



GTP Socket User Guide

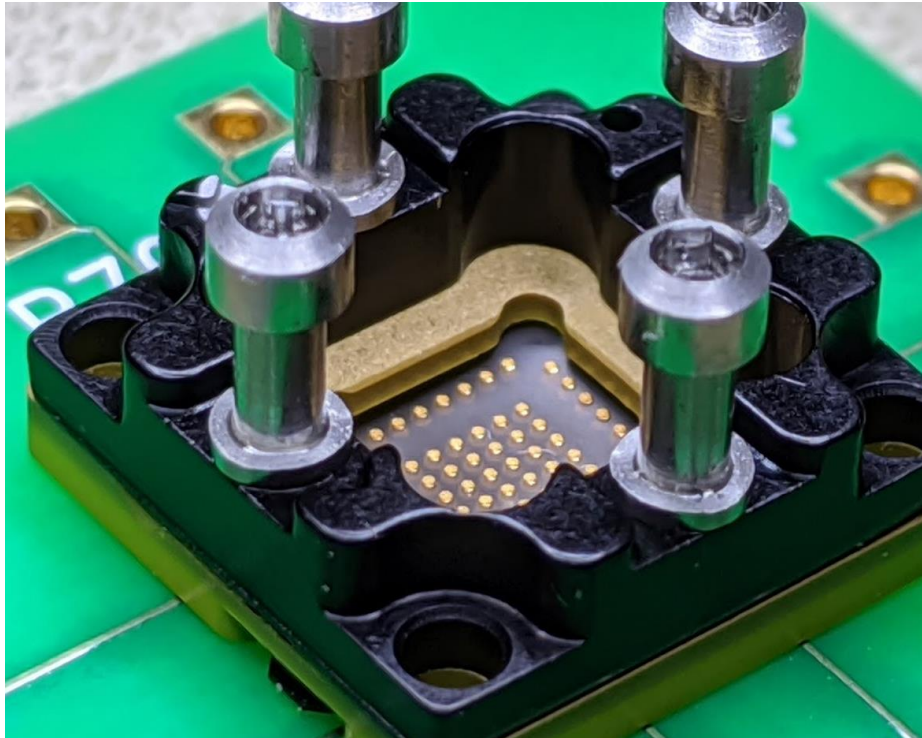


Fig 1: GTP Socket

Recommended Tools

- Socket drawing (shows component layer stack-up).
- Socket hardware and Hex Keys.
- Straight edge tool or flat-tip tweezers.
- Fiberglass brush or stiff wire brush for cleaning and removing oxides from P-layer and PCB.
- Soft animal hair brush or Post-it® Note with light adhesive for gently removing debris and contaminants from GT elastomer layer.
- Compressed air for blowing debris off contactors and PCB.

Assembly of Contacts to Socket



- Install/Remove the Contact Set:
 - Note pin 1 orientation mark and tooling holes for alignment pins.
 - Blow off both sides with compressed air prior to assembly to remove any debris.
 - Install P-layer on the back side of the socket body, by aligning alignment holes with alignment pins. Scribed Gold contact tips should be facing up towards socket body (and DUT).
 - Gently press P-layer's alignment holes over a corresponding alignment pin.
 - Do the same for the next alignment hole and alignment pin.
 - Gently manipulate any remaining tooling holes onto their corresponding guide pins (if applicable).
 - When all tooling holes are on the guide pins, use a flat tip tweezers to ease the P-layer further down onto the pins, alternating sides until the P-layer is seated against the socket.
 - Work carefully to avoid enlarging or deforming P-layer's alignment holes.
 - Work the opposite direction to remove the P-layer, carefully easing it off the alignment pins. Do not use a sharp instrument or grab one corner and pull it off the guide pins because it can cause damage to the P-layer's alignment holes.

Install / Remove GT layer:

- Note pin 1 orientation mark and tooling holes for alignment pins.
- Blow off both sides with compressed air prior to assembly to remove any debris.
- Important: Do not touch, rub, brush or clean GT elastomer columns.
- Install GT elastomer so one side touches the Contact Set and the other side faces the PCB.
- Gently press one of the tooling holes over a first corresponding alignment pin.
- Do the same for the next tooling hole and alignment pin.
- Gently manipulate any remaining tooling holes onto their corresponding guide pins (if applicable).
- When all tooling holes are on the guide pins, use flat tip tweezers to ease GT elastomer layer further down onto the pins, alternating sides until GT elastomer layer is seated against the P-layer.
- Work carefully to avoid enlarging or deforming GT elastomer layer's alignment holes.
- Work the opposite direction to remove GT elastomer layer, carefully easing it off the guide pins. Do not use a sharp instrument or grab one corner and pull it off the guide pins because it can cause damage to GT elastomer layer's alignment holes.
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- If the same GT elastomer layer is removed and then reinstalled on a socket, GT elastomer layer should remain in the same orientation with the same side facing the Contact Set. Installing either the P-layer or GT elastomer layer upside down may influence performance.

Assembly of Socket to PCB:

- Assure that the test site PCB pads and immediately surrounding surfaces are clean, dry and free of contaminants or any other residues. If necessary, clean the PCB pads with a brush and blow with compressed air.
- Place the socket's alignment pins into the corresponding holes in the PCB.
- Secure the socket to the PCB and backing plate (if applicable) using the mounting screws or fasteners. Assure that the socket is firmly seated and coplanar with the PCB.

Removal & Storage:

- Remove the socket body from the PCB and store with the contacts attached in the protective packaging provided. Do not allow multiple sockets to rub against each other.
- If the contacts are separated from the socket body, always keep them contained and protected. This will keep them from being touched or damaged and prevent the accumulation of dust and debris.
- It is recommended to leave the socket assembled to the PCB whenever possible to keep the contacts clean and free of contamination. Only remove the contacts when extra cleaning is required or when the contacts need to be replaced.
- While the socket assembly remains attached to the PCB, it is recommended to store it without a DUT in the socket so the contacts remain unactuated during that time, which will help extend the life.



Handling & Cleaning

Gold contacts in P-layer:

- Always handle by the outside edges and avoid touching the top and bottom of the contacts in P-layer.
- Use compressed air to blow dust and debris from the top and bottom of the contacts prior to use and assembly.
- It is recommended to leave the contacts assembled on the socket as long as possible. However, if cleaning is necessary after a number of actuations to remove difficult contaminants or solder residue, remove P-layer from the socket, and clean both sides of gold contacts with a fiberglass or bristle brush. Isopropyl alcohol may also be used to clean gold contacts.
- Important: Cleaning using brushes and isopropyl alcohol is for gold contacts in the P-layer only and should never be used on GT elastomer layer. If cleaning chemicals are used on gold contacts of the P-layer, it must be completely dry prior to installing GT elastomer layer.
- When using a brush to clean the P-layer, always brush in a sweeping motion across the contacts in one direction and then do the same in the perpendicular direction. Always brush both the top and bottom of gold contacts and blow off any debris with compressed air prior to use and assembly.
- Important: Be sure no debris is picked up by GT elastomer layer.

GT elastomer layer:

- Always handle by the outside edges and avoid touching the top and bottom of the conductive columns which should have protruding “buttons” of conductive particles.
- Important: Do not touch or rub the conductive columns or the buttons could be damaged.
- Never use a stiff/wire brush on GT elastomer layer.
- Never use any alcohol or cleaning chemicals on GT elastomer layer. If P-layer or PCB is cleaned with chemicals, always be sure they are completely dry prior to touching GT elastomer layer.
- Use compressed air to blow dust and debris from the top and bottom of the contacts prior to use and assembly.



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- If there is debris that cannot be removed by air, use a soft animal hair brush, scotch tape or a Post-it® Note with light adhesive to gently remove any remaining debris. It may also be helpful to use a microscope and tweezers to remove some contaminants. Note: Some loose particles from GT elastomer conductive columns are common and do not impact functionality. If there is excessive particle dispersion, please contact Ironwood Electronics.



Possible Issues & Troubleshooting

Debris on contactors:

Signals may be impacted by various types of debris or obstructions (hair, fibers, etc). These should be removed by compressed air if possible. If necessary, gold contacts on P-layer may be cleaned or brushed. However, GT elastomer should never be cleaned or brushed and only air should be used or careful manual removal of contaminants. Note: Some amount of loose particles on GT elastomer is normal and won't impact functionality.



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Solder Residue and Oxide Migration:

The amount of transfer may vary by the type of device or solder and may build up on the P-layer contact tips over high numbers of device insertions causing an increase in contact resistance. The P-layer contact tips may be cleaned with a brush to remove residue and oxides. Note: Since GT elastomer does not touch the device leads, it should not accumulate solder residue and should not need to be cleaned.

Over / Under Actuation:

This may cause poor or inconsistent test results and possibly impact contact life. It is important to stay within the recommended compression operating range. It is also important to eliminate any PCB flex or deflection to maintain coplanar actuation of the contacts.

DUT Mis-Registration:

Over or under-sized devices compared to nominal specs may cause mis-registration with the contacts and impact test results. It could also cause mis-insertions and non-coplanar actuation which could damage the contacts. Assure devices are within design tolerances.

DUT Misplacement:

Device mis-insertions can cause non-coplanar actuation and potentially damage the contacts. The DUT should be inserted appropriately into the socket and actuated in a coplanar manner.