



Our line of calibration substrates allows the user to calibrate any GGB microwave Picoprobe directly at the probe tip. The underlying principal of the calibration of a measurement system is to provide accurate, known standards to which the measurement system can be connected. CS line of calibration substrates is such a standard. Each calibration substrate contains highly precise elements for calibrating out the unavoidable errors and losses in a microwave network analyzer, its associated cabling, and the microwave probe to ensure accurate on-wafer testing.

Our accurate, easy to use calibration substrates, calibration coefficients, and detailed instructions allow you to correct the measurement system (network analyzer + cabling + probe) whenever it produces a reading different than the standard. The typical elements for calibrating a microwave measurement system consists of opens, shorts, matched loads, and throughs. These four elements have electrical characteristics that are very different from one another so that each element contributes an important part to the overall calibration process. In principle any set of standards could be employed, however, the more identical the standards are, the less accurate the calibration process becomes, which in turn results in inaccurate the on-wafer testing. Our precision crafted calibration substrates, when properly used, assure you of accurate on-wafer test results from the creator of the original Picoprobe.



Features

- Supports precise SOLT, LRL and LRM calibrations
- Includes CalKit software for easy loading to Network Analyzer
- Pitch range from 30 to 2,540 microns
- Suitable for all Picoprobes® from DC to 220 GHz
- Available for GSGSG, GSSG, and SGS footprints
- Load standards individually trimmed to 0.25% accuracy
- 25 mil (635 microns) thick alumina substrate

Calibration Substrate selection guide					
Calibration Substrate	Pad Size (microns)	Calibration Types Supported	Footprint	Pitch Range Recommended (microns)	Pitch Range Acceptable (microns)
CS-5	50 X 50	SOLT, LRL, LRM	GSG	75 – 250	75 – 250
CS-9	100 X 100	SOLT, LRL, LRM	GSG	250 – 600	150 – 600
CS-10	150 X 150	SOLT, LRM	GSG	600 – 1250	225 – 1250
CS-18	300 X 300	SOLT, LRM	GSG	1250 – 2540	500 – 2540
CS-8	50 X 50 100 X 100 150 X 150	SOLT, LRM	GS, SG	50 – 200	50 – 300
CS-14	100 X 100	SOLT, LRM	GS, SG	200 – 400	150 – 600
CS-11	150 X 150	SOLT, LRM	GS, SG	400 – 1250	175 – 1250
CS-17	300 X 300	SOLT, LRM	GS, SG	750 – 2540	450 – 2540

Special Calibration Substrate designed for use above 110 GHz					
Calibration Substrate	Pad Size (microns)	Calibration Types Supported	Footprint	Pitch Range Recommended (microns)	Pitch Range Acceptable (microns)
CS-15	25 X 25	SOLT, LRL, LRM	GSG	40 – 150 (SOLT) 30 – 150 (LRL)	40 – 150

Differential Calibration Substrate selection guide GSGSG					
Calibration Substrate	Pad Size (microns)	Calibration Types Supported	Footprint	Pitch Range Recommended (microns)	Pitch Range Acceptable (microns)
CS-2-50	25 X 25	SOLT, LRL LRM	GSGSG	50	45 – 55
CS-2-75	25 X 25	SOLT, LRL LRM	GSGSG	75	70 – 80
CS-2-100	50 X 50	SOLT, LRL LRM	GSGSG	100	90 – 110
CS-2-125	50 X 50	SOLT, LRL LRM	GSGSG	125	115 – 135
CS-2-150	50 X 50	SOLT, LRL LRM	GSGSG	150	140 – 160
CS-2-200	50 X 50	SOLT, LRL LRM	GSGSG	200	190 – 210
CS-2-225	50 X 50	SOLT, LRL LRM	GSGSG	225	215 – 235
CS-2-250	50 X 50	SOLT, LRL LRM	GSGSG	250	240 – 260
CS-2-300	100 X 100	SOLT, LRL LRM	GSGSG	300	275 – 325
CS-2-350	100 X 100	SOLT, LRL LRM	GSGSG	350	325 – 375
CS-2-400	100 X 100	SOLT, LRL LRM	GSGSG	400	375 – 425
CS-2-450	100 X 100	SOLT, LRL LRM	GSGSG	450	425 – 475
CS-2-500	100 X 100	SOLT, LRL LRM	GSGSG	500	490 – 510
CS-2-750	150 X 150	SOLT, LRL LRM	GSGSG	750	700 – 800
CS-2-1000	150 X 150	SOLT, LRL LRM	GSGSG	1000	990 – 1010
CS-2-1250	150 X 150	SOLT, LRL LRM	GSGSG	1250	1225 – 1275

Differential Calibration Substrate selection guide GSSG					
Calibration Substrate	Pad Size (microns)	Calibration Types Supported	Footprint	Pitch Range Recommended (microns)	Pitch Range Acceptable (microns)
CS-3-50	25 X 25	SOLT, LRM	GSSG	50	45 – 60
CS-3-75	25 X 25	SOLT, LRM	GSSG	75	65 – 85
CS-3-100	50 X 50	SOLT, LRM	GSSG	100	85 – 115
CS-3-125	50 X 50	SOLT, LRM	GSSG	125	110 – 140
CS-3-150	50 X 50	SOLT, LRM	GSSG	150	135 – 165
CS-3-175	50 X 50	SOLT, LRM	GSSG	175	160 – 190
CS-3-200	50 X 50	SOLT, LRM	GSSG	200	185 – 215
CS-3-250	100X 100	SOLT, LRM	GSSG	250	200 – 300
CS-3-350	100 X 100	SOLT, LRM	GSSG	350	300 – 400
CS-3-450	100 X 100	SOLT, LRM	GSSG	450	400 – 500
CS-3-500	150 X 150	SOLT, LRM	GSSG	500	425 – 525
CS-3-600	100 X 100	SOLT, LRM	GSSG	600	550 – 625
CS-3-800	300 X 300	SOLT, LRM	GSSG	800	600 – 1000
CS-3-1000	300 X 300	SOLT, LRM	GSSG	1000	800 – 1075
CS-3-1250	300 X 300	SOLT, LRM	GSSG	1250	1050 – 1325

Differential Calibration Substrate selection giude SGS					
Calibration Substrate	Pad Size (microns)	Calibration Types Supported	Footprint	Pitch Range Recommended (microns)	Pitch Range Acceptable (microns)
CS-4-100	50 X 50	SOLT, LRM	SGS	150	90 - 110
CS-4-150	50 X 50	SOLT, LRM	SGS	150	140 - 160
CS-4-250	100 X 100	SOLT, LRM	SGS	250	225 - 275
CS-4-300	100 X 100	SOLT, LRM	SGS	300	275 - 325
CS-4-350	100 X 100	SOLT, LRM	SGS	350	325 - 375

SOLT = Short-Open-Load-Through

LRL = Line-Reflect-Line (Which is equivalent to TRL = Through-Reflect-Line)

LRM = Line-Reflect-Match (Which is equivalent to TRM = Through-Reflect-Match)

How to select the correct calibration substrate for your probing application:

- 1 - Identify your Picoprobe's footprint and pitch (tip spacing)
- 2 - Determine which calibration type is appropriate for your application (SOLT, TRL/LRL, or TRM/LRM)
- 3 - Using the Calibration Substrate Selection Guide below, choose the calibration substrate which matches your Picoprobe's footprints recommended pitch range, and your preferred calibration type.



Probe station



RF micropositioner



RF probe

