

Cascade Microtech, Inc.

SPECIFICATION SHEET



Making HF wafer contact
as simple as in DC range

IZI PROBE®

High-Frequency Wafer Probe (40 GHz)

For wafer-level test of RF and microwave devices, there is no better solution than Cascade Microtech's IZI Probe. The patented technology used in the IZI Probe assures high-accuracy measurements with low contact resistance and superior impedance control. The RF/microwave signal makes only one transition to the coplanar contact structure within the shielded, air-isolated probe body. This maintains the signal integrity with stable performance over a wide temperature range.

Contacting the device under test (DUT) with the IZI Probe is simple, highly repeatable and requires minimum overtravel. Additionally, the contacts can move independent of each other, allowing you to probe on three-dimensional structures and on wafers with pad-height deviation of up to 50 μm .

Used in conjunction with Cascade Microtech's HF probing system including ProbeHeads™, powerful SussCal® Calibration Software and highly-accurate CSR family of calibration substrates, the IZI Probe becomes the ultimate tool for all your HF wafer-level probing needs.

Thanks to the proven IZI Probe technology, the probe also has an extremely long lifetime. It guarantees a useful life of at least 1,000,000 contact cycles under standard use and overtravel. No other RF probe provides such outstanding electrical performance and long lifetime, both characteristics that are a result of Cascade Microtech's pioneering work in developing nickel contact tips. As a result, the IZI Probe is perfect for probing on aluminum and gold pads.

A special left/right version, the IZI Probe Oblique, is also available to provide unhindered two-port testing from one side.

FEATURES AND BENEFITS

Durability	Incredibly long lifetime
	Unparalleled repeatable and reliable contact quality
	Suitable for automated testing
Flexibility	Probe on most pad material with minimal damage
	Independent, long contact springs easily overcome pad height differences up to 50 μm
	Small structures such as 40 μm x 40 μm pads can be tested
	Excellent performance in vacuum environments and temperatures from 10 K to 300°C
RF performance	Lowest insertion loss
	High isolation
	Low contact resistance

SPECIFICATIONS*

Electrical Characteristics

Characteristic impedance	50 Ω
Frequency range	DC to 40 GHz
Return loss	> 18 dB DC to 40 GHz**
Insertion loss	< 0.8 dB DC to 40 GHz**
Maximum RF power	5 W at 40 GHz
Maximum DC current	1.5 A
Maximum DC voltage	100 V
Contact resistance on Au	< 4 m Ω **

Mechanical Characteristics

Contacts	Solid nickel springs
Insulator	RF dielectric
Contact cycles on Al	> 1,000,000
Contact spring pressure	6 N/mm
Available standard pitches***	50 μm to 200 μm with 25 μm increments, 200 μm to 1250 μm with 50 μm increments

RF Connector

Type	PC 2.92 mm, female
Coupling torque	0.8 Nm to 1.1 Nm (Recommended)
Outer contact	Stainless steel
Center contact	CuBe with Au plating
Insulator	PEEK

Environmental Data

Temperature range	-100 $^{\circ}\text{C}$ to 200 $^{\circ}\text{C}$ (Type K, standard), 10 K to 300 $^{\circ}\text{C}$ (Type Y, extreme temperature)
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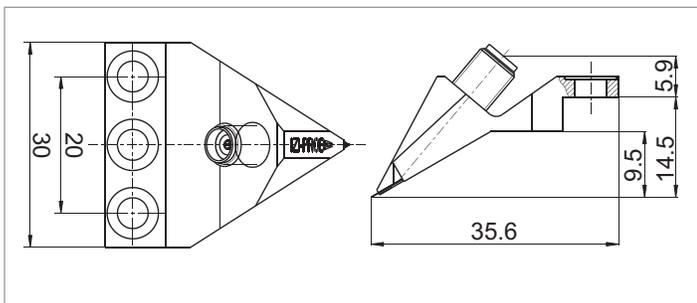
*Data, design and specification depend on individual process conditions and can vary according to equipment configurations.

Not all specifications may be valid simultaneously.

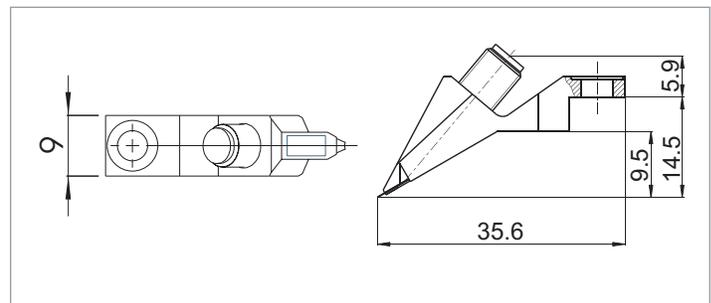
**Typical for probes with pitches from 50 μm to 200 μm

***1MX technology is available for pitches up to 500 μm .

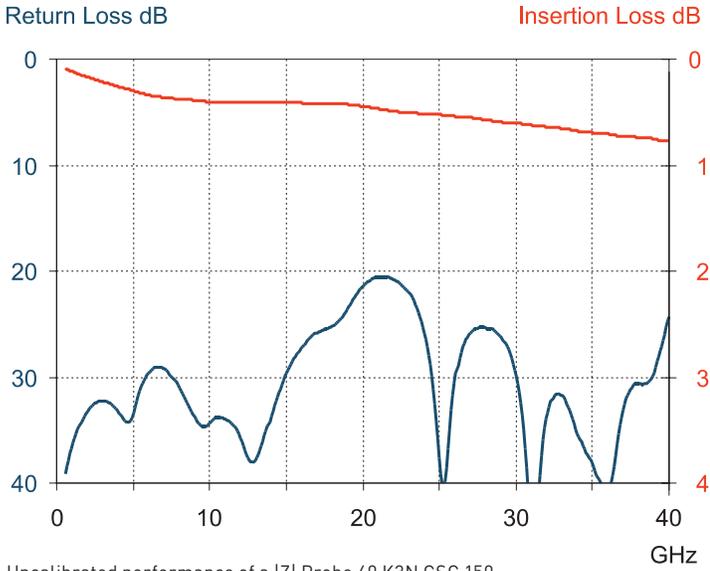
PHYSICAL DIMENSIONS



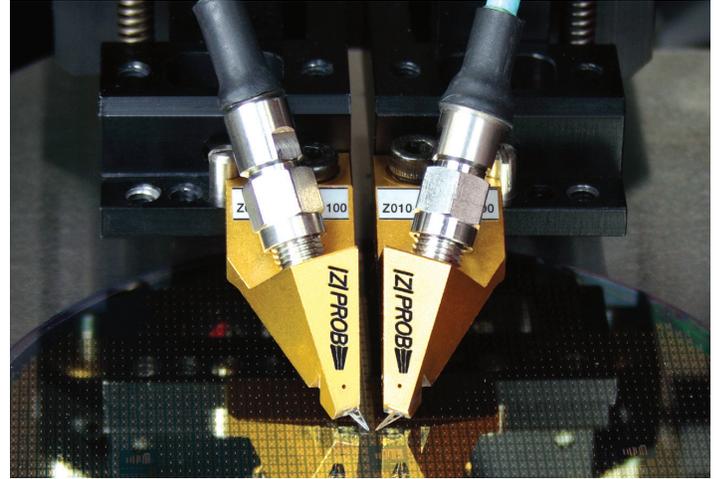
[Z] Probe standard case (all dimensions in mm).



[Z] Probe slim case (all dimensions in mm).

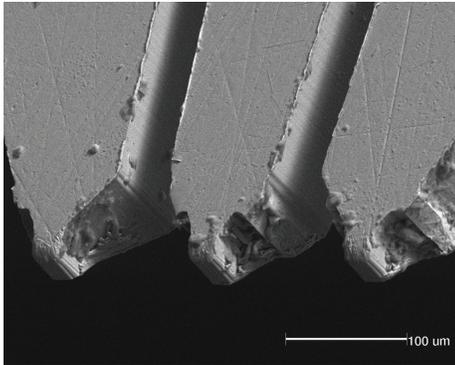


Uncalibrated performance of a ZI Probe 40 K3N GSG 150.

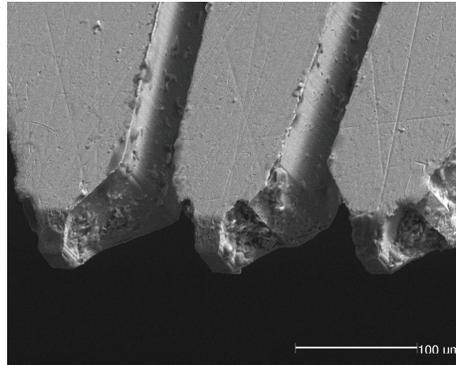


The ZI Probe Oblique (special left/right version) provides unique flexibility in certain applications.

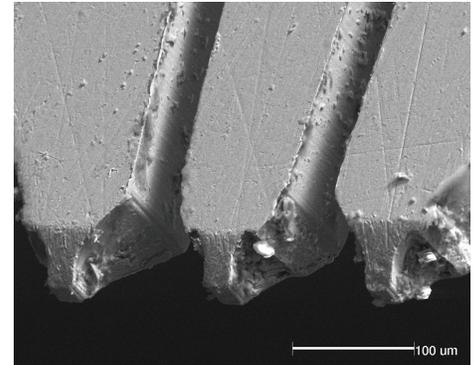
Long lifetime of ZI Probe (Contact material: Al Overtravel: 75 μm)



New ZI Probe (upside-down).



The same probe after 1.5 million touchdowns.



The same probe after three million touchdowns.

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Data subject to change without notice

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