

Cascade

IZI Probe

High-Frequency Wafer Probe (GS/SG 67 GHz)

> Overview

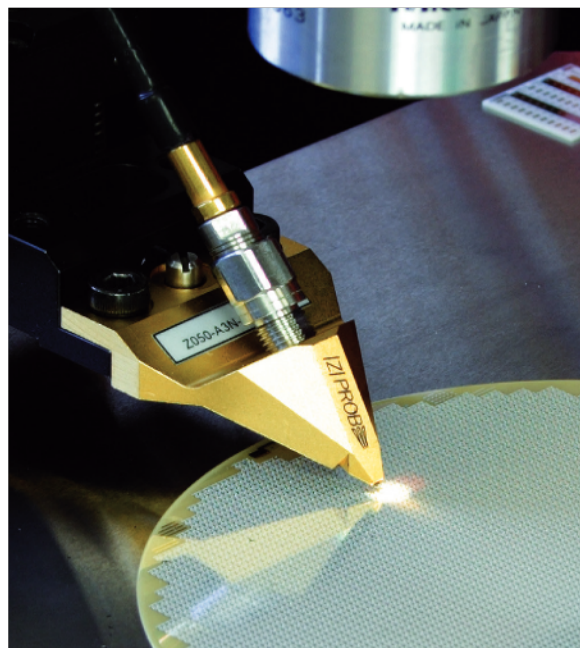
For wafer-level test of RF and microwave devices, there is no better solution than FormFactor's Cascade IZI Probe. The patented technology used in the IZI Probe assures high-accuracy measurements with low contact resistance and superior impedance control. The RF/microwave signal makes only one transition 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.

With the revolutionary 1MX™ technology, the IZI Probe 67 GHz provides superior electrical performance, especially insertion and return loss. In addition, isolation (crosstalk) has been significantly improved resulting in a probe that delivers the highest accuracy for your wafer-level RF and microwave measurements.

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 FormFactor'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.



> 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

- Low contact resistance
- New 1MX technology ensures low insertion loss, high isolation and accurate measurements

➤ Mechanical Specifications

Electrical Characteristics

• Characteristic impedance	50 Ω
• Frequency range	DC to 67 GHz
• Return loss	> 17 dB DC to 67 GHz**
• Insertion loss	< 1.0 dB DC to 67 GHz**
• Maximum RF power	4W at 67 GHz, 9 W at 20 GHz, 16 W at 5 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	4 N/mm
• Available standard pitches	50 μ m to 200 μ m with 25 μ m increments, 200 μ m to 250 μ m with 50 μ m increments

RF connector

• Type	PC 1.85 mm, female
• Coupling torque	0.8 Nm to 1.1 Nm (Recommended)
• Outer contact	Stainless steel
• Center contact	CuBe with Au plating
• Insulator	PEEK

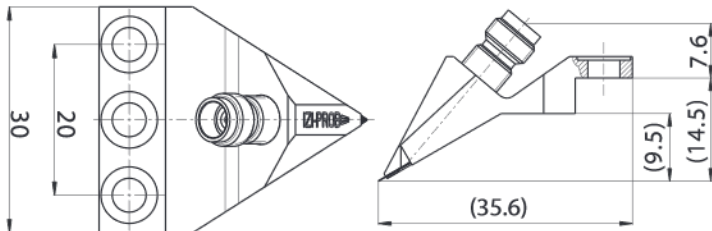
Environmental Data

• Temperature range	-100 °C to 200 °C (Type V, standard), 10 K to 300 °C (Type C, extreme temperature)
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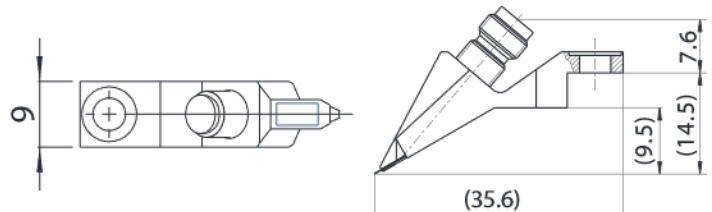
*Data, design and specification depend on individual process conditions and can vary according to equipment configurations. Not all specifications may be valid simultaneously.

**Typical for probes with pitches from 50 μ m to 150 μ m

➤ Physical Dimensions (measurements in mm)

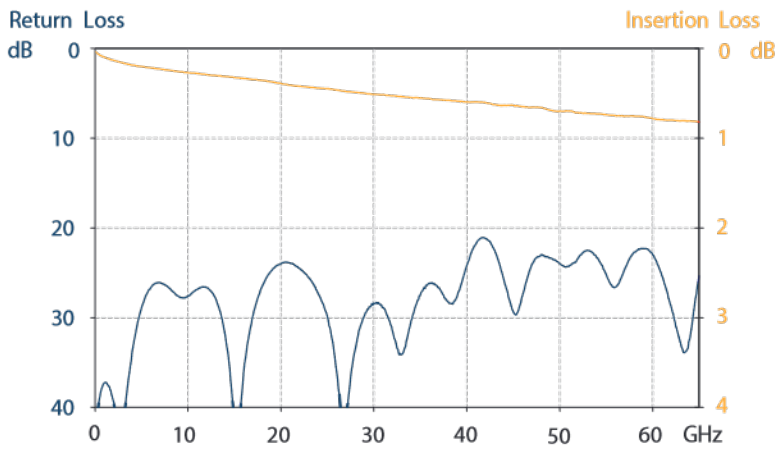


IZI Probe standard case (all dimensions in mm).

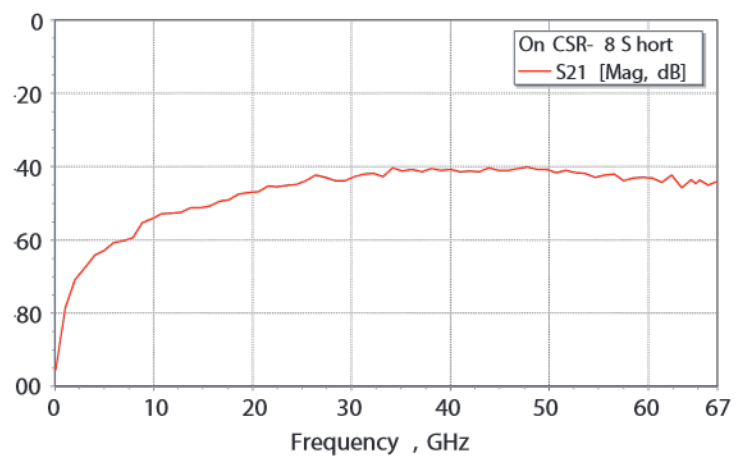


IZI Probe slim case (all dimensions in mm).

Applications

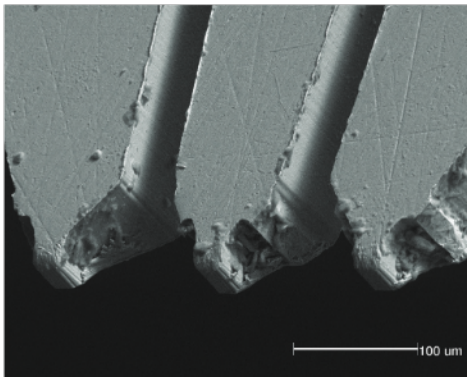


Uncalibrated performance of a IZI Probe 67 V3N GSG 150.

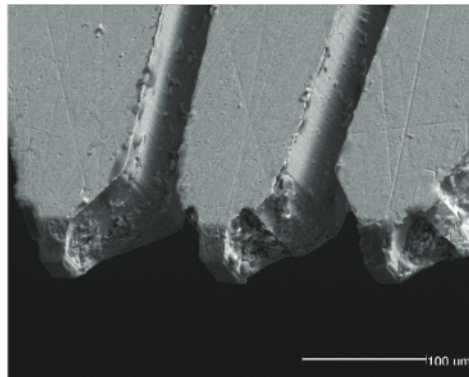


Signal isolation (crosstalk) of two IZI Probes separated by a distance of 150 μm .

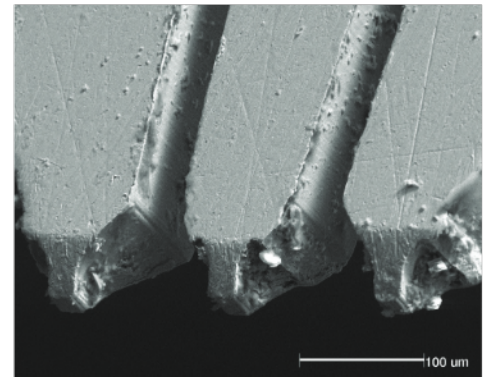
Long lifetime of IZI Probe (Contact material: Al Overtravel: 75 μm)



New IZI Probe (upside-down)



The same probe after 1.5 million touchdowns



The same probe after three million touchdowns

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