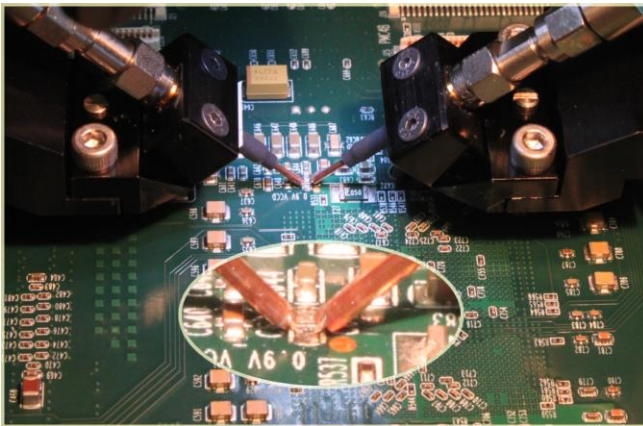


S-Probe

Rugged, single-ended 20-GHz probe capable of probing on uneven solder bumps



Direct probing on solder pads

Overview

S-Probe series is designed for RF, power integrity, and signal integrity testing. Its strong beryllium copper (BeCu) tips are perfect for direct probing of uneven surfaces, such as solder pads and components. Microprobes are not suitable for this type of measurements due to their fragility.

Constant shrinking size of circuit components makes soldering semi-rigid RF cables to test gigahertz circuits impractical. The rugged S-Probe and its calibration substrate (TCS70) allow engineers to perform probe-tip calibration for accurate, repetitive measurements.

The user experience of S-Probe is similar to that of the microprobe. Precision Positioner TP300 allows an engineer to switch between a S-Probe and microprobe easily.

Specifications

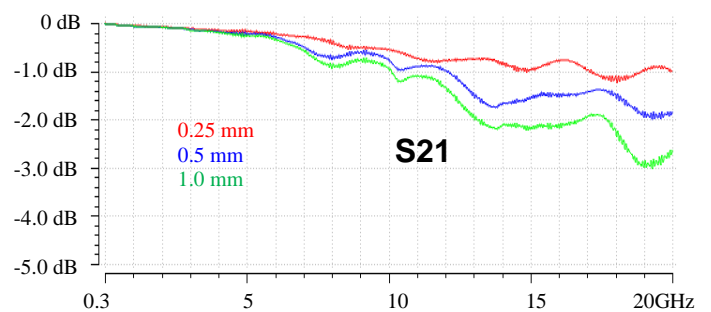
- **Bandwidth:** 20 GHz (0.25/0.4/0.5 mm)
18 GHz (0.8/1.0 mm)
16 GHz (1.2/1.4/1.6 mm)
- **Insertion Loss:** less than 3 dB
- **Impedance:** 50±2 Ohm
- **Connector Type:** SMA Female
- **Size:** 38 x 20 x 12 mm (1.5 x 0.8 x 0.5 in)
- **Weight:** 10 gm
- **Probe force:** 50 gm (typical)
250 gm (max w/o damage)

S-Probe Part No. Information

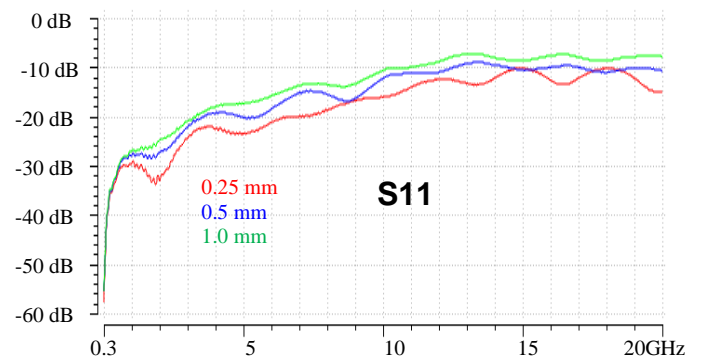
- **SP-GR-2015025** – 20 GHz, 0.25 mm/10 mil pitch
- **SP-GR-201504** – 20 GHz, 0.4 mm/16 mil pitch
- **SP-GR-201505** – 20 GHz, 0.5 mm/20 mil pitch
- **SP-GR-181508** – 18 GHz, 0.8 mm/32 mil pitch
- **SP-GR-181510** – 18 GHz, 1.0 mm/40 mil pitch
- **SP-GR-161512** – 16 GHz, 1.2 mm/48 mil pitch
- **SP-GR-161514** – 16 GHz, 1.4 mm/56 mil pitch
- **SP-GR-161516** – 16 GHz, 1.6 mm/64 mil pitch

Features:

- **High Bandwidth:** DC to 20 GHz
- **Low Insertion Loss:** < 3 dB @ 20 GHz for probe pitch ≤ 0.5 mm
- **Ruggedness:** Strong enough for direct probing on uneven solder bumps
- **Probe-tip Calibration:** accurate measurements without the need of soldering semi-rigid RF cables
- **High Repeatability:** No moving parts



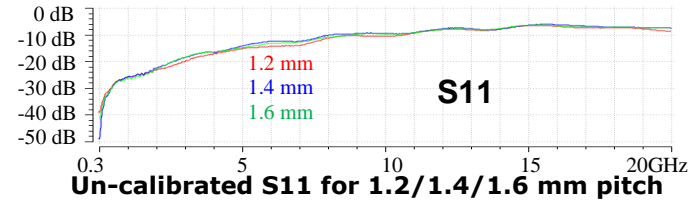
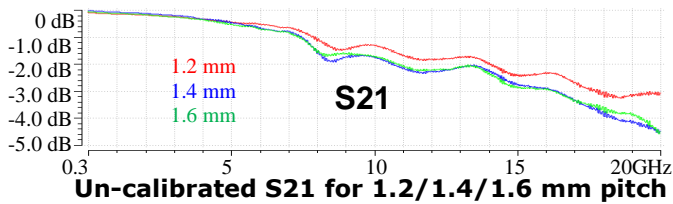
Un-calibrated S21 for 0.25/0.5/1.0 mm pitch



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

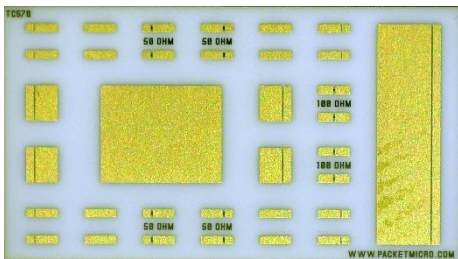
Size	Probe Part number	Size	Probe Part number
01005	SP-GR-2015025	0402	SP-GR-181510
0201	SP-GR-201505	0603	SP-GR-161514

Probe Pitch vs. Component Size



Calibration Substrate

S-Probe product family includes a TCS70 calibration substrate with short, open, load, and thru (SOLT) standards for S-parameter calibrations. This substrate enables a user to move the measurement reference point directly to the probe tips for accurate, repetitive testing.

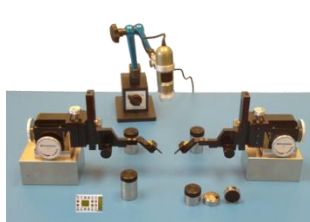


Specifications

- Substrate:** Polished alumina
- Impedance:** Open, short, thru, and 50 Ω
- Contact Material:** Gold
- Accuracy:** < 0.5%
- Size:** 17.3 x 9.4 x 0.6 mm (0.68 x 0.37 x 0.025 in)

Accessories

- PS600 RF Probe Station
- TP250 4D (xyz θ) Precision Positioner
- TP150 4D (xyz θ) Precision Positioner
- PH100 PCB Holder
- VPH100 Vertical PCB Holder
- Dino-Lite Digital Microscope



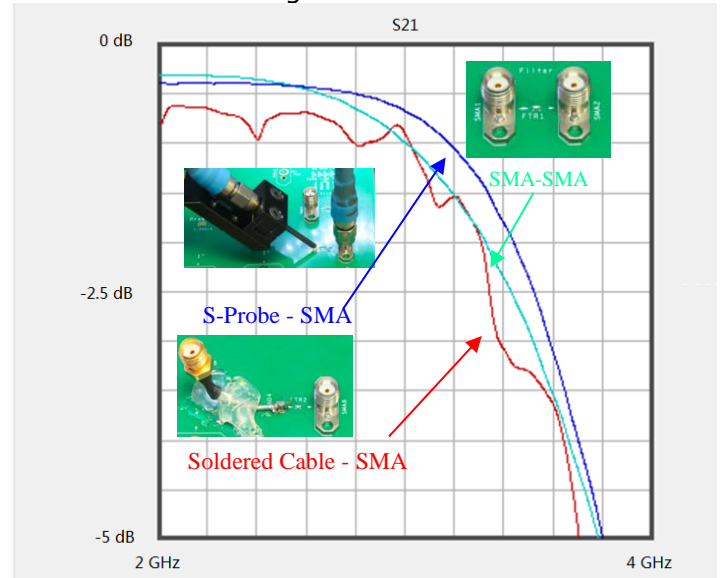
PS600 RF
Probe Station



S-Probe
on TP250

RF Measurement

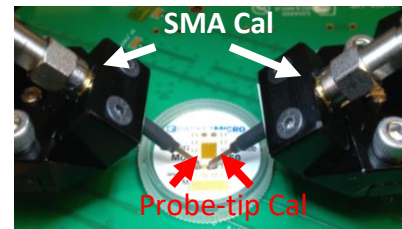
The following S21 measurement of a TDK 2.45 GHz low pass filter (P/N: DEA102500LT-6307A1, Size 0402) shows that S-Probe performance is better than that of soldering a coaxial cable.



RF Measurement Comparison

2-Port Probe-Tip Calibration

Probe-tip calibration allows accurate, repetitive S-Parameter measurements.



2-probe measurement of TCS70 Thru

