 "], Pitches (from true position) $\pm 0.025\text{mm}$ [± 0.001 "], substrate thickness tolerance $\pm 10\%$, all other tolerances $\pm 0.13\text{mm}$ [± 0.005 "] unless stated otherwise. Materials and specifications are subject to change without notice.

 <p>SG-BGA-7219 Drawing Ironwood Electronics, Inc. Tele: (800) 404-0204 www.ironwoodelectronics.com</p>	<p>Material: N/A Finish: N/A Weight: 23.95</p>	STATUS: Released	SHEET: 4 OF 6	REV. C
		ENG:	DRAWN BY: M. Raske	SCALE: 4:1
		FILE: SG-BGA-7219	DATE: 9/28/2011	



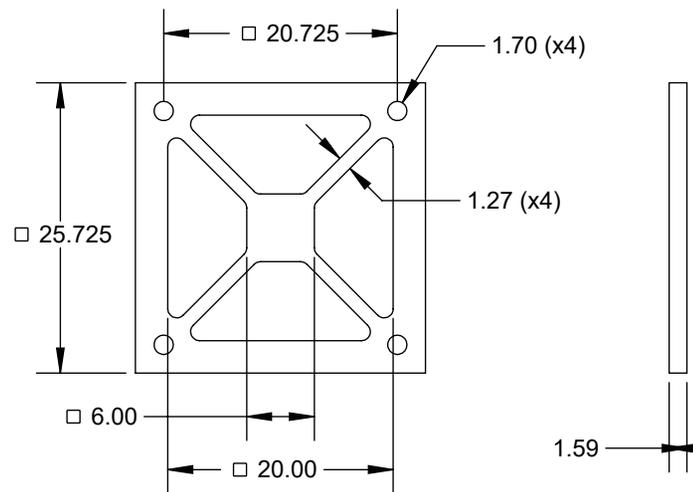
ITEM NO.	DESCRIPTION	Material
1	Socket Base 18mm	7075-T6 (SN)
2	Compression Screw M10	7075-T6 Alumium Alloy
3	Socket Lid	7075-T6 Aluminum Alloy
4	Compression Plate	7075-T6 Aluminum Alloy
5	Dowel Pin, 1/32" x 3/16", SS	Chrome Stainless Steel
6	#0-80 X .375 LG, SOC HD CAP SCREW, ALLOY STL, BLK OXIDE	Alloy Steel
7	#0-80 Shoulder Screw, 2.29mm thread length	Stainless Steel (303)
8	Insulation Plate 18x18mm IC	FR4 Standard
9	Elastomer Guide 18mm IC 0.475 thk	Kapton Polyimide/Cirlex/Ultem
10	Test PCB	High Temp FR4
11	BGA169 IC 0.5mm pitch	Material <not specified>
12	Ball Guide 14x28mm array 0.5mm pitch BGA169H	Kapton Polyimide
13	Backing Plate 18mm IC	7075-T6 Alumium Alloy
14	0.5mm thick, 18.0mm x 18.0mm, Z-axis conductive angled elastomer	20 Micron dia gold plated brass filaments arranged symtetrically in a silicon rubber (63.5 degree angle), Thickness: 0.5mm
15	IC Guide 14x18mm	Kapton Polyimide/Cirlex
16	IC Guide insert 12x16mm	Kapton Polyimide/Cirlex
17	IC Guide insert 11x10mm	Kapton Polyimide/Cirlex
18	IC Guide insert 11.5x13mm	Kapton Polyimide/Cirlex
19	IC Guide 12x18mm	Kapton Polyimide/Cirlex

ITEM NO.	DESCRIPTION	Package Size	Note
15	IC Guide 14x18mm	14x18mm	using this table to choose right IC guide and IC guide insert for the package
16	IC Guide insert 12x16mm	12x16mm	
17	IC Guide insert 11x10mm	11x10mm	
18	IC Guide insert 11.5x13mm	11.5x13mm	
19	IC Guide 12x18mm	12x18mm	

Description: Socket Assy

Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

Tolerances: Hole diameters $\pm 0.03\text{mm}$ [$\pm 0.001"$], Pitches (from true position) $\pm 0.025\text{mm}$ [$\pm 0.001"$], substrate thickness tolerance $\pm 10\%$, all other tolerances $\pm 0.13\text{mm}$ [$\pm 0.005"$] unless stated otherwise. Materials and specifications are subject to change without notice.



INSULATION PLATE

 SG-BGA-7219 Drawing Ironwood Electronics, Inc. Tele: (800) 404-0204 www.ironwoodelectronics.com	Material: N/A Finish: N/A Weight: 23.95	STATUS: Released	SHEET: 5 OF 6	REV. C
		ENG:	DRAWN BY: M. Raske	SCALE: 2:1
		FILE: SG-BGA-7219	DATE: 9/28/2011	

Rev	Date	Initials	Description
A	09/28/11	MR	Original
B	1/26/2012	SH	1. Added optional IC guide inserts.
C	10/2/14	GL	Updated sheet numbering

Description: Revision History

Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

Tolerances: Hole diameters $\pm 0.03\text{mm}$ [$\pm 0.001"$], Pitches (from true position) $\pm 0.025\text{mm}$ [$\pm 0.001"$], substrate thickness tolerance $\pm 10\%$, all other tolerances $\pm 0.13\text{mm}$ [$\pm 0.005"$] unless stated otherwise. Materials and specifications are subject to change without notice.

 SG-BGA-7219 Drawing Ironwood Electronics, Inc. Tele: (800) 404-0204 www.ironwoodelectronics.com	Material: Finish: Weight:	STATUS: Released	SHEET: 6 OF 6	REV. C
		ENG:	DRAWN BY: M. Raske	SCALE: 2:1
		FILE: SG-BGA-7219	DATE: 9/28/2011	