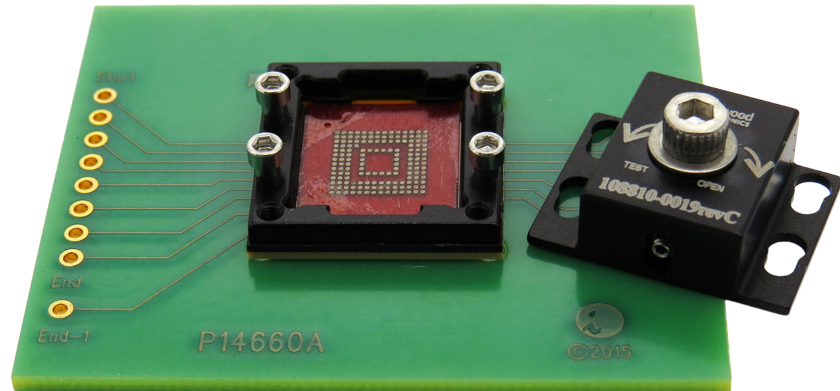
Ironwood ELECTRONICS

NZGT (Near Zero GT)



High performance Near Zero Footprint engineering test sockets

SOCKET ATTACHMENT AND REMOVAL GUIDE

Before You Begin

ABOUT THIS GUIDE

Welcome to the NZGT Test Socket Attachment and Removal Guide. This guide contains information regarding the proper preparation and mounting techniques using solder reflow technology for NZGT products with solder balls attached to the socket body.

NOTE

Always wear clean gloves or finger cots when handling sockets prior to attachment.

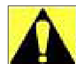
NOTATIONAL CONVENTIONS

This manual uses the following conventions:

NOTE

Note is used to indicate important information about the product that is not hazard related.

CAUTION



Caution is used to indicate the presence of a hazard which **will** or **can** cause minor personal injury or property damage if the warning is ignored.

WARNING

Warning is used to indicate the presence of a hazard which **can** cause severe personal injury, death or substantial property damage if the warning is ignored.

DANGER

Danger is used to indicate the presence of a hazard which **will** cause severe personal injury, death or substantial property damage if the warning is ignored.

WHERE TO GET MORE INFORMATION

More information is available from these sources:

Ironwood Electronics test socket support team stands ready to assist our valued test socket customers. Our primary socket support team is based at our Eagan, Minnesota, USA office and is available at 1-952-229-8200 from 8:00AM - 4:30PM CST. If you require after hours support or are interested in regional support, please view our worldwide locations page.

World Wide Web: Ironwood Electronics maintains an active site on the World Wide Web at www.ironwoodelectronics.com. The site contains current information about the company and locations of sales offices, new and existing products, contacts for sales, service, and technical support information. You can also send e-mail to Ironwood Electronics using the web site. Requests for sales, service, and technical support information receive prompt response.

NOTE

When requesting technical support through the website or e-mail, please be sure to include all nomenclature engraved on the test socket, and a detailed description of the problem. This information will allow us to serve you better.

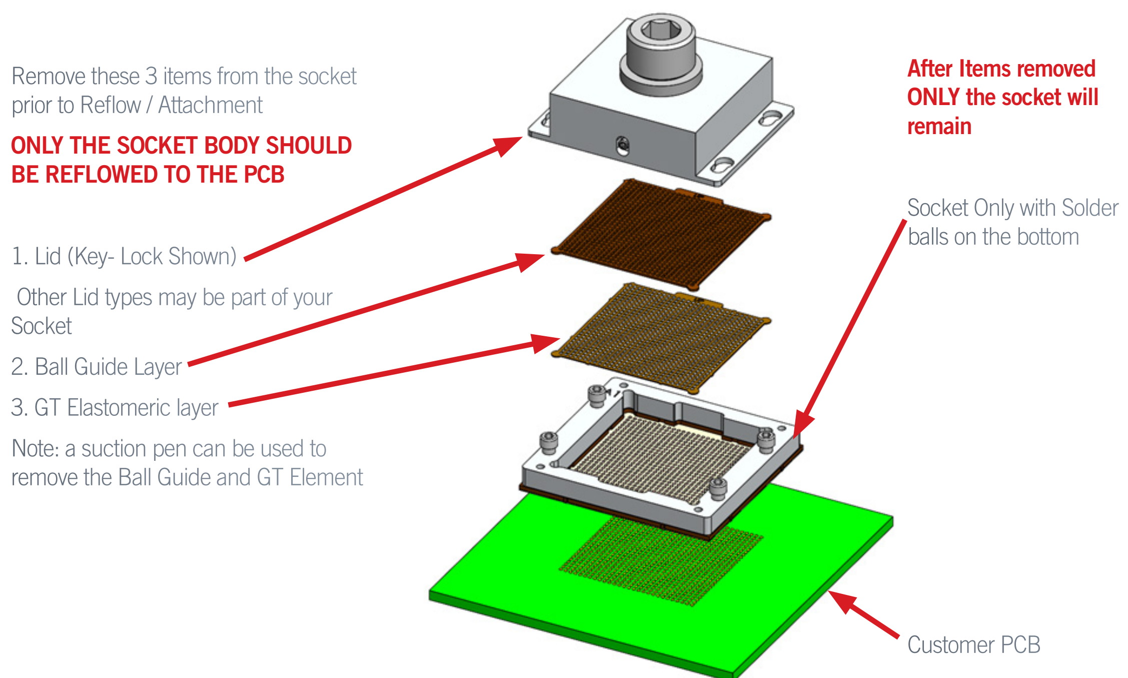
Chapter 1

Overview

COMPONENT TERMINOLOGY

NZGT test sockets consist of the Socket Body, GT Elastomeric layer, Ball Guide layer and a Lid Assembly.

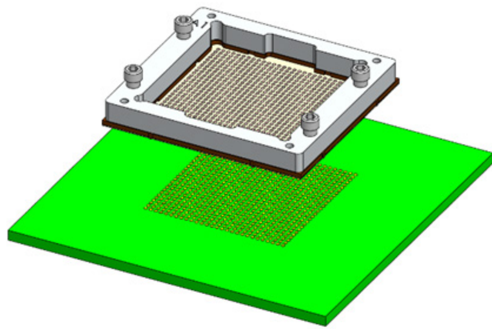
Prior to the reflow process, the GT Elastomeric, Ball Guide layer, and Lid should be removed and set aside for re-assembly after the Socket is reflowed to your PCB



SUPPLIES REQUIRED

Product with solder balls:

1. Test socket body
2. Loadboard/PCB
3. Compressed air source (dry and clean)
4. Lint-free cloth
5. Eye protection
6. Tacky Flux for Lead Free reflow of SAC305 solder or Eutectic (Sn/Pb)
7. Reflow system
8. Magnification
9. Latex gloves or finger cots



Chapter 2

Preparing the Test Socket

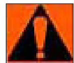
This section describes the procedures for preparing the test socket for attachment to the loadboard/PCB.

NOTE Always wear clean gloves or finger cots when handling sockets prior to attachment.

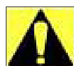
PRE-ATTACHMENT TEST SOCKET BAKE

A pre-attachment bake (desiccation) ensures that the test sockets are moisture-free.

WARNING Always use eye protection when working with compressed air.



CAUTION If using polymer film stencils, do not pre-bake stencils with test sockets. Baking may damage stencils.



1. Use compressed air to remove any loose debris from test socket.
2. The test sockets must be baked for a minimum of two hours at 125°C. Ideally, the desiccation should take place in a moisture-free environment, such as a nitrogen chamber.
3. After desiccation, the test sockets should be kept in a moisture-free environment, such as a nitrogen chamber. Ridding the test sockets of moisture and keeping them dry is important to ensure trouble-free attachment.

PRE-ATTACHMENT LOADBOARD/PCB PREPARATION

WARNING Always use eye protection when working with compressed air.

1. Use compressed air to remove any loose debris from the loadboard/PCB.
2. Follow the standard procedure for preparation of the BGA package attachment.

Chapter 3

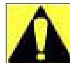
Attachment Procedure
Product With Solder Balls

ATTACHING THE TEST SOCKET TO THE LOADBOARD/PCB

WARNING

Always use eye protection when working with compressed air.

CAUTION



If using polymer film stencils, do not pre-bake stencils with test sockets. Baking may damage stencils.

1. Apply a generous layer of tacky flux designed for SAC305 for sockets with SAC 305 solder balls, or tacky flux for Eutectic (Tin/Lead) for sockets with Eutectic solder balls to the circuit board pads or utilize a flux dip method.

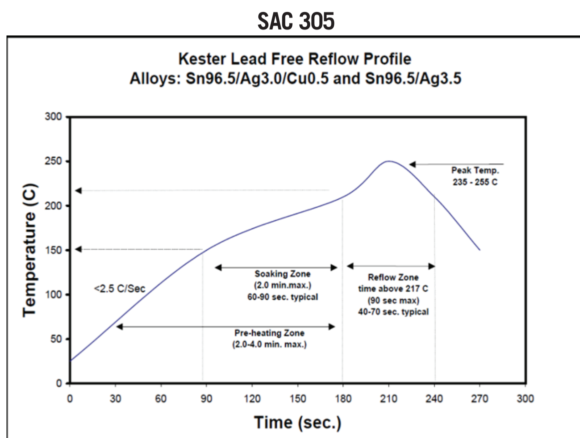
2. Using an appropriate reflow system, position the NZGT test socket over the attachment site. Use a split mirror or other method to accurately position the test socket and verify the placement.

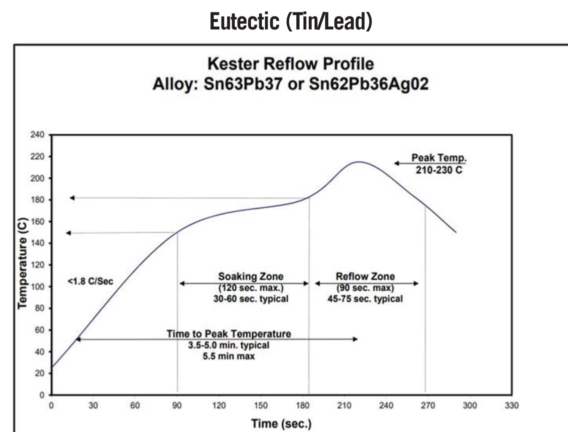
3. Reflow the NZGT socket using your standard BGA attachment profile. A peak temperature of less than 260°C is recommended. (Profile should be based on the coolest portion of the socket/board).

NOTE

4. The profile shown is typical. Variations in loadboard/PCB composition, layers and thickness, and nearby components can affect the solder attachment process. Ironwood Electronics recommends using your standard device attachment profile to reflow the NZGT socket.

5. Clean residual flux residue from the circuit board.





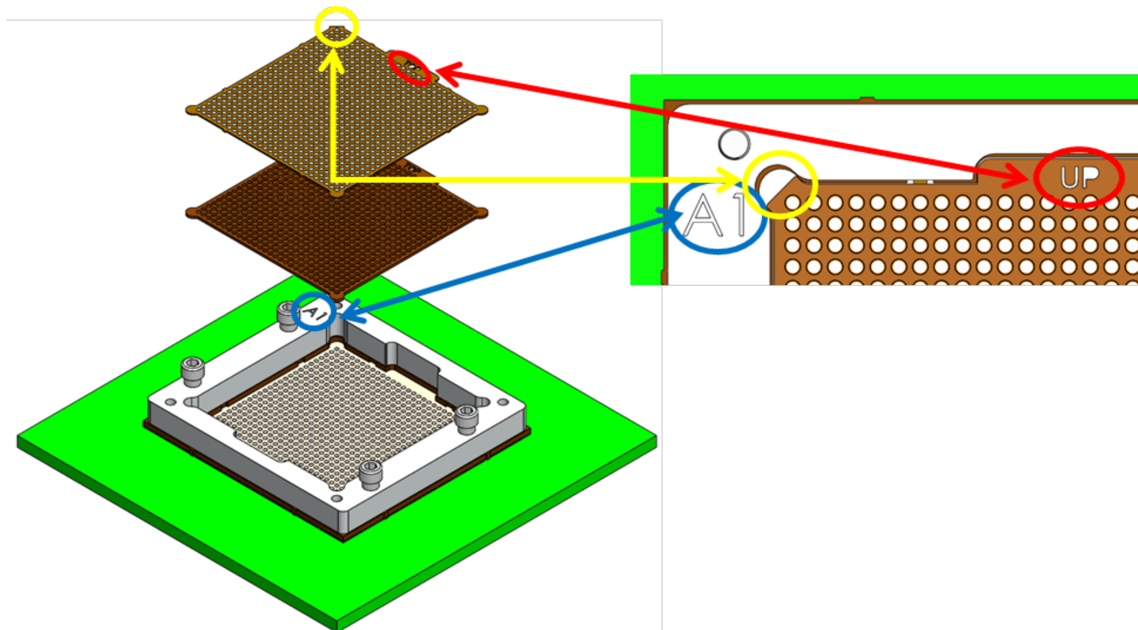
Typical solder attachment profile

Chapter 3b

Attachment Procedure
Product With Solder Balls Cont.

ATTACHING THE TEST SOCKET TO THE LOADBOARD/PCB CONT.

After the socket is attached to the PCB - reinstall the GT Elastomer element and the Ball Guide



NOTE

Note position indicators on the GT and Ball guide with respect to the A1 Indicator on the socket

- "A1" Engraved on the Socket Body
- Notched Corner in Ball Guide AND GT indicating the A1 Corner
- "UP" to insure GT and Ball Guide with "UP" readable

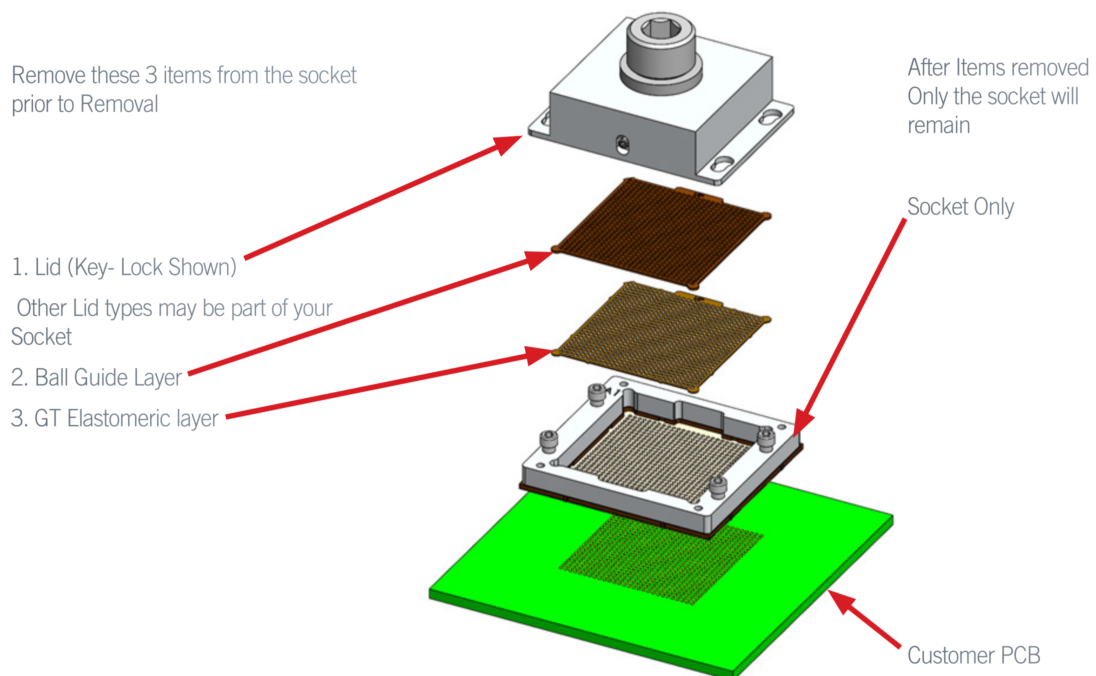
Note: a suction pen can be used to reinstall the Ball Guide and GT Element

Chapter 4
Removal Procedure

REMOVING THE TEST SOCKET FROM THE LOADBOARD/PCB

NZGT test sockets consist of the Socket Body, GT Elastomeric layer, Ball Guide layer and a Lid Assembly.

Prior to the removal process the GT Elastomeric, Ball Guide layer and Lid should be removed and set aside for re-assembly after the Socket is removed from your PCB



Remove the test socket using the rework station and your standard BGA removal process.

WARNING

High temperatures can inflict severe burns. Use appropriate handling procedures.

CAUTION

Temperatures above 280°C may damage the test socket.

Notes