

Troubleshooting Tips: Guidelines for Returns

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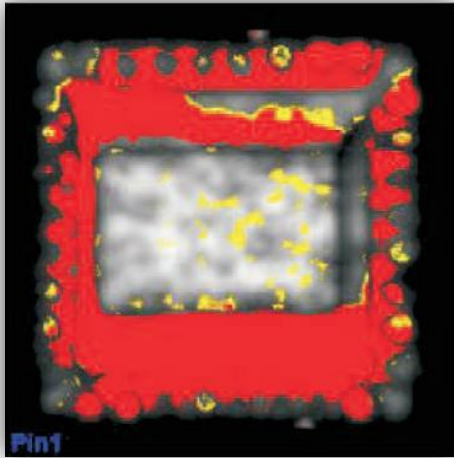
Return guidelines overview

Five key steps for returns

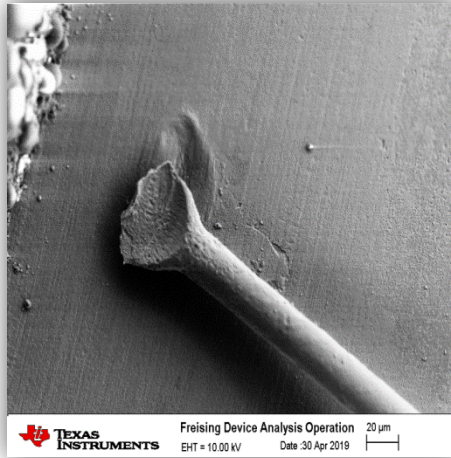
- Carefully de-solder the TI product from the Printed Circuit Board (PCB)
- Verify and confirm issue on suspect TI product
- Return TI products in testable conditions
- Create your return request on ti.com
- Affix and return the TI product in proper container

Carefully de-solder the TI product from the PCB

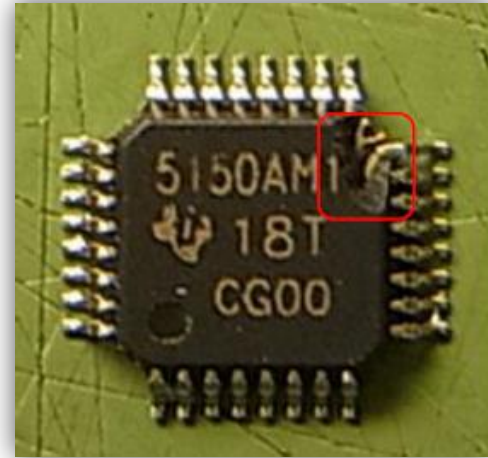
- Suspect TI products need to be carefully removed from the PCB.
- Preparing electronic components for rework avoids physical damages.



Delamination inside
SMT package



Lifted bond stitch
due to delamination

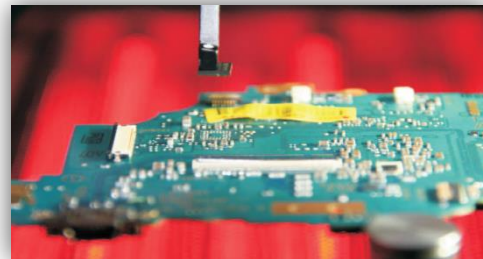
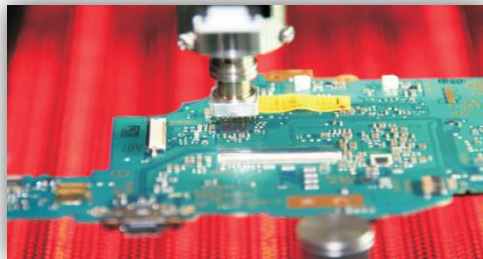
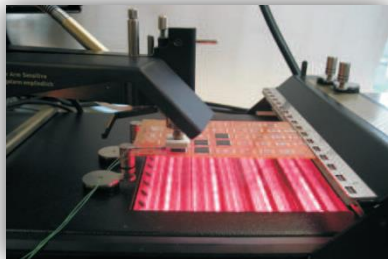


Package damage
due to vaporized moisture

Carefully de-solder the TI product from the PCB

- Bake the PCB and electronic components prior to any rework.
- Bake temperatures depend on the maximum temperature of components and PCB.
- Recommended bake conditions are 8 to 24 hours at 105°C to 125°C, see **IPC/JEDEC J-STD-033** for more details.
- It is recommended to rework electronic components at controlled temperatures using automated equipment that offers:
 - Temperature measurement by infrared thermography, or
 - Small thermocouples attached to the top side of the package.
- Be careful during removal to avoid cutting off the pins/ leads from the device.

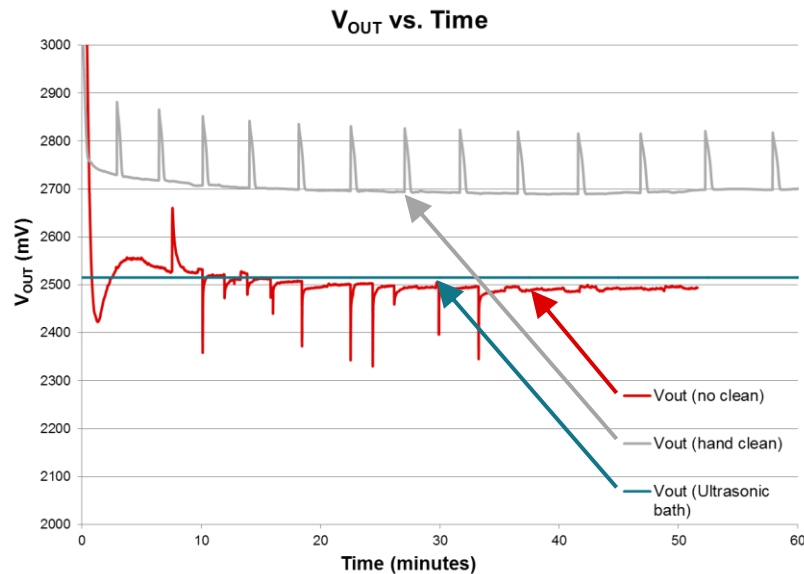
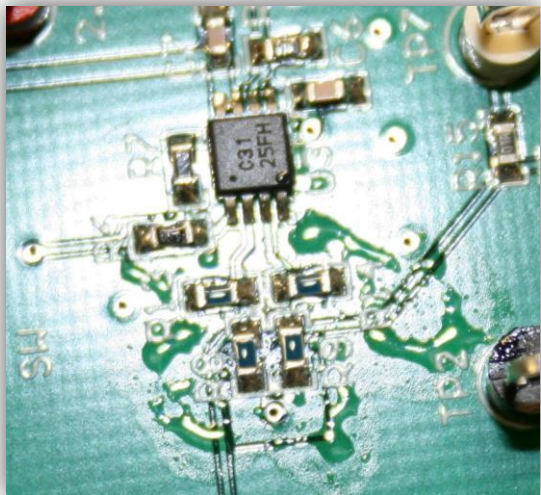
Carefully de-solder the TI product from the PCB



- Rework station with thermocouples placed on package top side, lead top side and adjacent PCB.
- Components are heated up with hot air from top and infrared from bottom.
- The vacuum picker removes the IC package from the PCB after lead temperature reached the solder's liquid temperature.

Carefully de-solder the TI product from the PCB

- Ensure PCB and TI product are clean and free from contaminations.
- Excessive flux or board contamination may alter measurements.
- Clean and optically inspect PCB and TI product after each soldering step.



More information on ti.com

TI Quality, Reliability & Packaging

- TI's quality and reliability processes
ti.com/quality
- Customer product returns
ti.com/returns
- Troubleshooting tips
 - Portal for Customer Product Returns
 - ESD Handling Guidelinesti.com/troubleshooting
- SMT & packaging application notes
ti.com/support-packaging/packaging-resources/SMT-and-application-notes.html

Application

- E2E support forum
ti.com/e2e
- TI Precision Labs
ti.com/PrecisionLabs