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TECHNICAL PRODUCT INFORMATION

Technical measurement solutions for

- semiconductor
- electronic &
- high frequency questions.

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DMPI Dominion D Series

Waveguide Probes for On-Wafer Measurements



Images illustrate the probe body styles and do not identify specific D-series part numbers.

Key Specifications

Characteristic	Specification
Frequency range	140 GHz to 1.1 THz; depending on the selected waveguide version
Broadband versions	DC to 170 GHz or DC to 220 GHz; check measurement system configuration
Contact configuration	GSG (ground–signal–ground)
GSG contact pitch	25 to 100 µm; depending on frequency band and model
Body styles	S-Type, T-Type and compact C-Type versions
DC bias	Bias tee with GPPO connector; confirm configuration when ordering

Technical Notes

Select the appropriate probe based on measurement frequency, waveguide band, GSG contact pitch and mechanical mounting in the probe station. Insertion loss and return loss vary with waveguide band and body style.

D Series: Model Overview and Electrical Specifications

All loss figures are typical manufacturer values in dB for the specified configuration. “###” or “##” indicates the selected GSG contact pitch in µm.

Waveguide	Frequency (GHz)	Body style	Insertion loss / return loss (dB)	Pitch (µm)	DMPI model
WR5.1	140–220	S / T	1.5 / 15 · 2.5 / 15	25, 50, 75, 100	D220-S-GSG-###-BT D220-T-GSG-###-BT
WR4.3	170–260	S / T	2.0 / 15 · 3.0 / 15	25, 50, 75, 100	D260-S-GSG-###-BT D260-T-GSG-###-BT
WR3.4	220–330	S / T	2.5 / 15 · 4.0 / 15	25, 50, 75, 100	D330-S-GSG-###-BT D330-T-GSG-###-BT
WR2.8 / WM-710	260–400	C	3.0 / 15	25, 50, 75	D400-C-GSG-##-BT
WR2.2 / WM-570	330–500	C	4.0 / 15	25, 50	D500-C-GSG-##-BT
WR1.5 / WM-380	500–750	C	6.0 / 13	25	D750-C-GSG-25-BT
WR1.0 / WM-250	750–1,100	C	8.0 / 13	25	D1100-C-GSG-25-BT

For S / T configurations, the two loss specifications are listed in the same order as the body styles.

Broadband / Dual-Band Versions

Waveguide	Frequency (GHz)	GSG pitch (µm)	Model designation
WR6.5	DC–170	50, 75, 100	D170-BB-GSG-###-BT
WR5.1	DC–220	50, 75, 100	D220-BB-GSG-###-BT

The broadband versions combine coaxial and waveguide connections. Continuous frequency sweeps require a compatible VNA and frequency extender system. The manufacturer’s published transition-band loss figures should not be used as general specifications for the entire series without the corresponding measurement conditions.

Contacting and Electrical Limits

Parameter	Manufacturer specification
Contact resistance (typical)	< 0.04 Ω on gold pads; < 0.30 Ω on aluminum pads
Maximum DC current	500 mA
Maximum DC voltage	35 V
Recommended overtravel	Gold: 5–10 µm; aluminum: 25–35 µm
Maximum overtravel	60 µm
Minimum contact pad size	15 × 15 µm (unpassivated gold pads, best case)

Selection and Integration

- Frequency band: The measurement requirements determine the waveguide size and frequency range.
- Contact configuration: The GSG pitch must match the DUT contact pad layout.
- Body style: S, T and C versions must fit the probe station mount and available space.
- RF measurement chain: For broadband sweeps, verify VNA and frequency extender compatibility.
- DC bias: Specify the bias tee with GPPO connector for the selected probe configuration.

Typical Applications

On-wafer S-parameter measurements; characterization of MMICs and other integrated RF circuits; device modeling in semiconductor development; and measurements in the millimeter-wave and THz ranges.