

Cascade

IZI Probe

High-Frequency Wafer Probe (GS/SG 20 GHz)

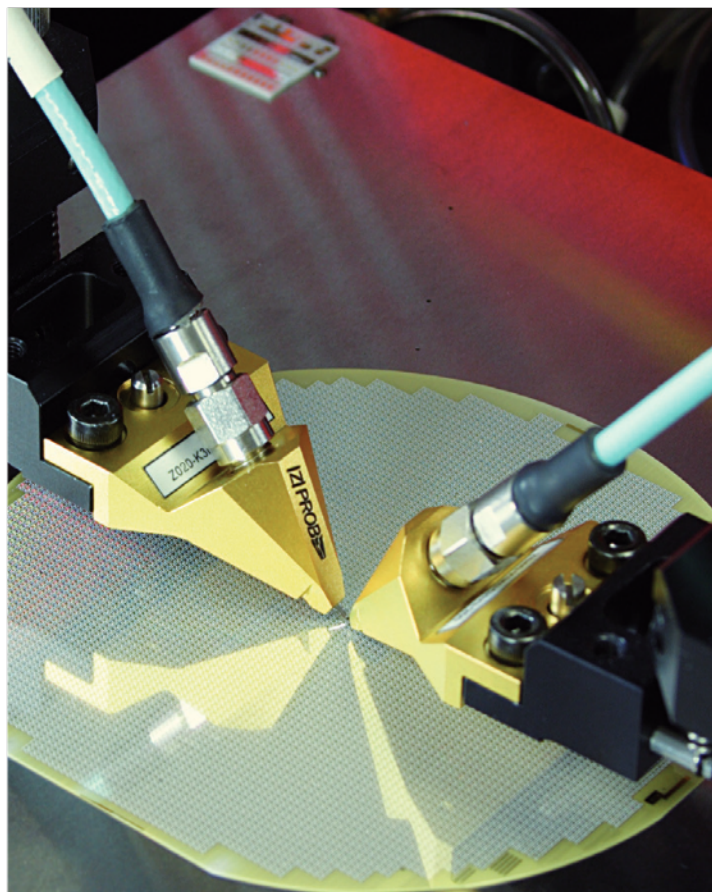
Overview

A Ground-Signal (GS) configuration is the most cost-effective RF design, as less wafer space is taken up with contact pads. FormFactor's Cascade IZI Probe® in a GS/SG configuration enables wafer-level testing with the highest accuracy and throughput available, while maintaining excellent electrical behavior regardless of footprint size.

It is ideal for reliable high-volume production testing, providing proven unsurpassed contact repeatability. The IZI Probe GS/SG 20 GHz has been further enhanced with the revolutionary 1MX™ technology, ensuring 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.

Independent, long contact springs touch down precisely yet gently even on metal layer thicknesses down to an ultra-thin 50 nm. The unique IZI Probe design with its independent spring contacts minimizes the impact between tips and pads.

Therefore, by design the IZI Probe overcomes the limitations of the traditional micro-coax and thin-film style HF probes which typically cause damage after multiple contacts and over travel. The IZI Probe has an extremely low contact resistance on gold and aluminum pads.



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

➤ Mechanical Specifications

Electrical Characteristics

• Characteristic impedance	50 Ω
• Frequency range	DC to 20 GHz
• Return loss	> 20 dB DC to 20 GHz**
• Insertion loss	< 0.6 dB DC to 20 GHz**
• Maximum RF power	5 W at 20 GHz
• Maximum DC current	1 A
• Maximum DC voltage	75 V
• Contact resistance on Au	< 6 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 500 μ m with 50 μ m increments

RF connector

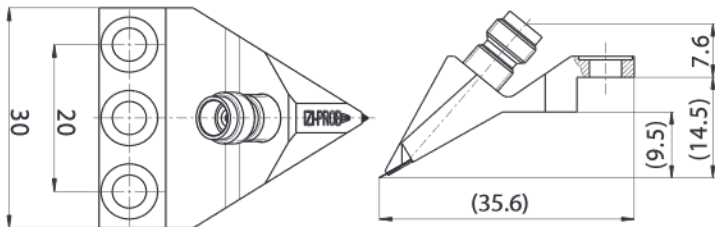
• Type	PC 2.92 mm
• Coupling torque	0.8 Nm to 1.1 Nm (Recommended)
• Outer contact	Stainless steel
• Center contact	CuBe with Au plating
• Insulator	PS

*Data, design and specification depend on individual process conditions and can vary according to equipment configurations. Not all specifications may be valid simultaneously.

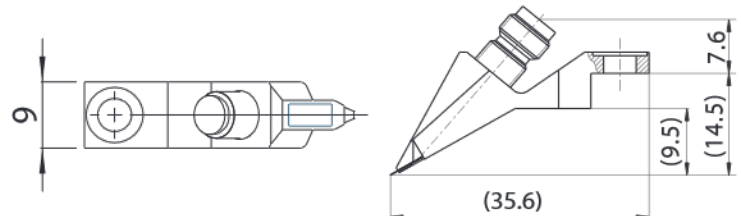
**Typical for probes with pitches from 50 μ m to 200 μ m

***IMX technology is available for pitches up to 500 μ m.

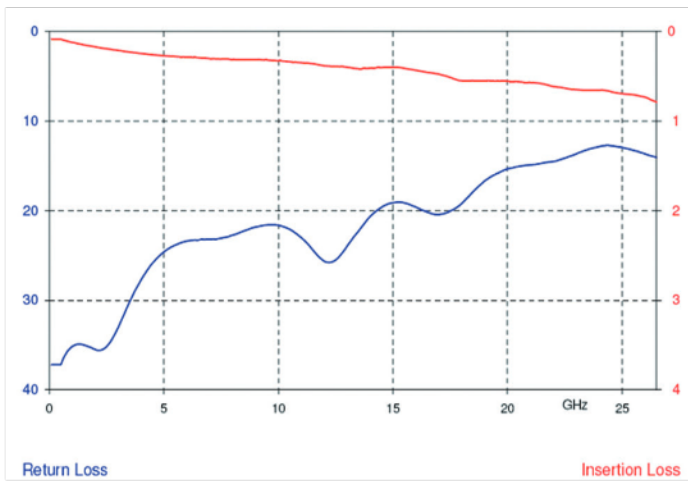
➤ Physical Dimensions (measurements in mm)



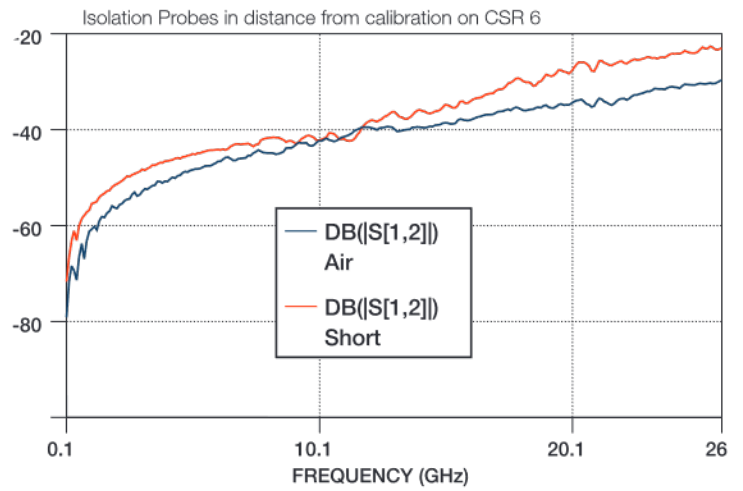
IZI Probe standard case (all dimensions in mm).



IZI Probe slim case (all dimensions in mm).

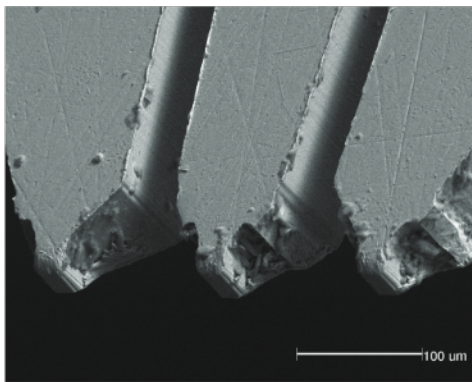


Uncalibrated performance of a IZI Probe 20 K3N GS 150.

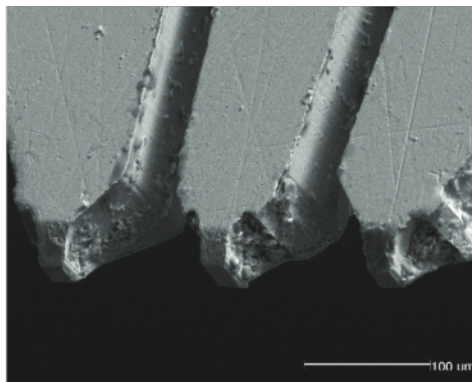


Signal isolation (crosstalk) of two IZI Probes separated by a distance of 150 μm.

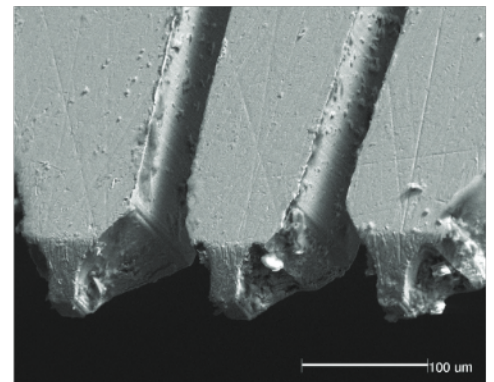
Long lifetime of IZI Probe (Contact material: Al Overtravel: 75 μm)



New IZI Probe (upside-down)



The same probe after 1.5 million touchdowns



The same probe after three million touchdowns

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