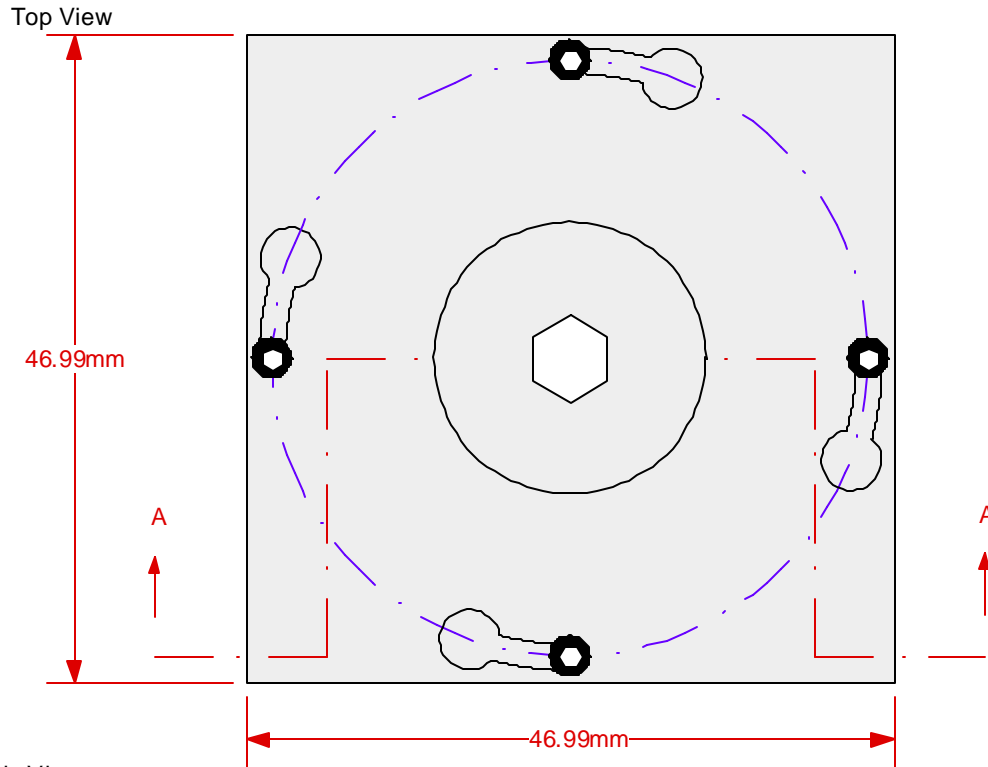


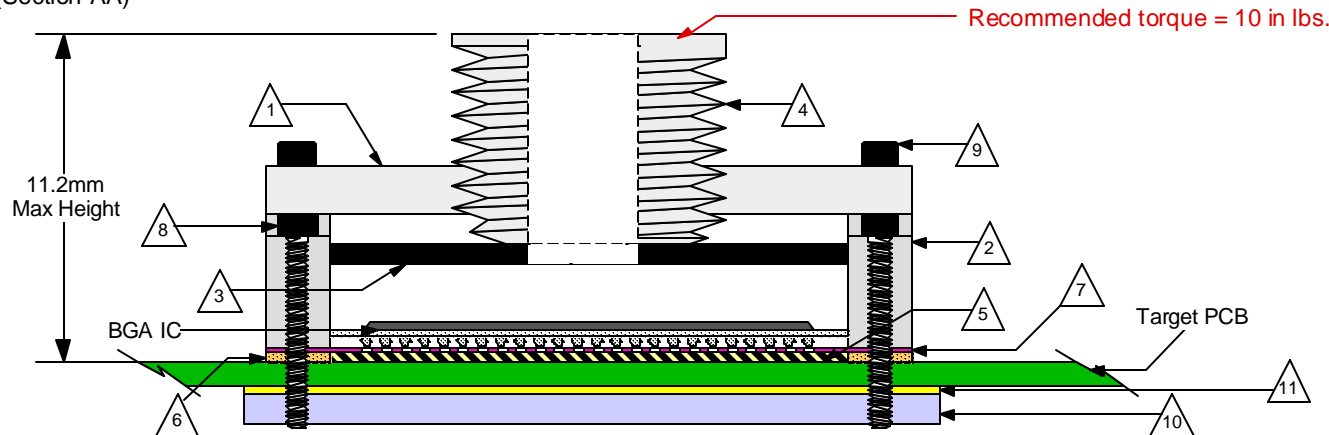
# GHz BGA Socket - Direct mount, solderless

## 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
- Ball guide prevents over compression of elastomer
- Heat sink lid for power dissipation



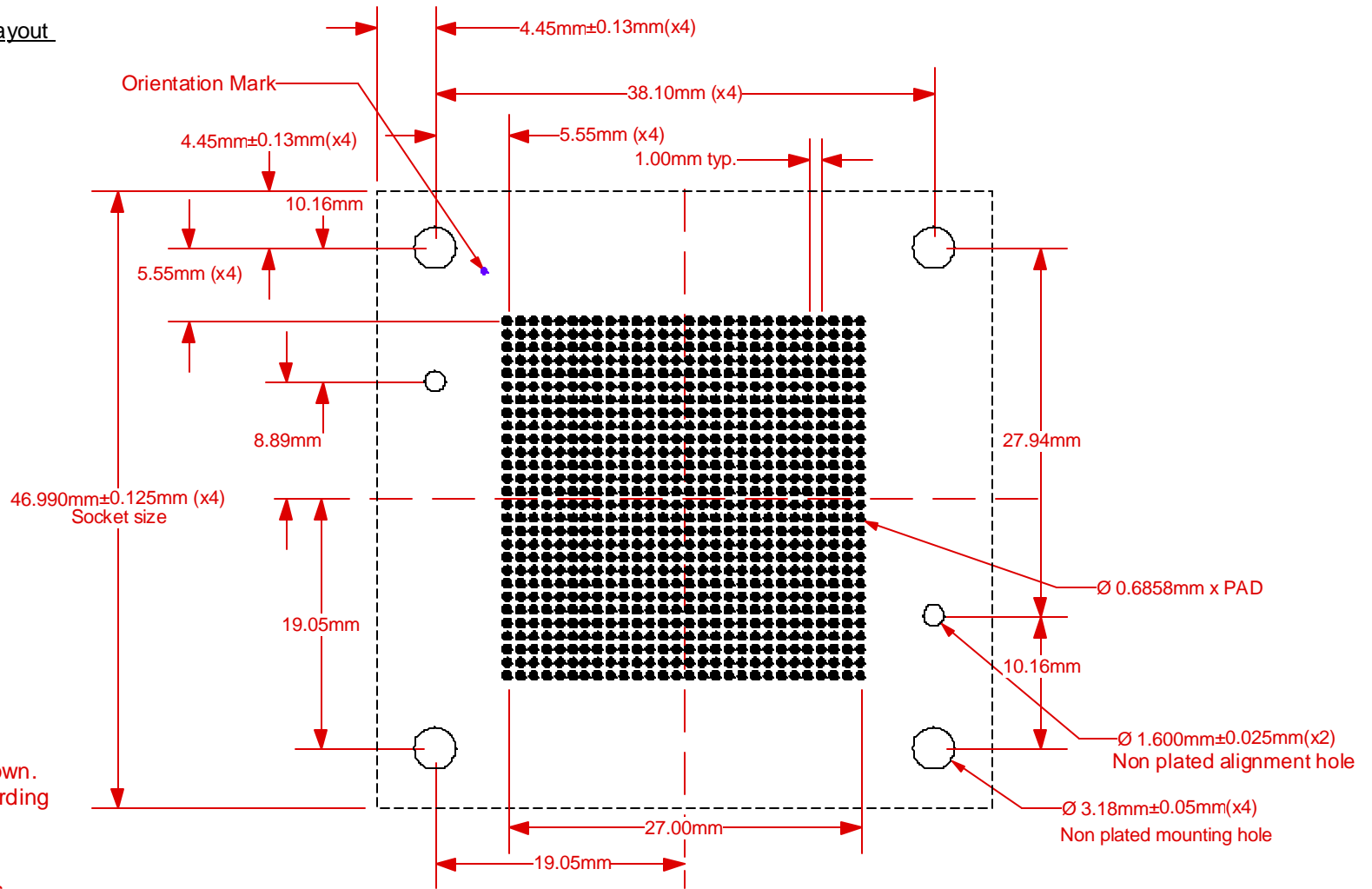
Side View  
(Section AA)



- |      |  |
|------|--|
| △ 1  | Socket Lid: Black anodized 6061 Aluminum.<br>Thickness = 2.5mm.  |
| △ 2  | Socket base: Black anodized 6061 Aluminum.<br>Thickness = 5mm.   |
| △ 3  | Compression Plate: Black anodized 6061 Aluminum.<br>Thickness = 2.5mm.   |
| △ 4  | Compression screw: Clear anodized 6061 Aluminum.<br>Thickness = 5mm, Hex socket = 5mm.   |
| △ 5  | Elastomer: 40 micron dia gold plated brass filaments arranged symmetrically in a silicone rubber (63.5 degree angle).<br>Thickness = 0.75mm. |
| △ 6  | Elastomer Guide: Cirlex or equivalent.<br>Thickness = 0.745mm.   |
| △ 7  | Ball Guide: Kapton polyimide.<br>Thickness = 0.25mm.   |
| △ 8  | Socket base screw: Socket head cap, Alloy steel with black oxide finish, 0-80 fine thread, 9.525mm long.                                     |
| △ 9  | Socket lid screw: Socket head cap, Alloy steel with black oxide finish, 0-80 fine thread, 4.76mm long.                                       |
| △ 10 | Backing Plate: Black anodized 6061 Aluminum.<br>Thickness = 6.35mm.  |
| △ 11 | Insulation Plate: FR4/G10, Thickness = 1.59mm.   |

|  |   |                       |            |              |
|--|---|-----------------------|------------|--------------|
|  | <b>SG-BGA-6123 Drawing</b>  | Status: Released      | Scale: N/A | Rev: A       |
|  | © 2003 IRONWOOD ELECTRONICS, INC.<br>PO BOX 21151 ST. PAUL, MN 55121<br>Tele: (651) 452-8100<br>www.ironwoodelectronics.com | Drawing: H. Hansen    |            | Date: 8/3/04 |
|  |   | File: SG-BGA-6123 Dwg | Modified:  |              |

Recommended PCB Layout  
Top View




Note: Full BGA pattern shown.  
Please adjust pattern according  
to individual requirements.

Target PCB Recommendations

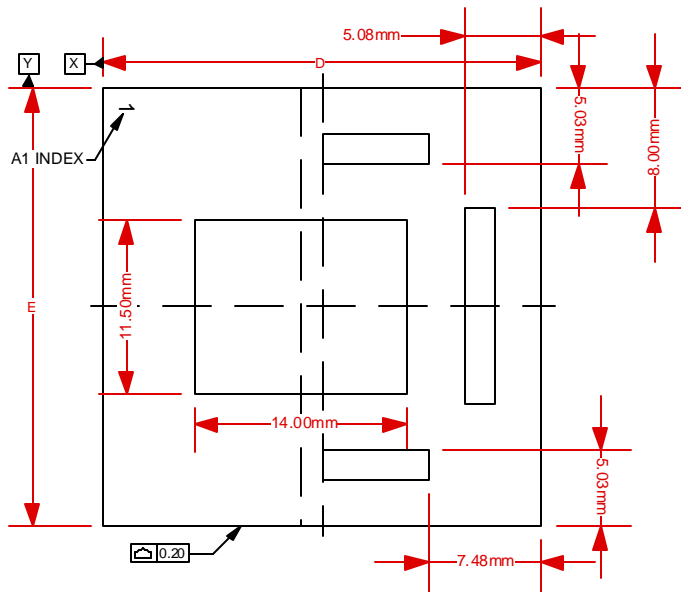
Total thickness: 3.175mm min.  
Plating: Gold or Solder finish  
PCB Pad height: Same or higher than solder mask

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

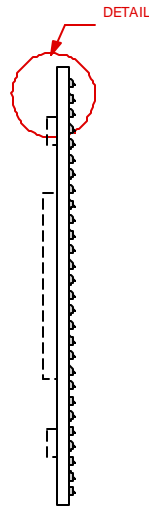
Recommended PCB Layout Tolerances:  $\pm 0.025\text{mm}$  [ $\pm 0.001''$ ] unless stated otherwise.

|  |   |                       |            |              |
|--|---|-----------------------|------------|--------------|
|  | <b>SG-BGA-6123 Drawing</b>  | Status: Released      | Scale: 2:1 | Rev: A       |
|  | © 2003 IRONWOOD ELECTRONICS, INC.<br>PO BOX 21151 ST. PAUL, MN 55121<br>Tele: (651) 452-8100<br>www.ironwoodelectronics.com | Drawing: H. Hansen    |            | Date: 8/3/04 |
|  |   | File: SG-BGA-6123 Dwg | Modified:  |              |

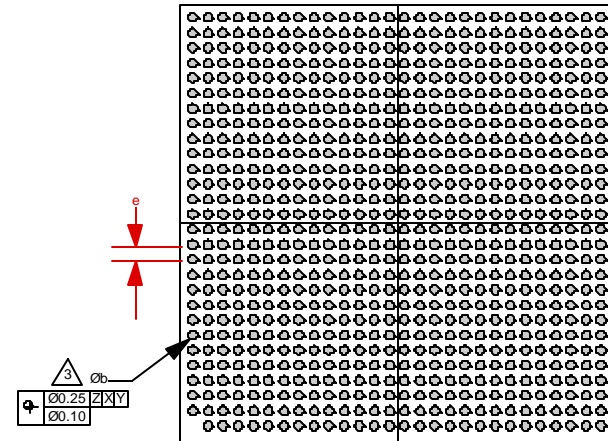
Compatible BGA Spec



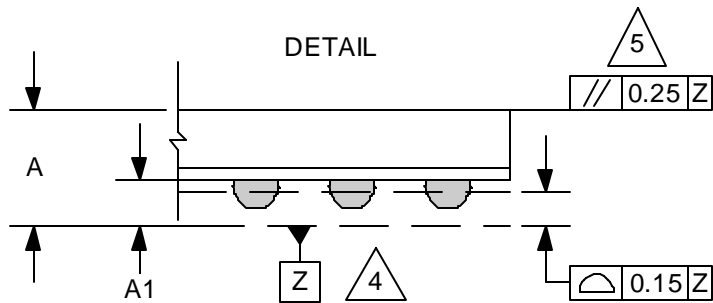
TOP VIEW



SIDE VIEW



BOTTOM VIEW



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.

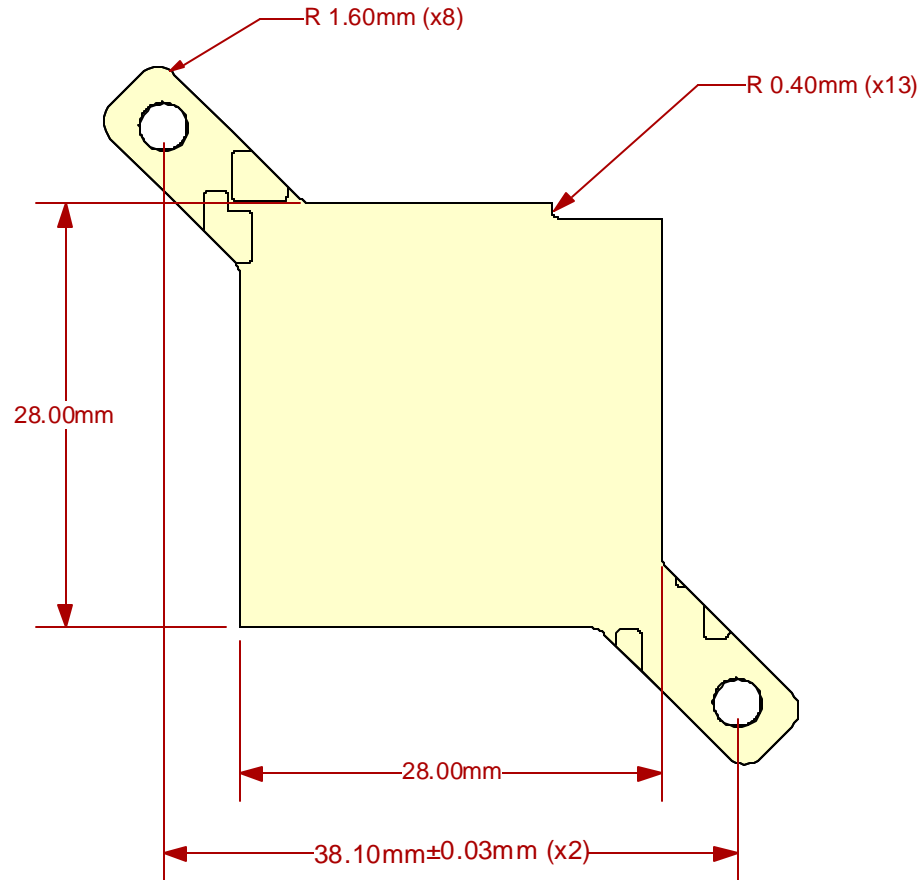
5. Parallelism measurement shall exclude any effect of mark on top surface of package.

| DIM | MIN      | MAX  |
|-----|----------|------|
| A   |          | 3.75 |
| A1  | 0.3      | 0.5  |
| b   |          | 0.6  |
| D   | 29.0 BSC |      |
| E   | 29.0 BSC |      |
| e   | 1.0 BSC  |      |

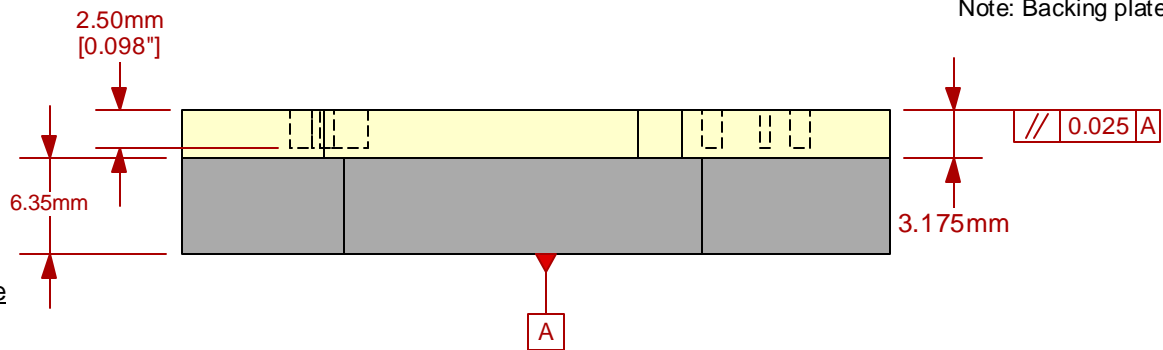
Array 28x28

|   |                                   |                         |                   |               |
|---|-----------------------------------|-------------------------|-------------------|---------------|
|  <p>© 2003 IRONWOOD ELECTRONICS, INC.<br/>PO BOX 21151 ST. PAUL, MN 55121<br/>Tele: (651) 452-8100<br/>www.ironwoodelectronics.com</p> | <p><b>SG-BGA-6123 Drawing</b></p> | <p>Status: Released</p> | <p>Scale: 2:1</p> | <p>Rev: A</p> |
|   | <p>Drawing: H. Hansen</p>         | <p>Date: 8/3/04</p>     |                   |               |
|   | <p>File: SG-BGA-6123 Dwg</p>      | <p>Modified:</p>        |                   |               |

Top View




Side View



Note: Backing plate holes are tapped to accept 0-80 screws.

Description: Backing Plate

PAGE 4 of 5

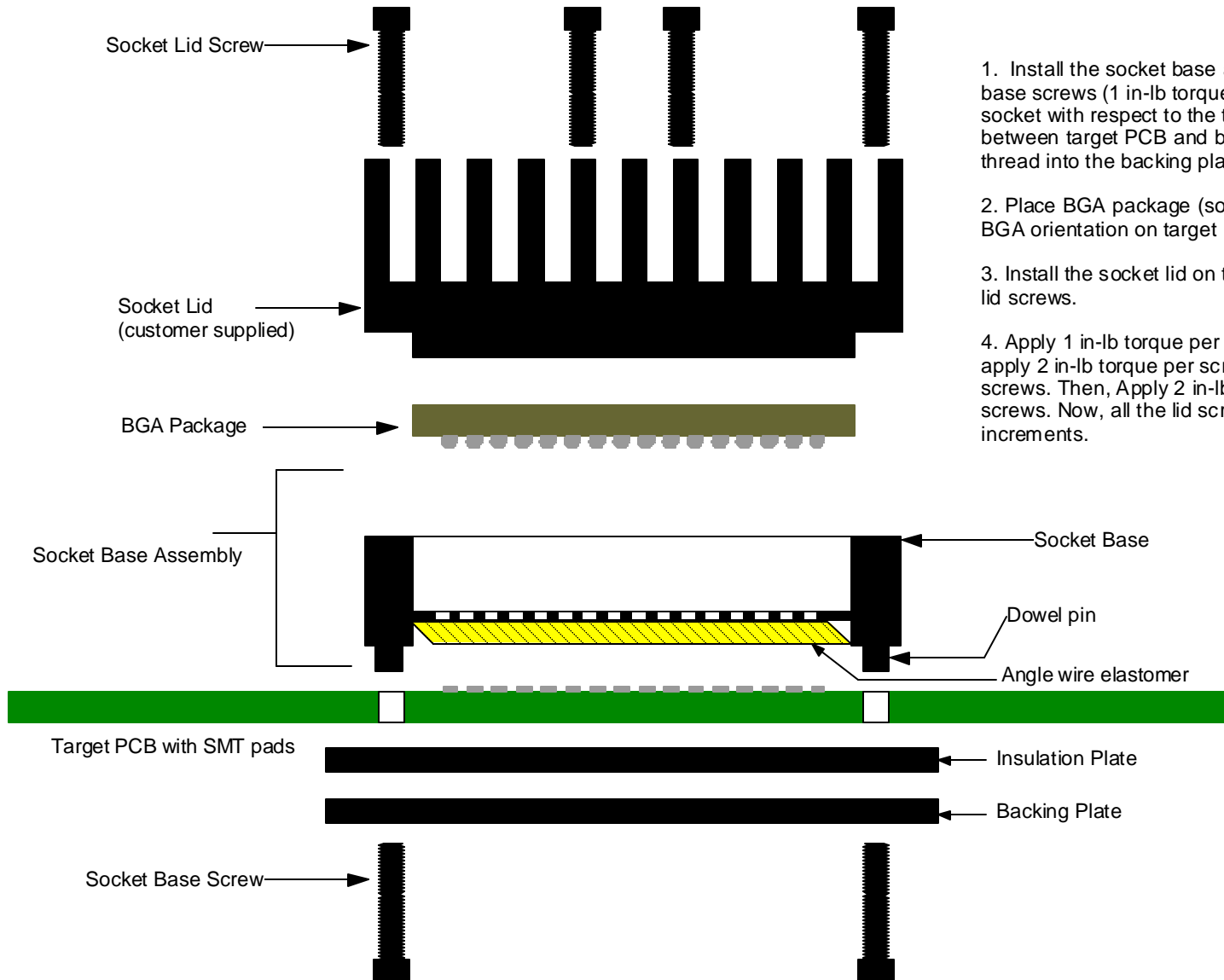
|   |   |                       |            |              |
|---|---|-----------------------|------------|--------------|
|  | <b>SG-BGA-6123 Drawing</b>  | Status: Released      | Scale: 2:1 | Rev: A       |
|   | © 2003 IRONWOOD ELECTRONICS, INC.<br>PO BOX 21151 ST. PAUL, MN 55121<br>Tele: (651) 452-8100<br>www.ironwoodelectronics.com | Drawing: H. Hansen    |            | Date: 8/3/04 |
|   |   | File: SG-BGA-6123 Dwg | Modified:  |              |

All dimensions are in mm.  
All tolerances are +/- 0.125mm.  
(Unless stated otherwise)

# Socket (direct mount - hardware)

## User Instructions

### Tooling holes have to be designed into the target PCB for this version of the GHz BGA socket



1. Install the socket base assembly on the target PCB with the socket base screws (1 in-lb torque per screw). Check orientation of the socket with respect to the target PCB. Place insulation plate in between target PCB and backing plate. Socket base screws will thread into the backing plate.
2. Place BGA package (solder ball side down) into the socket. NOTE: BGA orientation on target PCB is critical.
3. Install the socket lid on to the socket base assembly using socket lid screws.
4. Apply 1 in-lb torque per screw on two opposite lid screws. Then, apply 2 in-lb torque per screw on the remaining two opposite lid screws. Then, Apply 2 in-lb torque per screw on the initial two lid screws. Now, all the lid screws have 2 in-lb torque applied in gradual increments.

