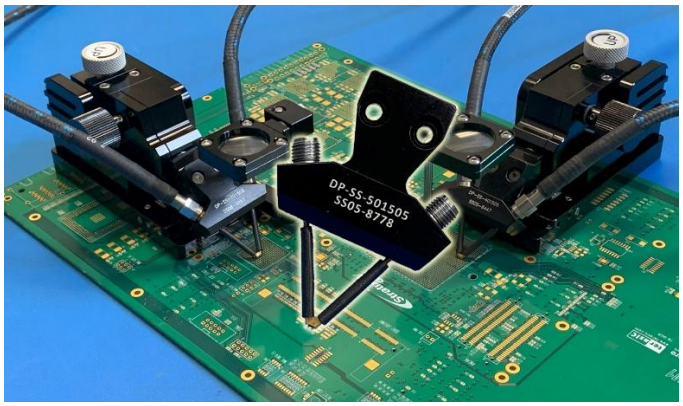
PACKETMICRO
Innovative Benchtop Probing Solutions

D-PROBE DP-SS SERIES

RUGGED 60 GHZ SS DIFFERENTIAL PROBE

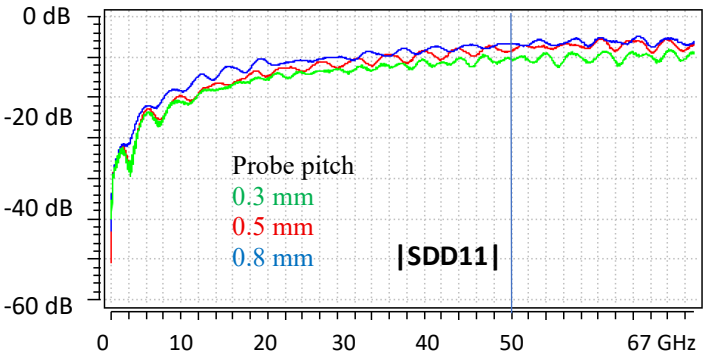


PacketMicro's 60 GHz SS probes are engineered specifically for the high-frequency demands of Signal Integrity (SI) and Printed Circuit Board (PCB) characterization, offering a rugged alternative to delicate wafer-level microprobes. Their primary advantage lies in their durable Beryllium Copper (BeCu) tips and robust mechanical design, which allow for reliable direct probing on solder bumps and uneven surfaces that would otherwise damage microprobes. The 60 GHz DP-SS series probes complement the DP-GSSG probes in applications where there are insufficient GND pads surrounding the differential traces, such as next-generation standards including PCIe 6.0/7.0 and 800G Ethernet. By combining industrial-strength construction with high-precision S-parameter performance, PacketMicro provides a cost-effective solution for manufacturing and benchtop R&D environments where both repeatability and physical resilience are critical.

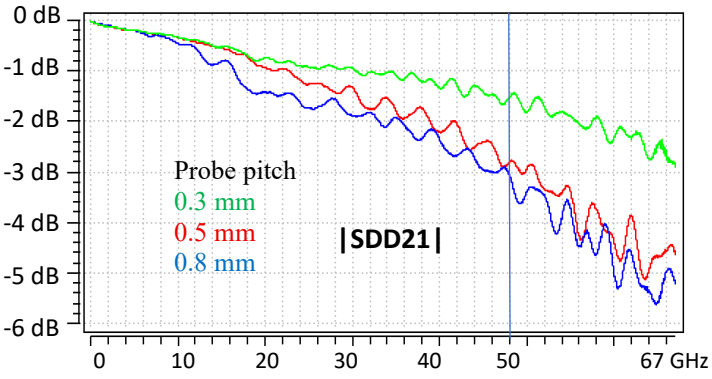
FEATURES:

- **Ultra-Wide Bandwidth:** DC to 60 GHz
- **Low Insertion Loss:** < 3 dB @ 50/60 GHz
- **Rugged Construction**: Designed for direct probing on uneven surface
- **High Repeatability**: No moving parts for consistent, reliable measurements
- **User-Friendly Handheld Fixtures:** Constant-force design ensures stable probe pressure and precise alignment for accurate results
- **Application Ready**: Ideal for PCIe 6.0/7.0 testing, 112G SerDes validation, Delta-L PCB characterization, and other high-speed measurement applications

SPECIFICATIONS	
Bandwidth	60 GHz (0.2/0.3 mm pitch) 50 GHz (0.4/0.5/0.6/0.8 mm pitch)
Insertion Loss	Less than 3 dB @ Bandwidth
Impedance	100±3 Ohm
Connector Type	Female 1.85mm connector
Size/ Weight	51x38 x12 mm (2x1.5x0.5 in.) / 20 gm
Probe Force	50 gm (typical) 150 gm (max w/o damage)



Un-calibrated SDD11 of 0.3/0.5/0.8 mm pitch



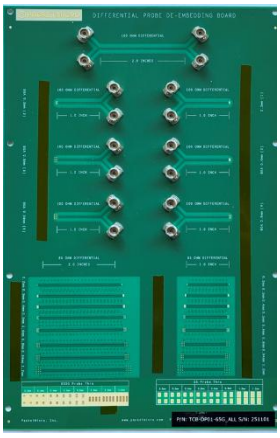
Un-calibrated SDD21 of 0.3/0.5/0.8 mm pitch, including loss of BGA probe launch

50 GHz PART NO.	BW (GHz)	PROBE PITCH
DP-SS-501504	50 GHz	0.4 mm / 16 mil
DP-SS-501505	50 GHz	0.5 mm / 20 mil
DP-SS-501506	50 GHz	0.6 mm / 24 mil
DP-SS-501508	50 GHz	0.8 mm / 32 mil

60 GHz PART NO.	BW (GHz)	PROBE PITCH
DP-SS-601502	60 GHz	0.2 mm / 8 mil
DP-SS-601503	60 GHz	0.3 mm / 12 mil

TCB-DP01 Probe-De-embedding Board

TCB-DP01 is designed to extract probe-specific S-parameters for accurate de-embedding. This enables users to effectively remove probe-induced insertion loss and phase delay, shifting the VNA measurement reference plane directly to the probe tips for precise and reliable measurements.



TCB-DP01-65G

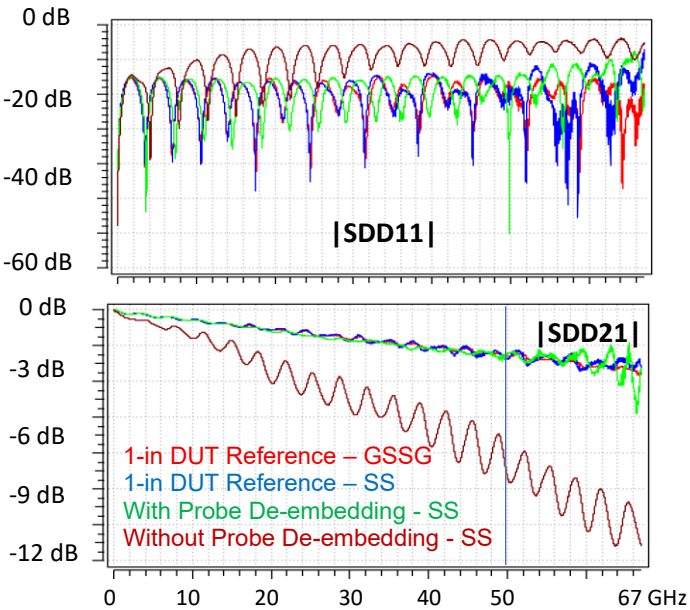
- Frequency: 0 – 65 GHz
- Connectors: 1.85 mm (F)
- Probe Pitches: 0.3mm (1), 0.4mm (2), 0.5mm (3), 0.6mm (4), 0.8mm (5), 0.94mm (6)
- P/N: TCB-DP01-65G_356 (0.5, 0.8, 0.94 mm, 3 pitches mounted)

TCB-DP01-40G

- Frequency: 0 – 40 GHz
- Connectors: 2.92 mm (F)

De-embedding Accuracy

To validate measurement accuracy, a 2X Thru method is employed to establish a baseline for comparison against results obtained through probe de-embedding.

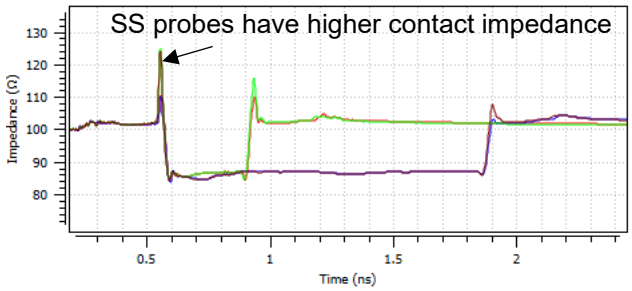


1-in DUT Reference (0.5 mm Probe Pitch)
Total = Porbe#1 + 2-in trace + Probe#2
2X Thru = Porbe#1 + 1-in trace + Probe#2

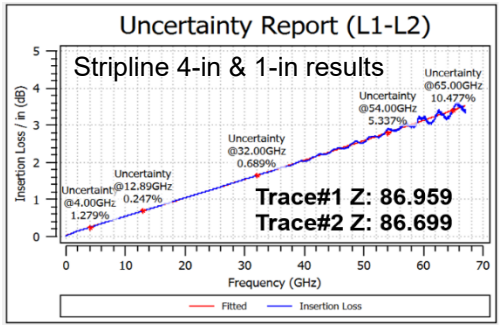
Delta-L with DP-SS and DP-GSSG Probes

DP-SS probes complement the DP-GSSG probes in applications where there are insufficient GND pads surrounding the differential traces. As shown below, both probe series provide consistent and well-correlated Delta-L measurement results, ensuring reliable performance comparison across different pad configurations.

TDR of 0.5 mm-pitch SS and GSSG Probes

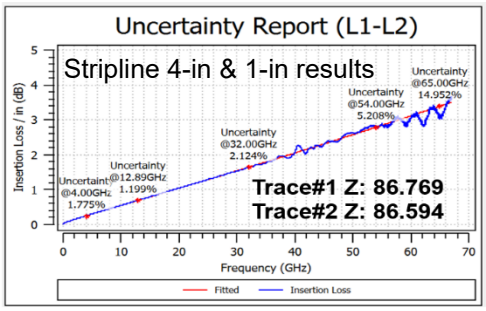


Delta-L with 2 DP-GSSG-651505 Probes



Frequency (GHz)	Uncertainty (%)	dB/in
4	1.279	0.254
12.89	0.247	0.693
32	0.689	1.644
54	5.337	2.800
65	10.477	3.408

Delta-L with 2 DP-SS-501505 Probes



Frequency (GHz)	Uncertainty (%)	dB/in
4	1.775	0.256
12.89	1.199	0.695
32	2.214	1.642
54	5.208	2.789
65	14.952	3.390