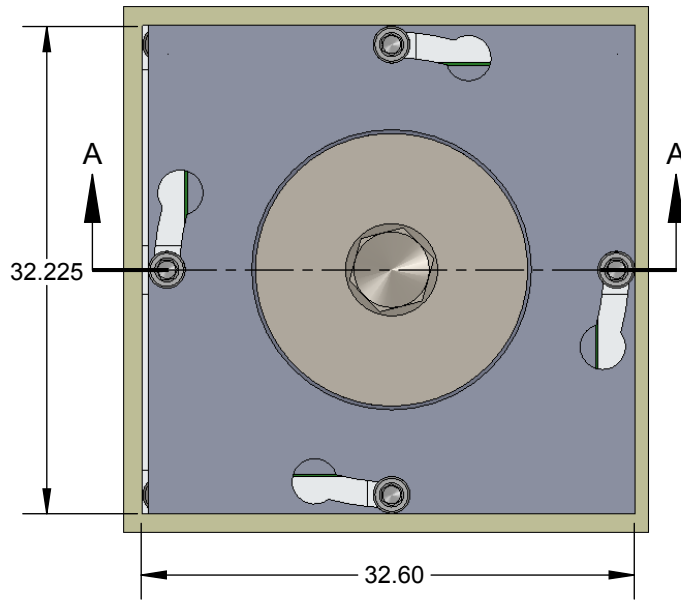


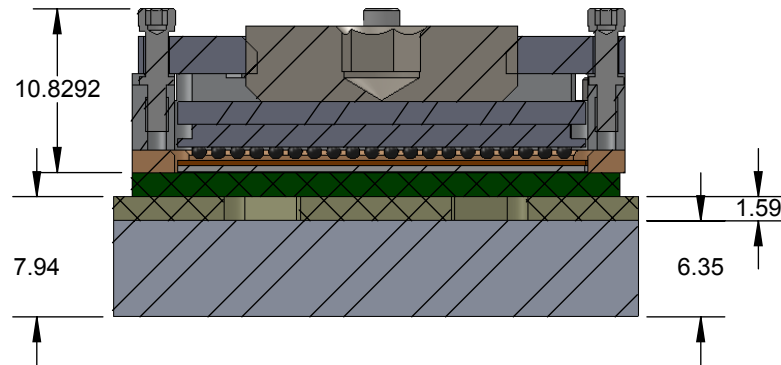
# SM-BGA DIRECT MOUNT, SOLDERLESS SOCKET FOR BURN-IN AND TEST APPLICATION

## Features

- Directly mounts to target PCB (needs tooling holes) with hardware.
- Wide temperature range (-55C to +155C).
- High current capability (up to 4 A).
- Excellent signal integrity at high frequencies.
- Low and stable contact resistance for reliable production yield.
- Highly compliant to accommodate wide co-planarity variations.
- Automated probe manufacturing enables low cost and short lead time.

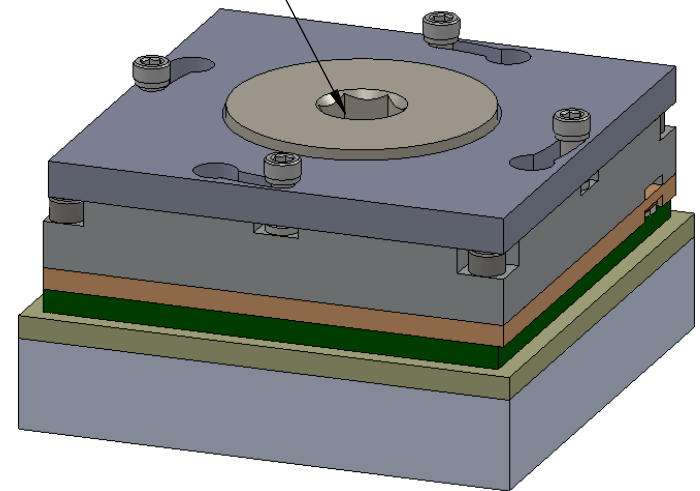


TOP VIEW



SECTION A-A


Recommended torque = 6.5 - 7.5 in-lbs



## Description: Socket Specification

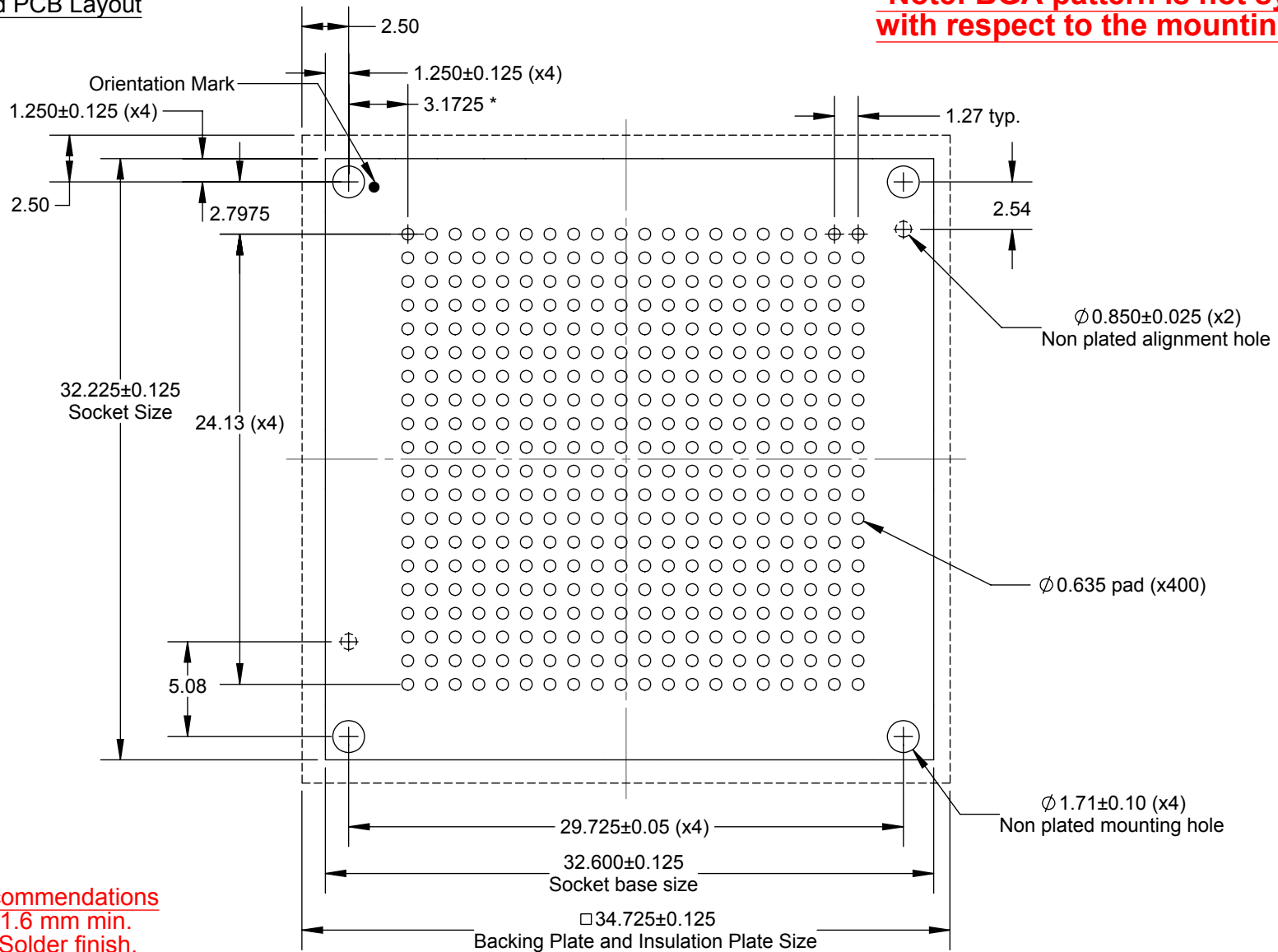
Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

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><b>SM-BGA-9013 Drawing</b><br/>Ironwood Electronics, Inc.<br/>Tele: (800) 404-0204<br/>www.ironwoodelectronics.com</p> | <p>Material: N/A<br/>Finish: N/A<br/>Weight: 44.56</p> | STATUS: Released    | SHEET: 1 OF 4      | REV. B     |
|  |  | ENG: E. Smolentseva | DRAWN BY: S. Huang | SCALE: 2:1 |
|  |  | FILE: SM-BGA-9013   | DATE: 9/26/12      |            |

**Recommended PCB Layout  
Top View**

**\*Note: BGA pattern is not symmetrical with respect to the mounting holes.**




**Target PCB Recommendations**

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

**NOTE: Steel backing plate may be required based on end user's application.**

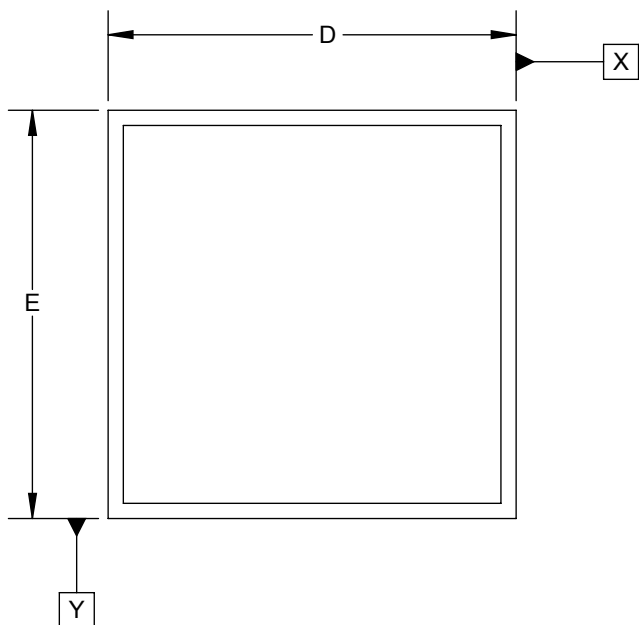
**Description: Recommended PCB Layout**

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.

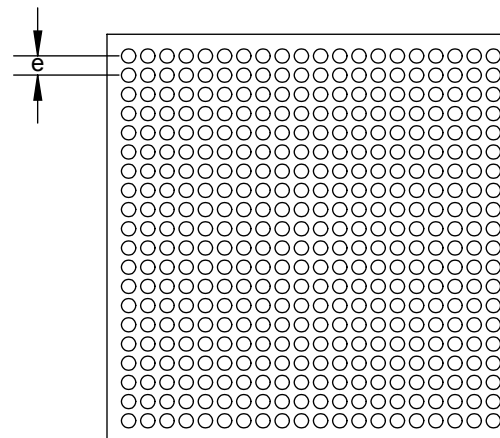
|  |   |                     |                    |            |
|--|---|---------------------|--------------------|------------|
|  <b>SM-BGA-9013 Drawing</b><br>Ironwood Electronics, Inc.<br>Tele: (800) 404-0204<br>www.ironwoodelectronics.com | Material: N/A<br>Finish: N/A<br>Weight: 44.56 | STATUS: Released    | SHEET: 2 OF 4      | REV. B     |
|  |   | ENG: E. Smolentseva | DRAWN BY: S. Huang | SCALE: 3:1 |
|  |   | FILE: SM-BGA-9013   | DATE: 9/26/12      |            |

Compatible BGA Spec

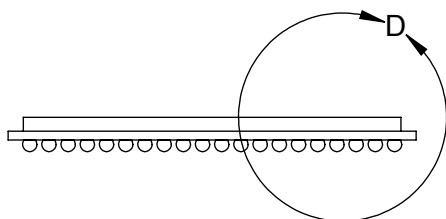
IRONWOOD PACKAGE CODE: BGA400F2



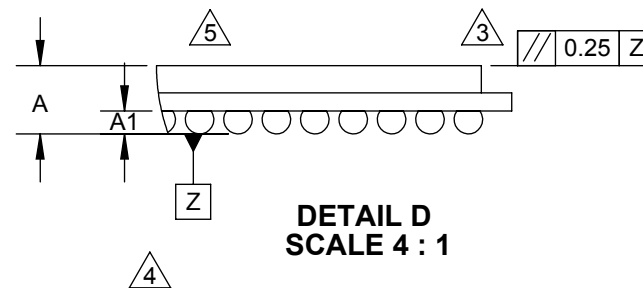
Top View



Bottom View



Side View



DETAIL D  
SCALE 4 : 1

1. Dimensions are in millimeters.
2. Interpret dimensions and tolerances per ASME Y14.5-1994.
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.


| DIM | MIN                 | MAX   |
|-----|---------------------|-------|
| A   | 1.943               | 2.375 |
| A1  | 0.66 after install  |       |
| b   | 0.762 before reflow |       |
| D   | 27.0 BSC            |       |
| E   | 27.0 BSC            |       |
| e   | 1.27 BSC            |       |

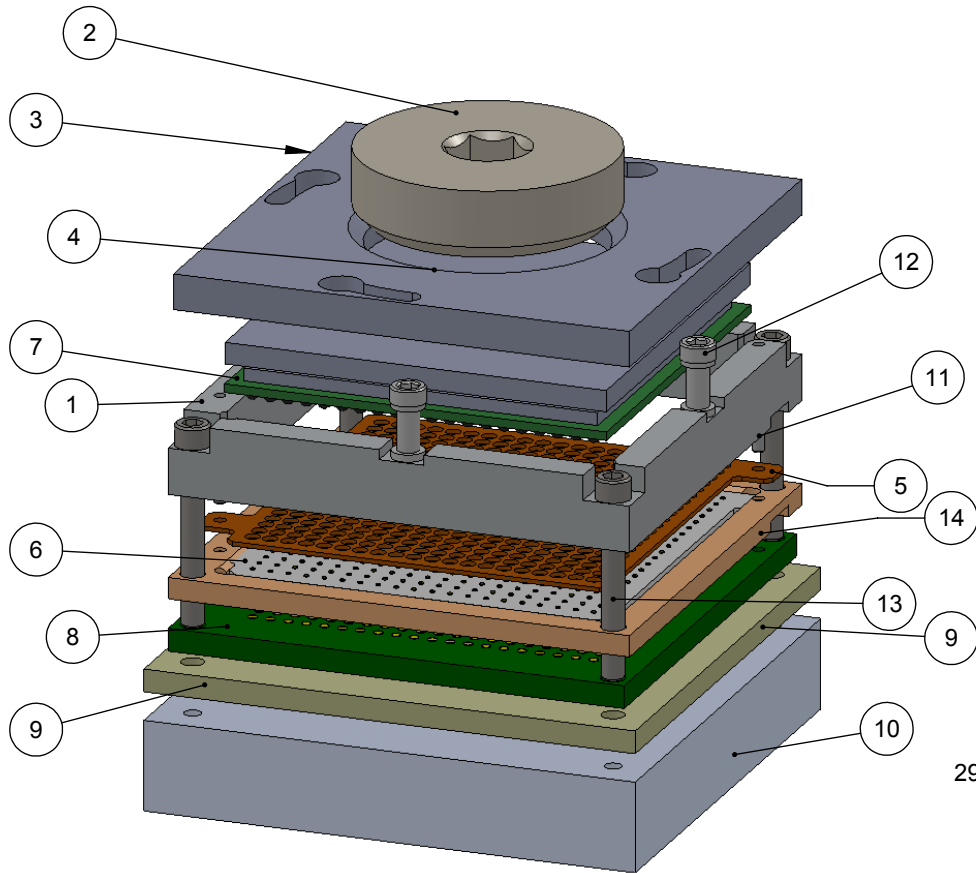
Array: 20x20

Description: Compatible BGA Spec

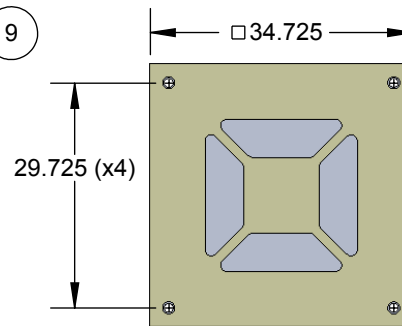
Primary dimension units are millimeters, Secondary dimension units are [inches], Weight is in grams.

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.

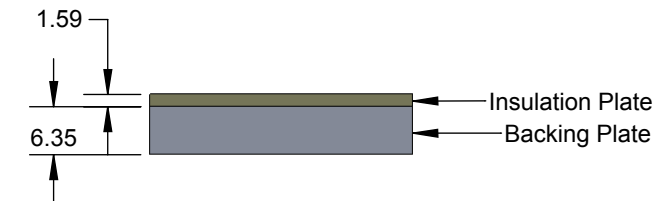
|   |   |  |  |                      |
|---|---|--|--|----------------------|
|  SM-BGA-9013 Drawing<br>Ironwood Electronics, Inc.<br>Tele: (800) 404-0204<br>www.ironwoodelectronics.com | Material: N/A<br>Finish: N/A<br>Weight: 44.56 | STATUS: Released<br>ENG: E. Smolentseva<br>FILE: SM-BGA-9013 | SHEET: 3 OF 4<br>DRAWN BY: S. Huang<br>DATE: 9/26/12 | REV. B<br>SCALE: 2:1 |
|   |   |  |  |                      |



| ITEM NO. | PART NUMBER | DESCRIPTION                                | QTY. |
|----------|-------------|--|------|
| 1        | M3692       | SM Socket Base for 27x27mm IC              | 1    |
| 2        | M1083       | Compression Screw, M18                     | 1    |
| 3        | M1048       | Socket Lid, 32.225 X 32.225                | 1    |
| 4        | M1186       | Compression Plate 26.95 x 1.5mm            | 1    |
| 5        | P11363      | Ball Guide, SM, 27mm, 20x20                | 1    |
| 6        | P11364      | SM Contactor                               | 1    |
| 7        | P3362       | 400 pin BGA package, 1.27mm Pitch          | 1    |
| 8        | P3546       | Test PCB BGA400, 1.27mm pitch 20x20 array  | 1    |
| 9        | P4162       | Insulation Plate 27mm IC                   | 1    |
| 10       | M1284       | Backing Plate, 34.725 X 34.725             | 1    |
| 11       | R1341       | Dowel Pin, 1/32" x 3/16", SS               | 2    |
| 12       | R2613       | #0-80 Shoulder Screw, 0.090" thread length | 4    |
| 13       | R1486       | #0-80 x 0.5, SH Cap Screw                  | 4    |
| 14       | P12189      | IC Guide for 31mm IC                       | 1    |



Top View




Side View

### Description: Socket Assem and Detail

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.

| Rev | Date     | Initials | Description    |
|-----|----------|----------|----------------|
| A   | 09/26/12 | ELS      | Original       |
| B   | 03/20/13 | DH       | Added IC Guide |
|     |          |          |                |
|     |          |          |                |

|  |   |  |  |                        |
|--|---|--|--|------------------------|
|  <b>SM-BGA-9013 Drawing</b><br>Ironwood Electronics, Inc.<br>Tele: (800) 404-0204<br>www.ironwoodelectronics.com | Material: N/A<br>Finish: N/A<br>Weight: 44.56 | STATUS: Released<br>ENG: E. Smolentseva<br>FILE: SM-BGA-9013 | SHEET: 4 OF 4<br>DRAWN BY: S. Huang<br>DATE: 9/26/12 | REV. B<br>SCALE: 2.5:1 |
|  |   |  |  |                        |