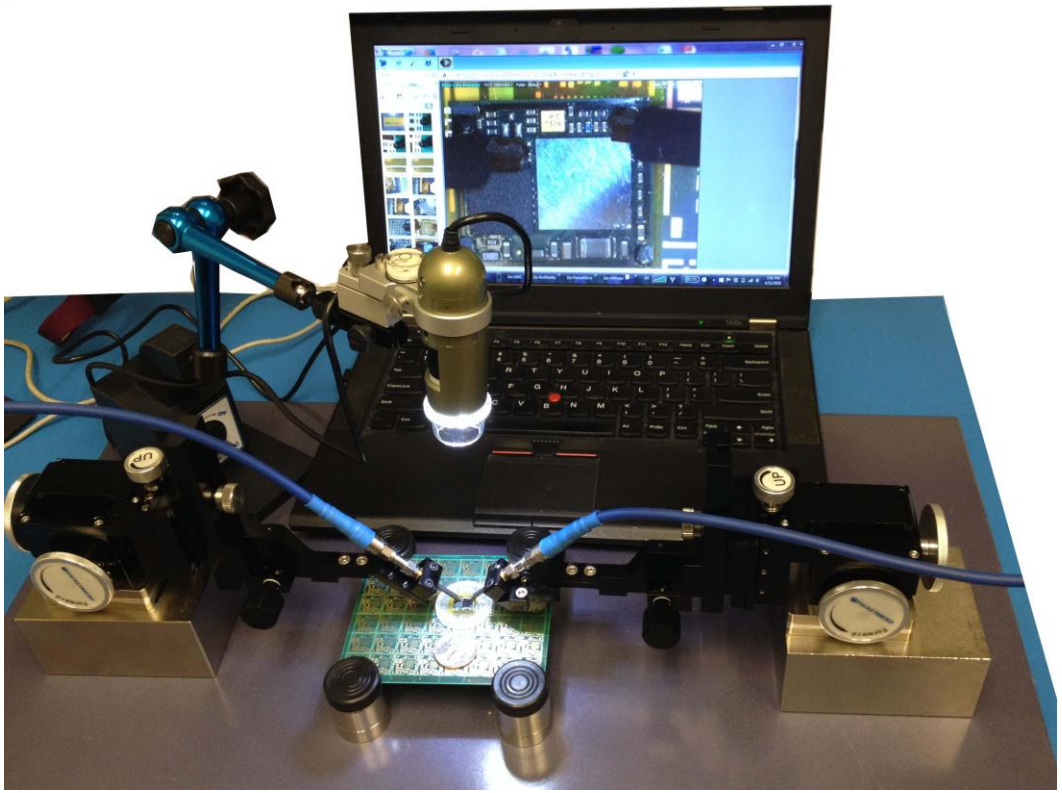
Probe Planarization with Mylar Tape and Marker



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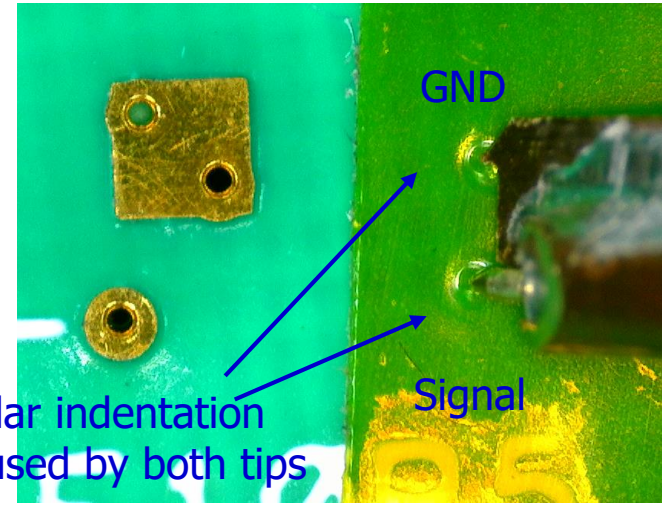
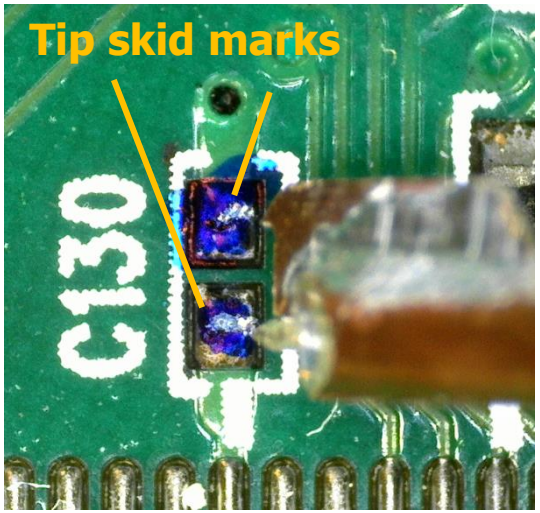
Probe Planarization Tips

- Good contact of both probe tips with the DUT is essential to accurate calibration and measurements.
- Mylar tape provides leveling guidance on flat, even surface (bare PCB).
- Color marker helps on uneven surface (solder bump).
- A good microscope is important. You may damage the probe if you cannot see its tips well.





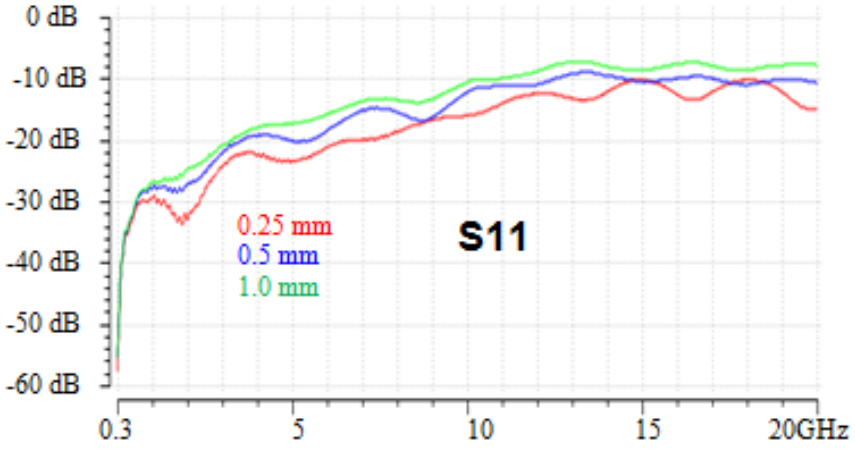
RF Probes

Features

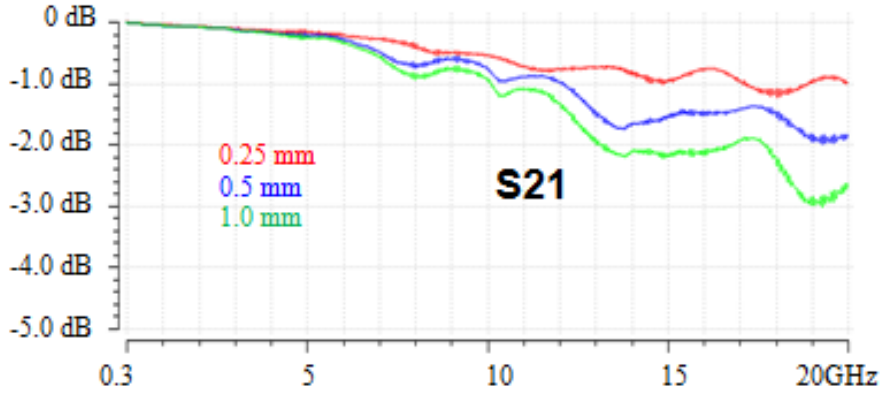
- **High Bandwidth:** DC to up to 20 GHz
- **Low Insertion Loss:** < 3 dB @ up to 20 GHz
- **Ruggedness:** Beryllium Copper tips
- **Probe-tip Calibration:** TCS 50 Cal Substrate
- **High Repeatability:** No moving part

S-Probe Part No.

- **SP-GR-2015025**– 20 GHz, 0.25 mm/10 mil pitch
- **SP-GR-201504** – 20 GHz, 0.4 mm/16 mil pitch
- **SP-GR-201505** – 20 GHz, 0.5 mm/20 mil pitch
- **SP-GR-181508** – 18 GHz, 0.8 mm/32 mil pitch
- **SP-GR-181510** – 18 GHz, 1.0 mm/40 mil pitch
- **SP-GR-161512** – 16 GHz, 1.2 mm/48 mil pitch



Un-calibrated S11 for 0.25/0.5/1.0 mm pitch

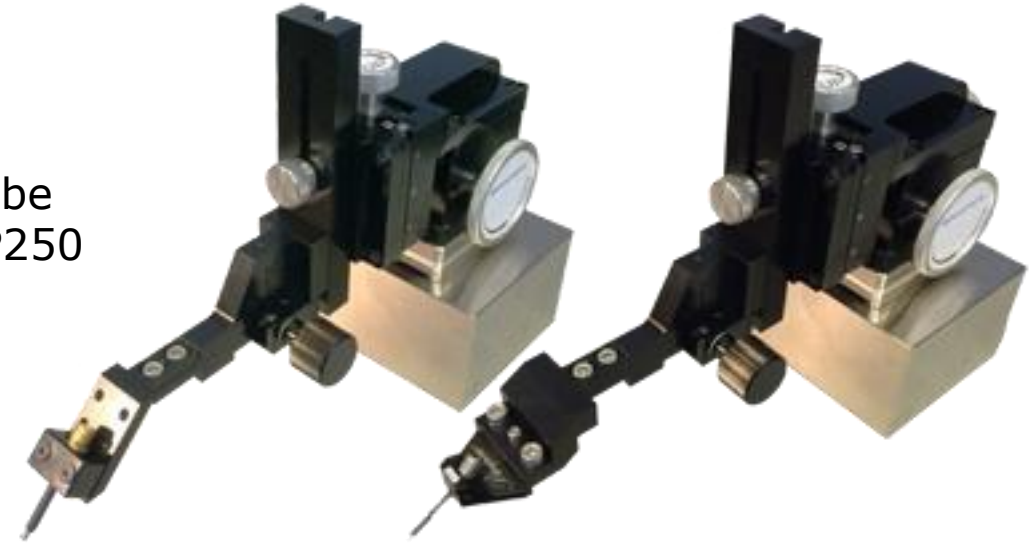


Un-calibrated S21 for 0.25/0.5/1.0 mm pitch

Un-calibrated S11 for 3 probe pitches

TP250 Precision Positioners (XYZθ)

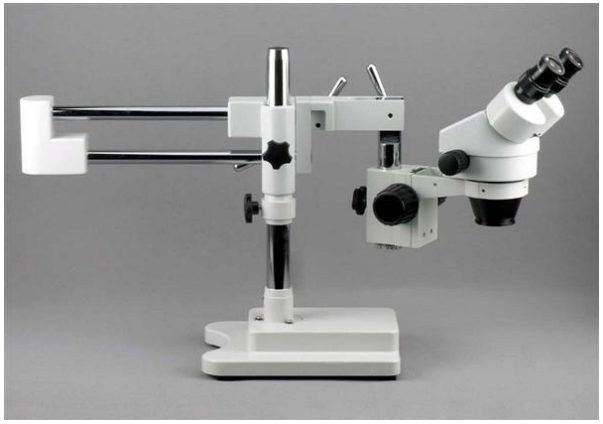
S-Probe
on TP250



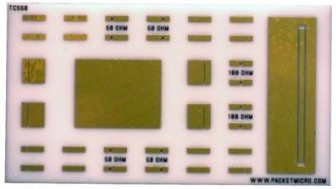
Microprobe
on TP250

- Accurate (50 TPI)
- Perfect for Microprobe and S-Probe and D-Probe
- Coarse and fine adjustment without tool
- Ergonomic

Tools - Accessories



Optical Microscope
(~ 90 x magnification)



TCS70
Calibration
Substrate

Mylar
Tape

Fine-tip
Sharpie pen

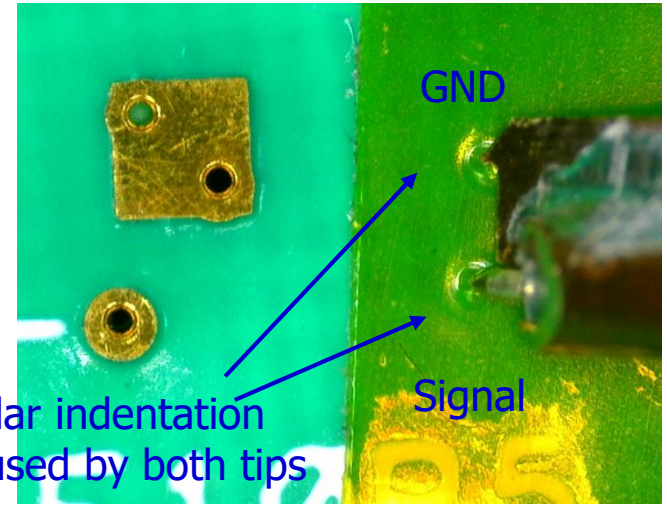
USB Digital Microscope
(~ 90 x magnification)

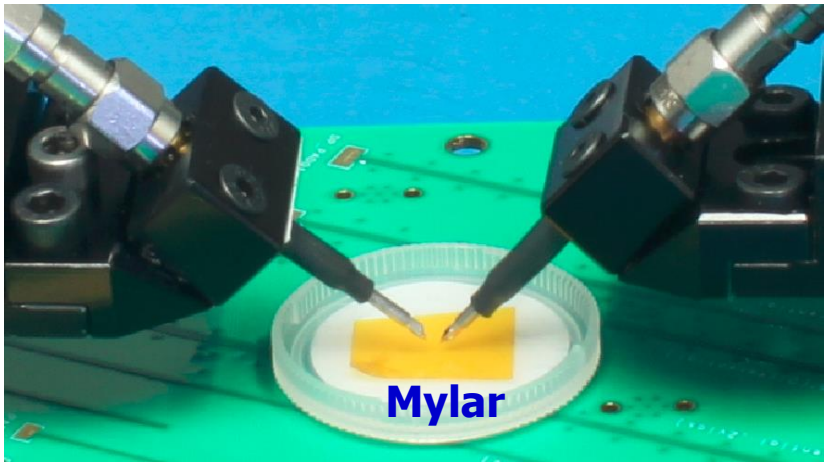
- Using a good microscope is essential.
- You might damage the probe if you cannot see its tips well.

(Make sure to use a long working range (5 cm @ 90x) microscope!)

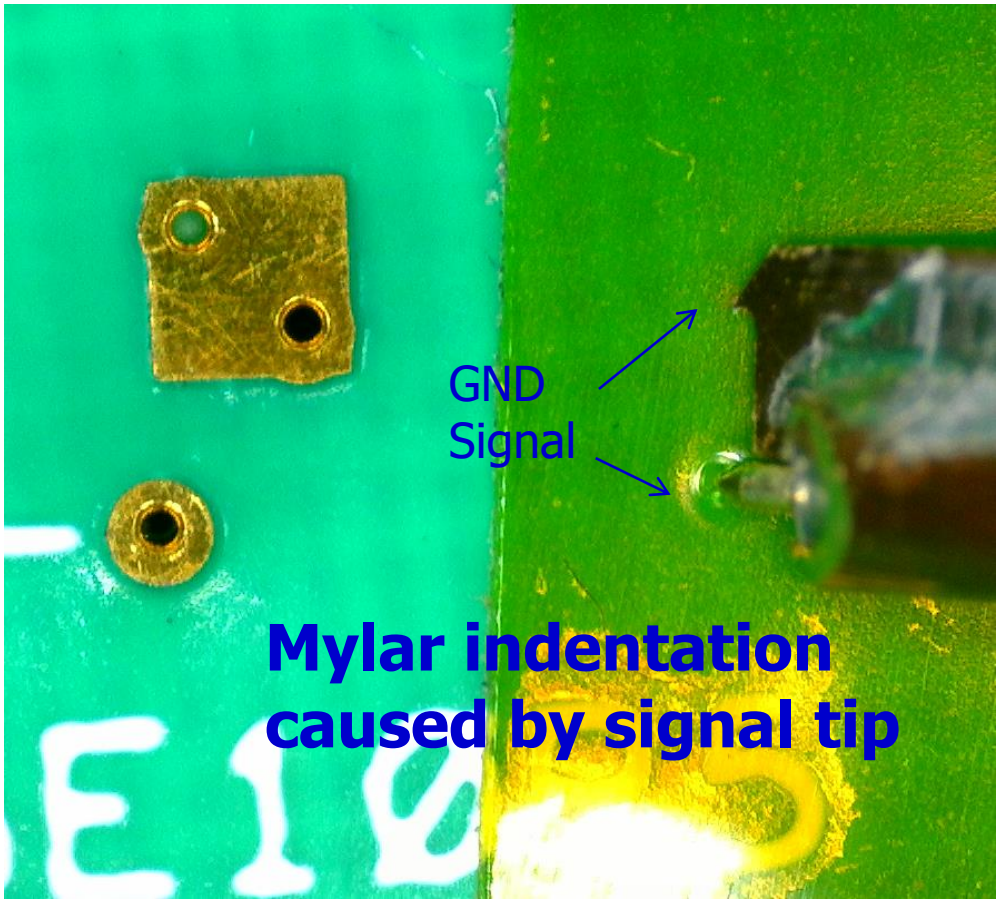
Probing Test Pads on Even Surfaces

- Use the Mylar tape on the back of the plastic cap for probe planarization by observing the indentation caused by the tips.
- Remove the plastic cap and perform probing
- Affix a Mylar tape next to test pads if there is not enough space for placing the plastic cap.





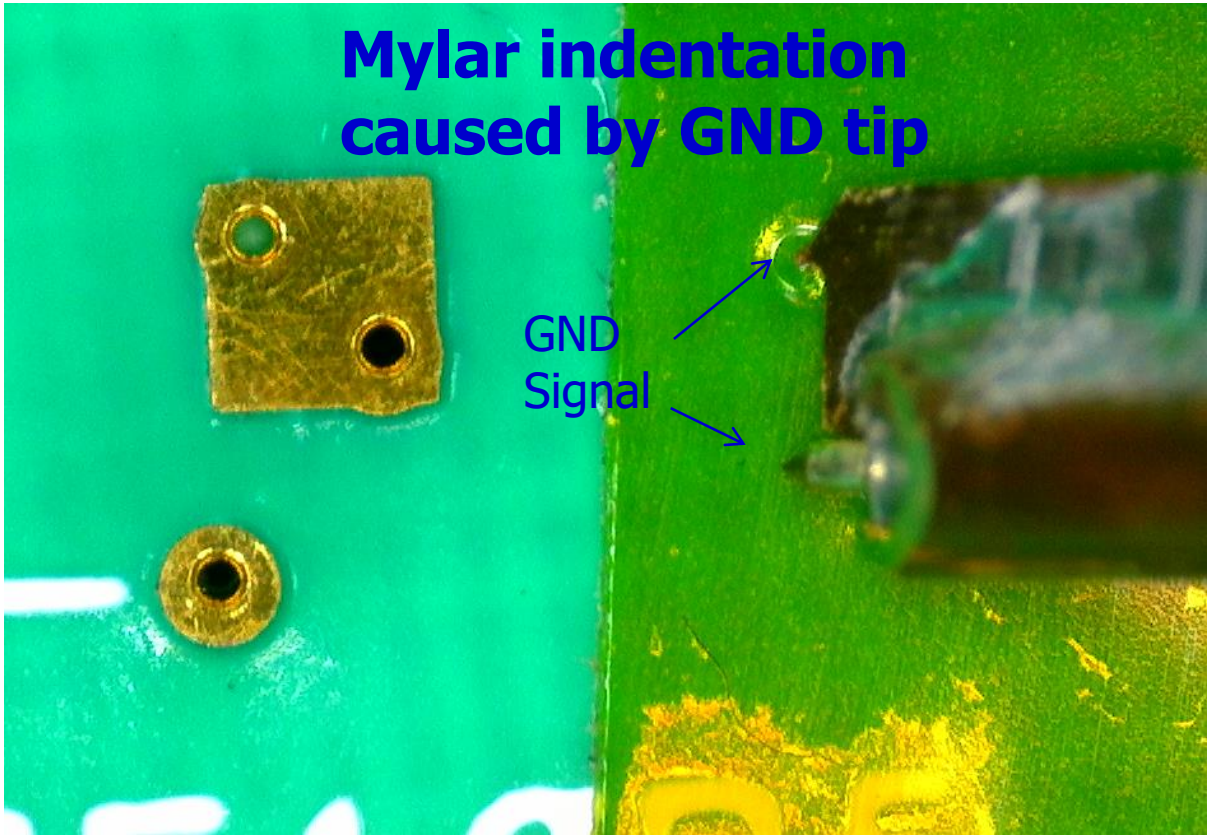
Signal tip touches down first



Step 1:

Land the probe tips on the tape and observe the probe-tip footprint. Above image shows that signal tip touches the surface first.

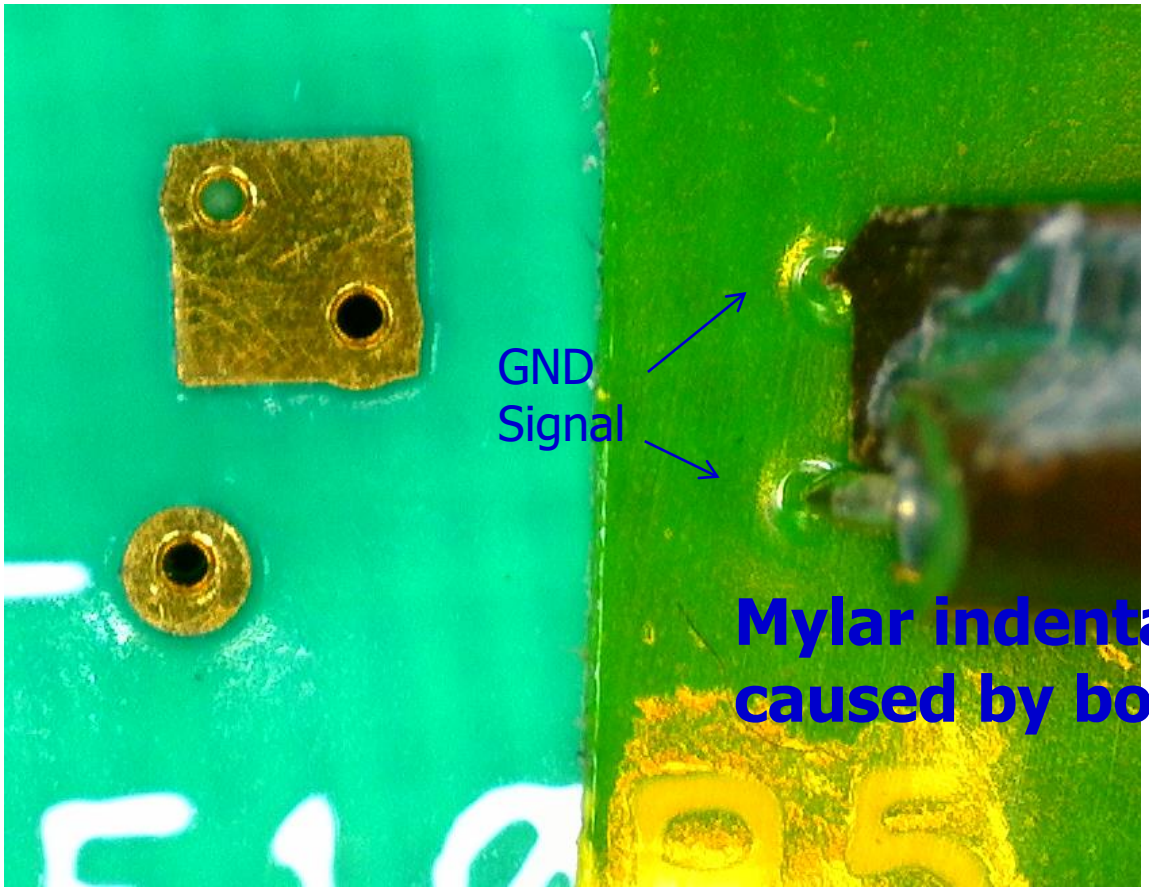
GND tip touches down first



Step 2:

Adjust the planarization knob on the TP150 positioner to lower the GND tip. Above image shows that GND tip touches the surface first.

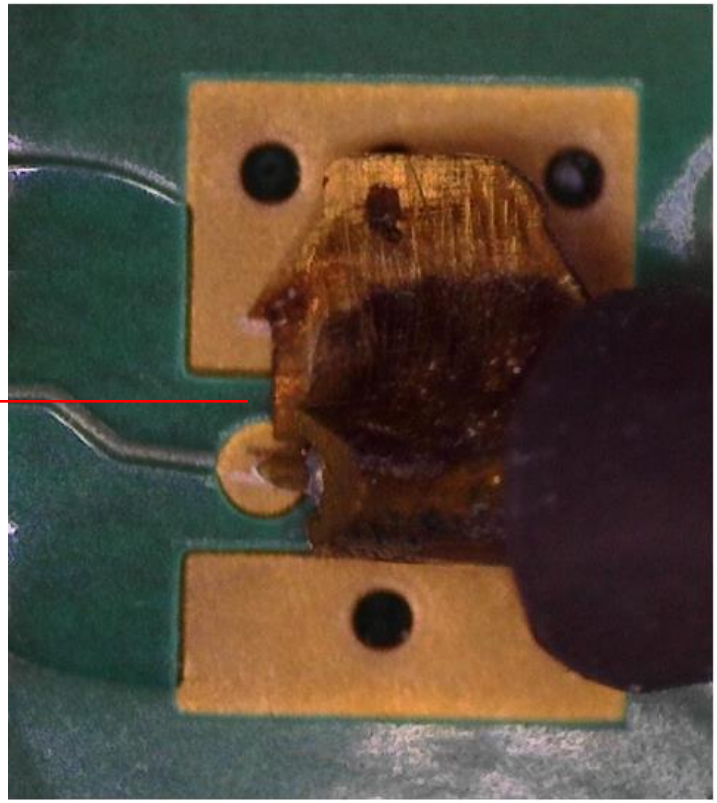
Both tips touch down simultaneously



Step 3:

Adjust the planarization knob on the positioner to land both probe tips. Above image shows the two probe tips touch the surface evenly.

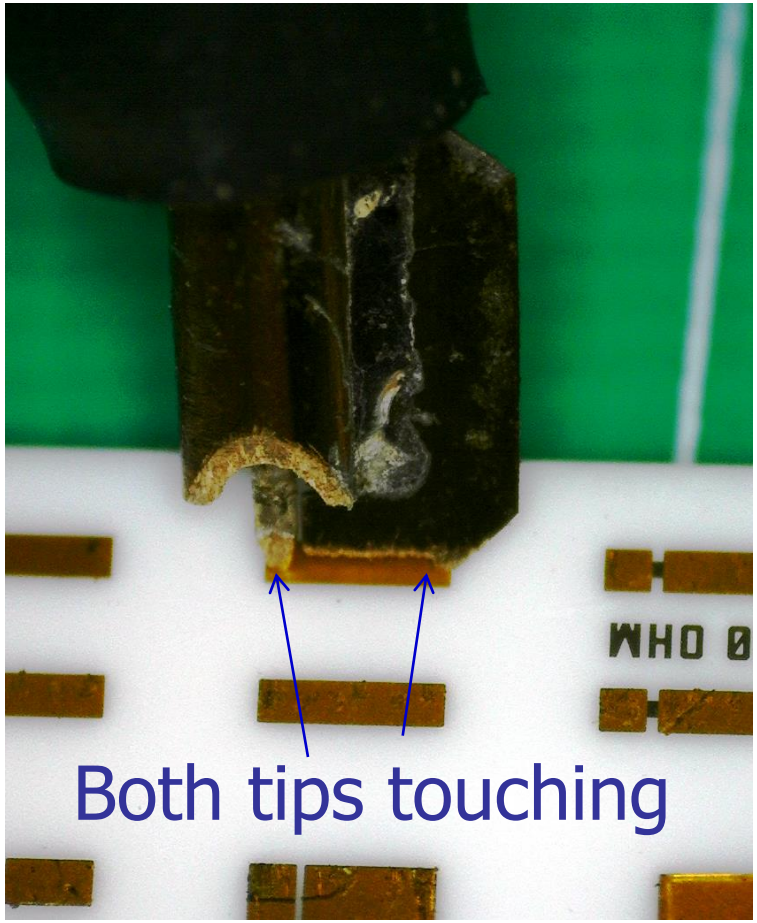
Both tips slide forward

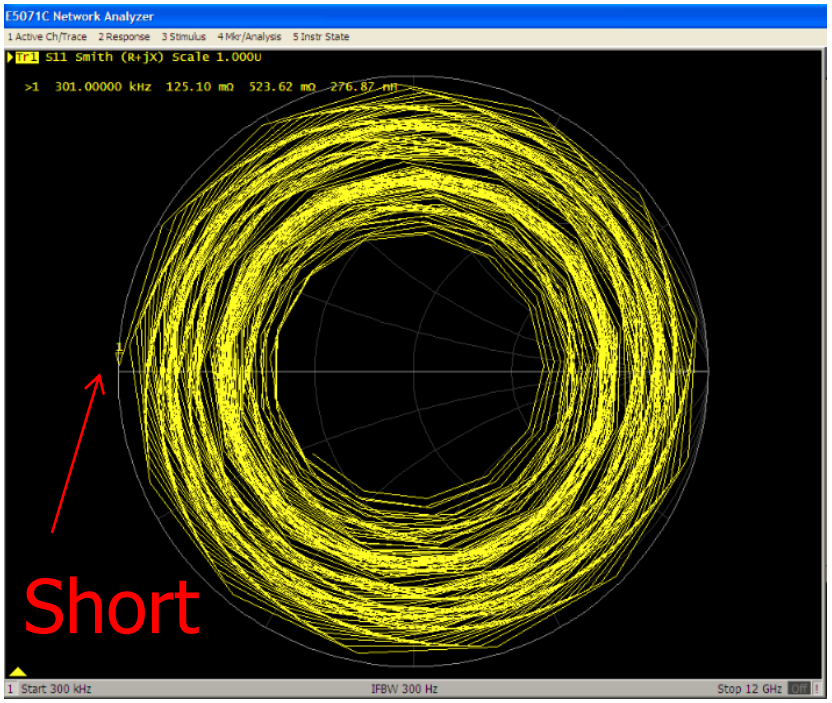


Step 4:

Lower the probe tips further and observe the tips to slide forward for 5 ~ 10 mils (125 ~ 250 um) for good probe contact

Use VNA to Verify Probe Contacts

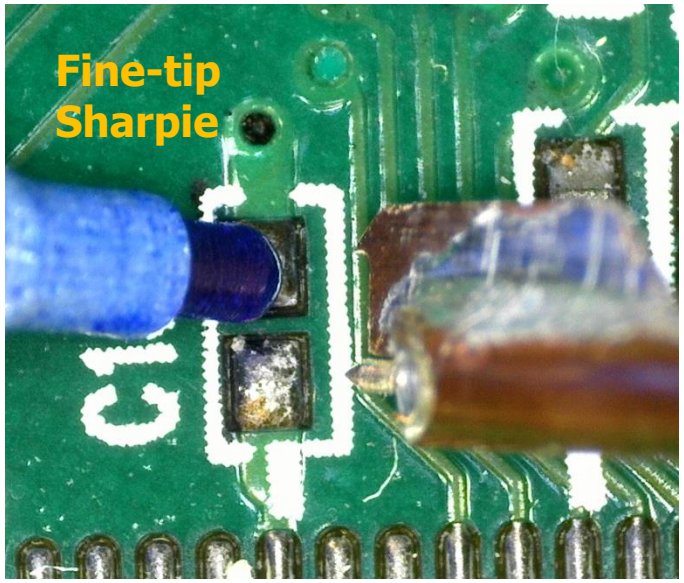


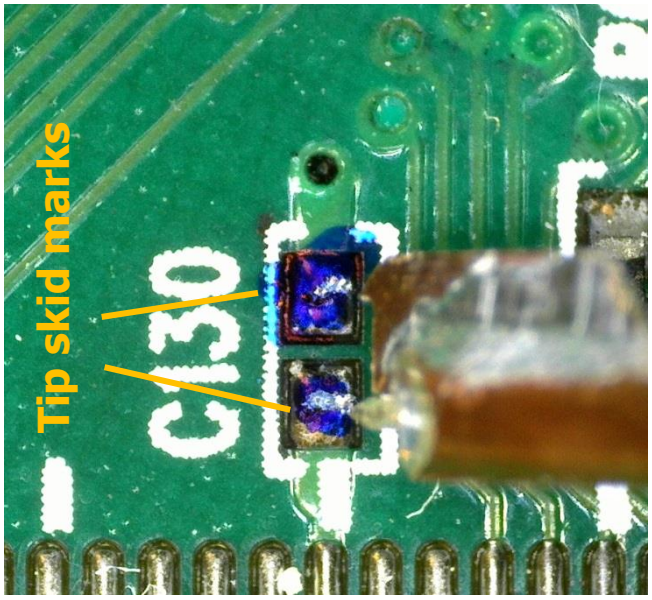


- Both tips leave light probe marks
- VNA Smith Chart shows "Short"

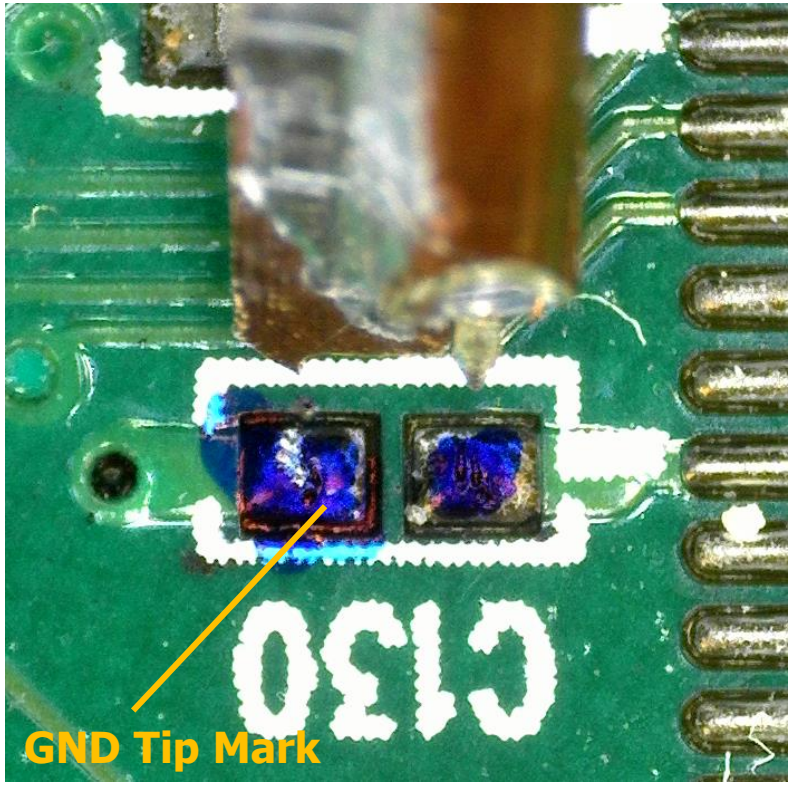
Probing Test Pads on Uneven Surfaces

- Color solder bumps with a Sharpie
- Use the probe skid marks to confirm good tip contact
- Clean up the solder bumps with industrial alcohol after probing

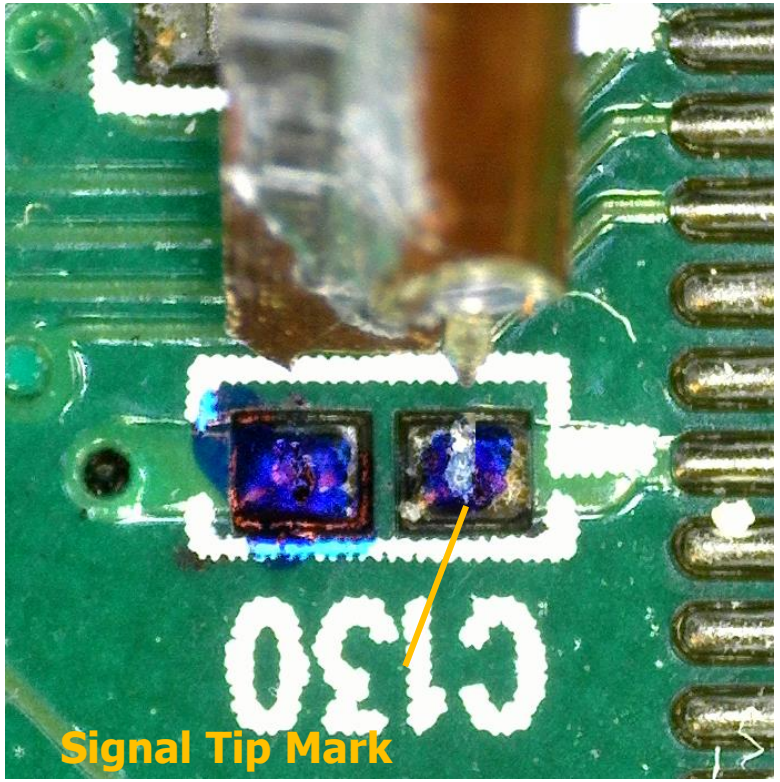




Use Probe Skid Marks on Solder Bumps

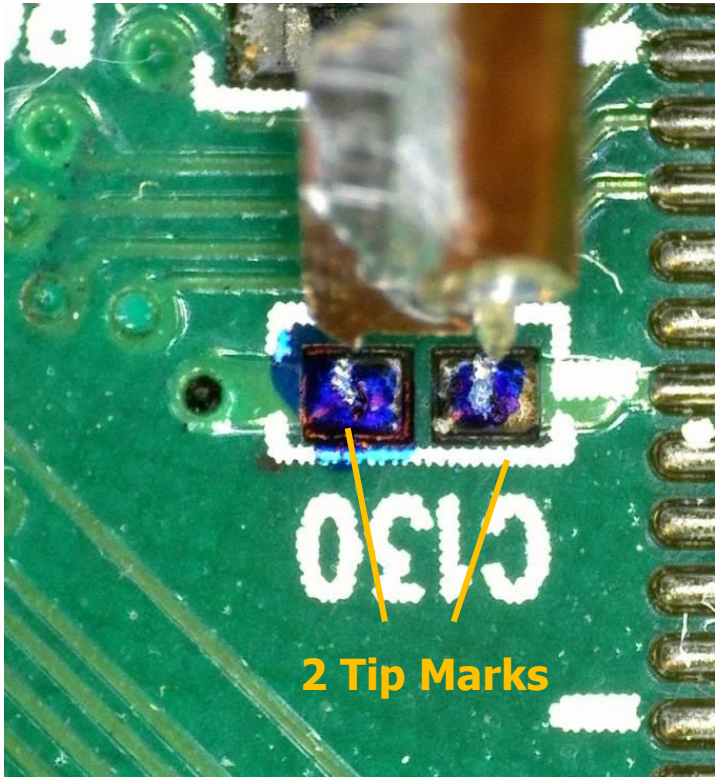


Left GND tip touches down first

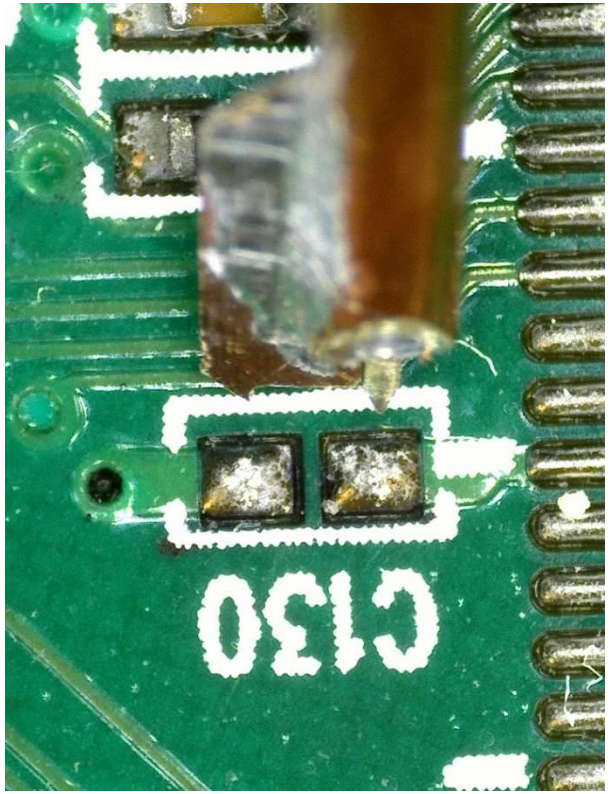


Right signal tip touches down first

Both Tips Touch Down Simultaneously



Both tips touch down simultaneously



Clean up solder bumps with industrial alcohol after probing

Thank You

We help make your high-speed probing projects successful !

- Flex Probe Stations
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