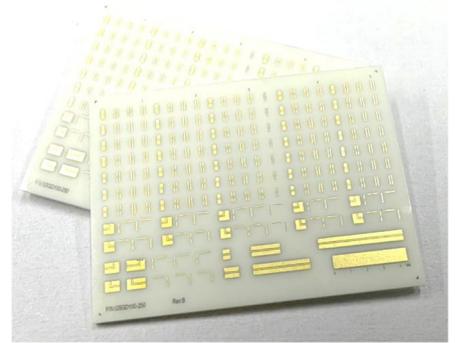


Calibration Substrate

GSGD100-250 calibration substrate is designed to provide accurate probe tip calibration of RF probe family with GSG probe tips configuration and accommodates 100 to 250 μm probe pitch variation.



Substrate Characteristics

Material	Alumina
Size	15 x20 mm
Thickness	635 μm
Design or standards	Coplanar
Probe configuration	GSG
Supported probe pitch	100 to 250 μm
Number of lumped standard groups	40
Supported calibration methods	SOLT, LRM, SOLR, TRL and multiline TRL
Typical resistance of the load	50 Ω
Typical load trimming accuracy error	+0.3%
Open standard Au pads on substrate	Au pads on substrate
Recommended overtravel for probes	10-20 μm

Electrical Characteristics

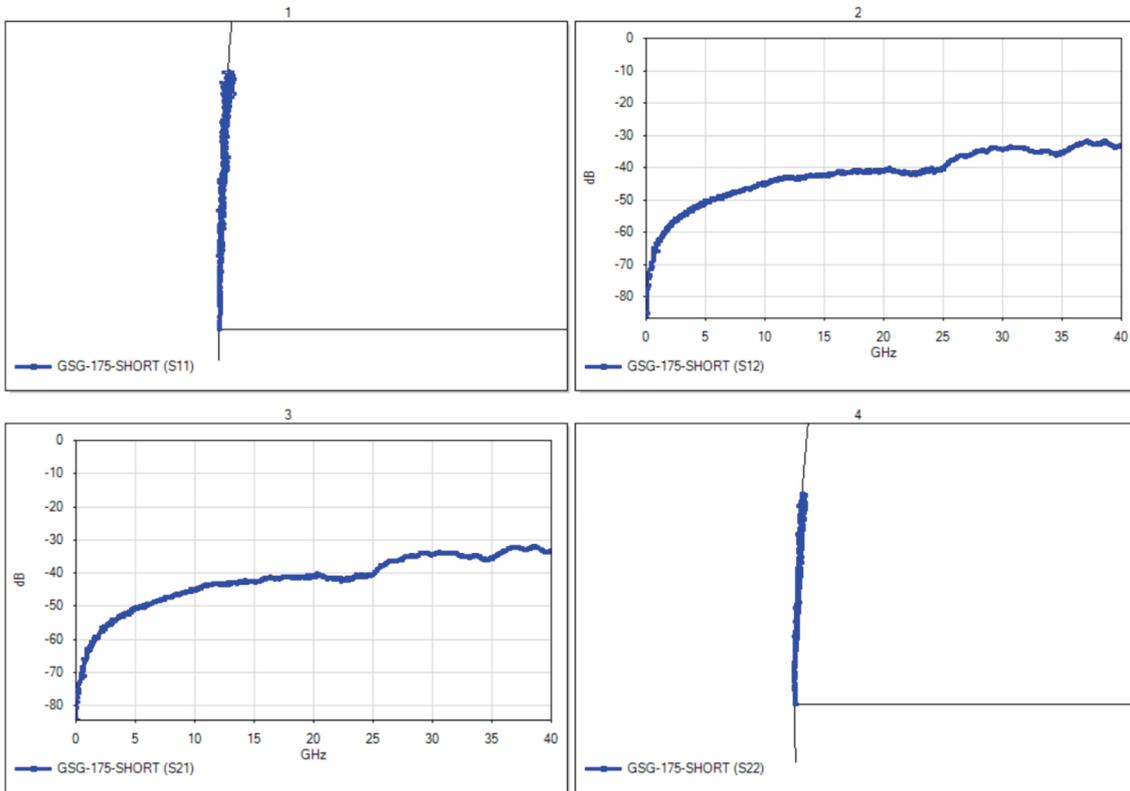
Nominal characteristic impedance	50 Ω
Dielectric Constant	9.9
Working Frequency	DC-110GHz

Electrical length of line, ps

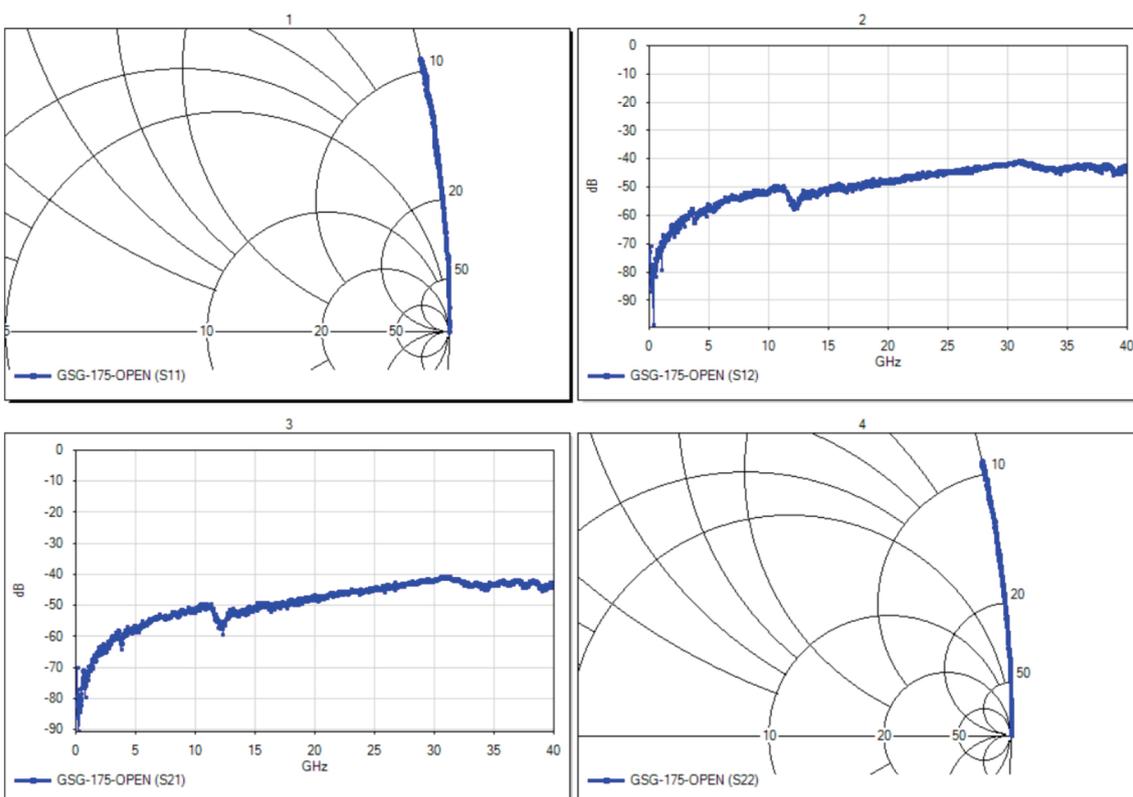
Thru : 0.8 ps	Line 1 : 2.90 ps	Line 2 : 6.30 ps
Line 3 : 13.20 ps	Line 4 : 25.40 ps	Line 5 : 38.20 ps

Calibration Accuracy

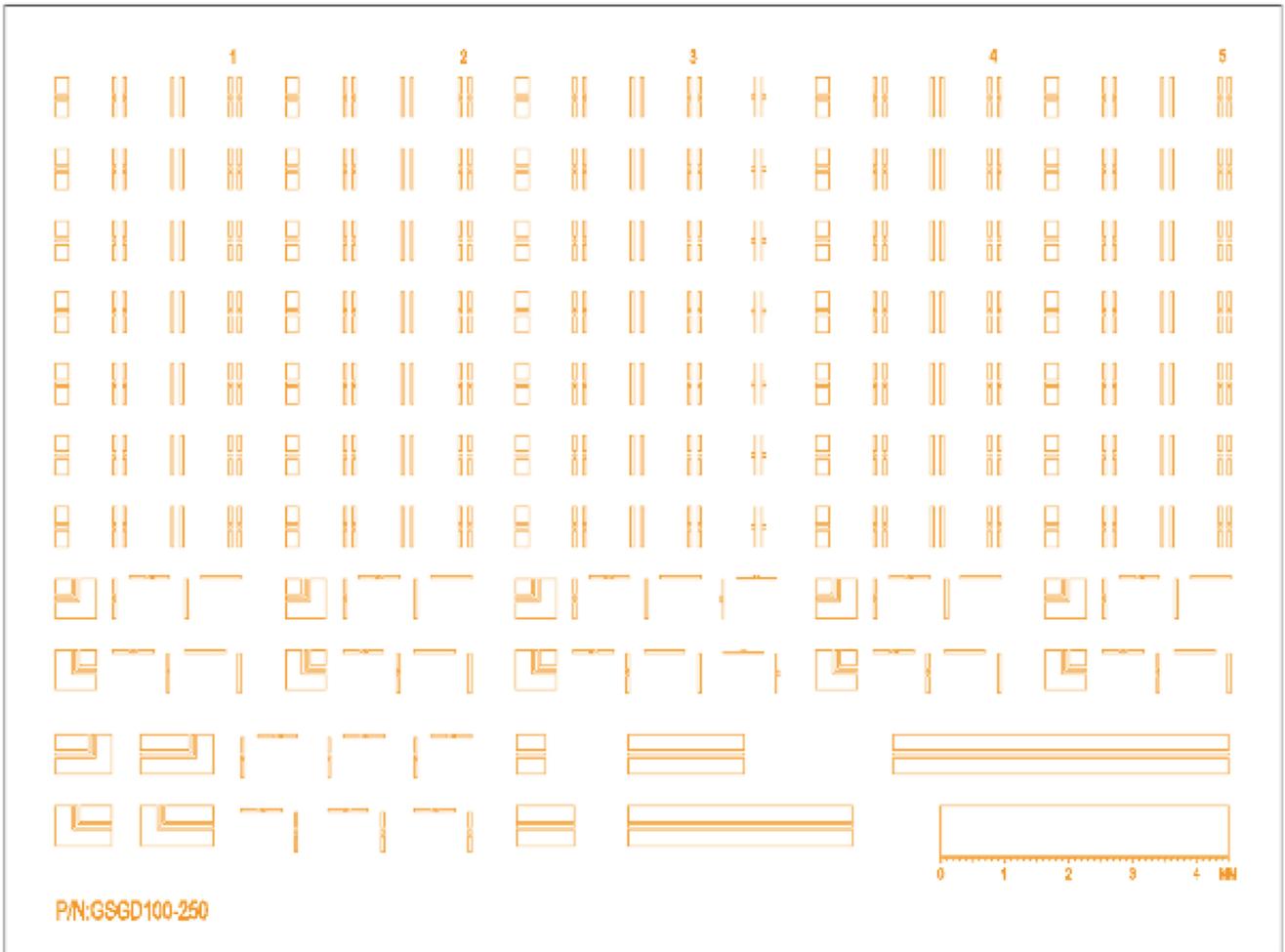
The following screenshot shows RF probe contact calibration substrate short.



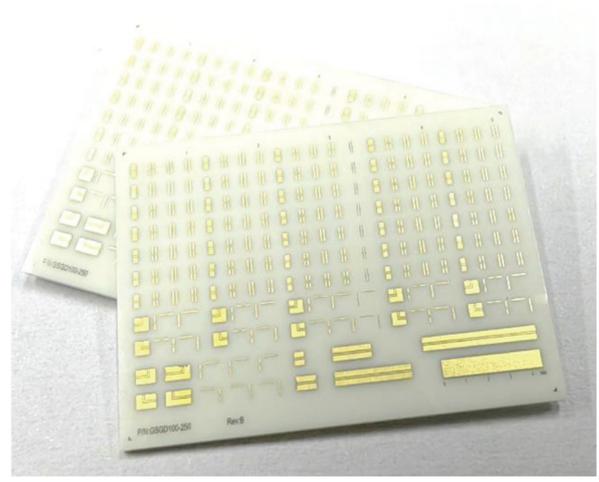
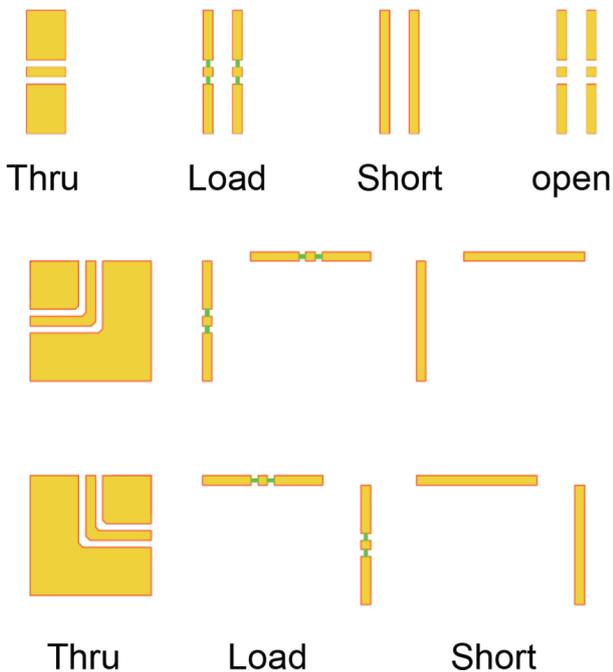
The following screenshot shows RF probe contact calibration substrate open.



Substrate layout



The calibration substrate includes various calibration structures such as parallel and 90-degree ones, which can meet the requirements of multiple ports.



Planarization Probe

- RF probe is manufactured using advanced 3D MEMS technology and precise micro-machining processes.
- Unique Tip design enables precise detection of small-sized chips.
- RF probes deliver excellent and real time visibility of the tip contacts.
- Rich application experience ensure the stability of the product in various environments.
- excessive over travel can damage them. Use care when lowering probe.

To planarize the probe, we recommend using the bare gold area of the calibration substrate or the dedicated contact substrate PN CB20001500P0 (Figure 1). While monitoring the probe under a high resolution microscope, adjust the Z height to bring the probe into contact with the surface. The probe is in contact with surface when the probe tips begin to skate forward. After contacting the surface, raise the probe and check the probe marks. If the probe tips are parallel to surface, you should see a uniform probe mark for each tip (Figure 2). If the probe tips are not parallel to surface (Figure 3), rotate planarity knob on positioner and recheck probe marks (Figure 4). This may take several attempts.



Figure1
RF Probe contact substrate

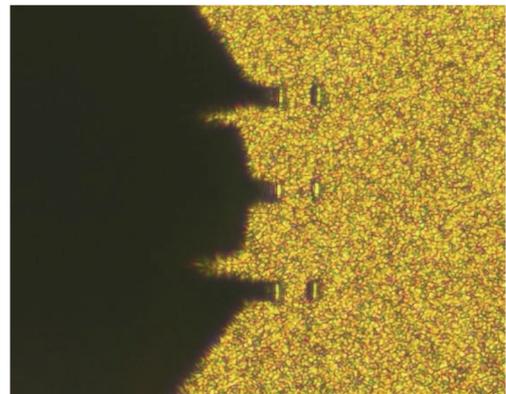


Figure2
Image of probe marks of Planarized probe

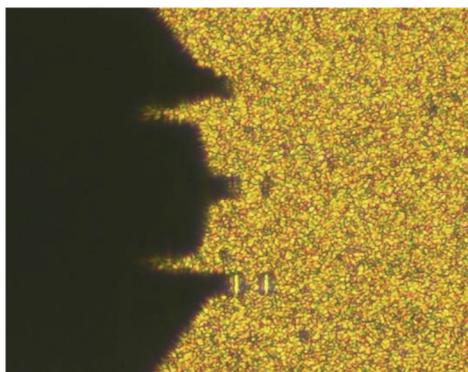


Figure3
Image of probe that is not Planarized to surface

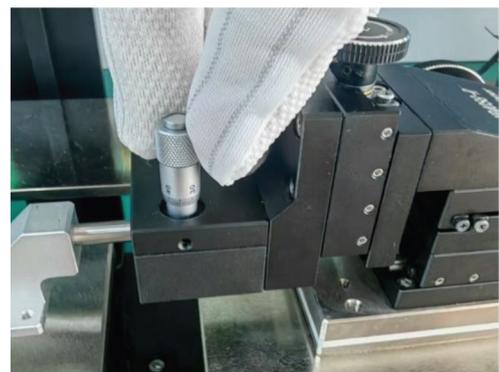


Figure4
Planarization of RF probes