

Cascade

I²ZI Probe

High-Frequency Wafer Probe (GS/SG 10 GHz)

Overview

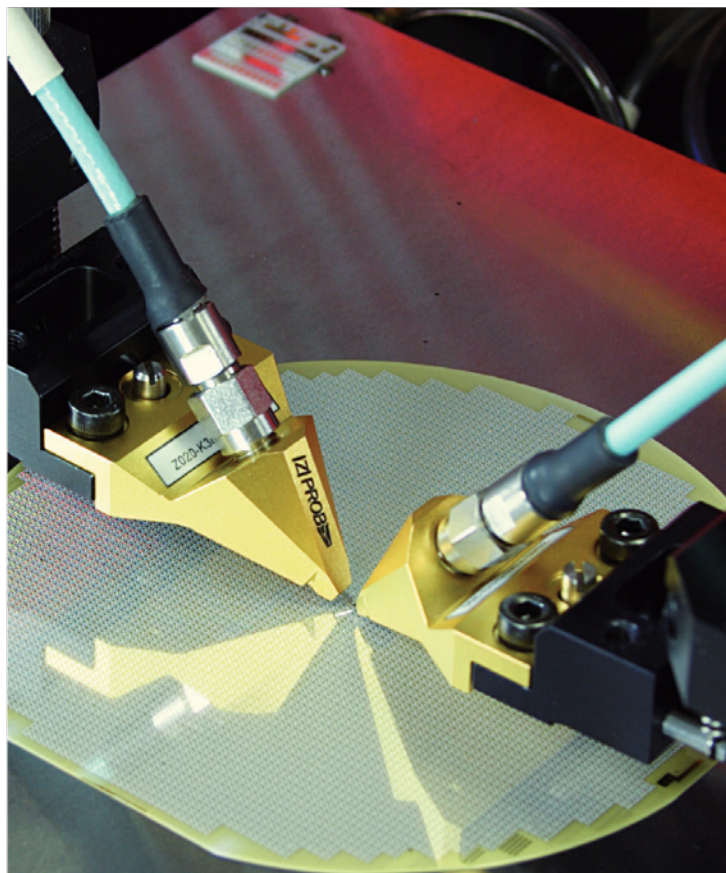
A Ground-Signal (GS) configuration is the most cost-effective RF design as less wafer space is taken up with contact pads. FormFactor's Cascade I²ZI Probe in a GS/SG configuration enables wafer-level testing with the highest accuracy and throughput available while maintaining excellent electrical behavior regardless of footprint size. It is ideal for reliable high-volume production testing, providing proven unsurpassed contact repeatability.

FormFactor's GS/SG I²ZI Probes are configured for probing up to 10 GHz making them ideal for testing SAW devices. Long, independent contact springs touch down precisely yet gently even on metal layer thicknesses down to an ultra-thin 50 nm.

The unique I²ZI Probe design with its independent spring contacts minimizes the impact between tips and pads. Therefore, by design the I²ZI Probe overcomes the limitations of the traditional micro-coax and thin-film style HF probes which typically cause damage after multiple contacts.

The I²ZI Probe has an extremely low contact resistance on gold as well as on aluminum pads. The I²ZI Probe GS/SG

10 GHz is available from 50 μm to 1250 μm standard pitches. A special left/right version 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
- Lowest contact resistance

➤ Mechanical Specifications

Electrical Characteristics

• Characteristic impedance	50 Ω
• Return loss	> 20 dB DC to 10 GHz**
• Insertion loss	< 0.6 dB DC to 10 GHz**
• Maximum RF power	5 W at 10 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	550 μ m to 1250 μ m with 50 μ m increments***

RF connector

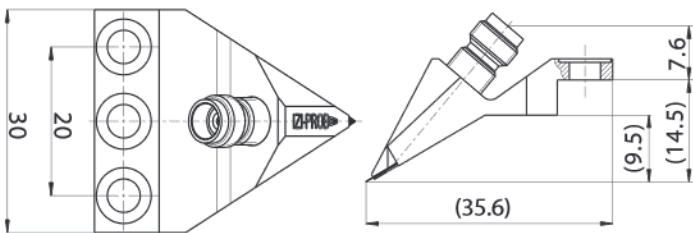
• Type	PC 2.92 mm
• Coupling torque	0.8 Nm to 1.1 Nm (Recommended)
• Outer contact	Stainless steel
• Center contact	CuBe with Au plating
• Insulator	PS

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

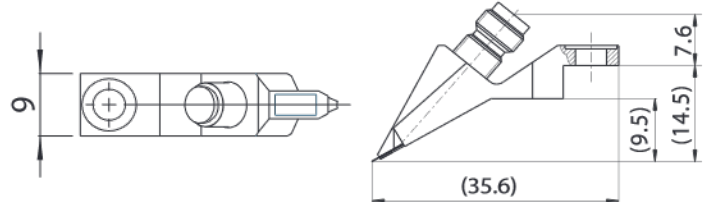
**Typical for probes with pitches from 100 μ m to 200 μ m

***100 μ m to 500 μ m pitch available upon request

➤ Physical Dimensions (measurements in mm)

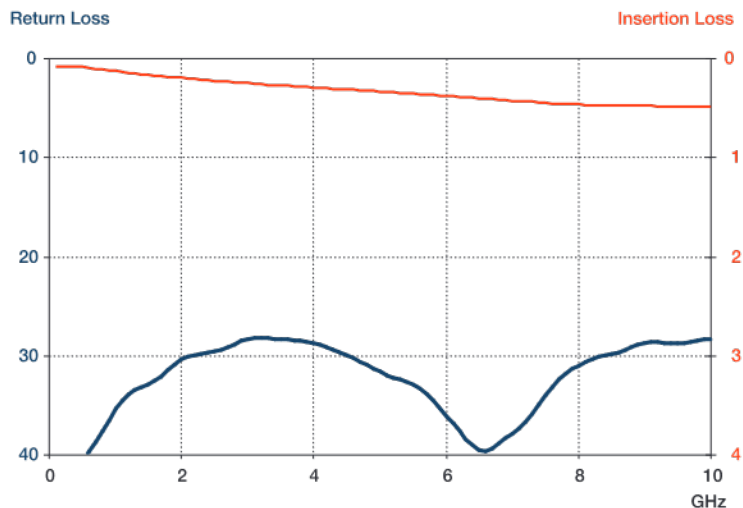


IZI Probe standard case (all dimensions in mm).

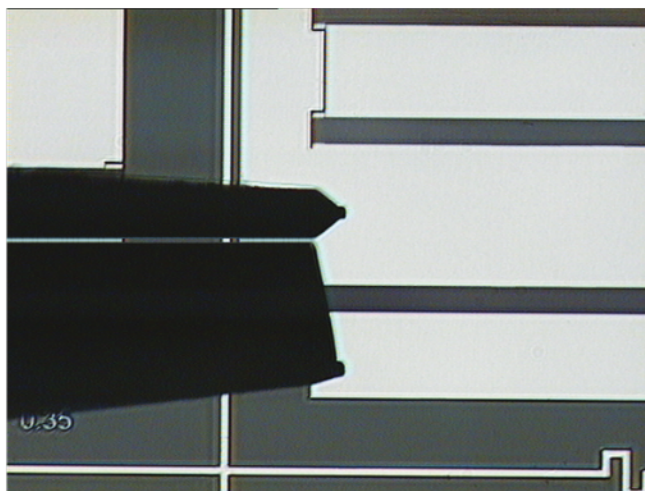


IZI Probe slim case (all dimensions in mm).

> Applications

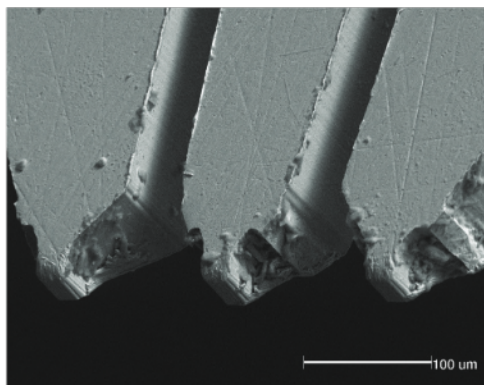


Uncalibrated performance of a IZI Probe 10 K3N GS 150.

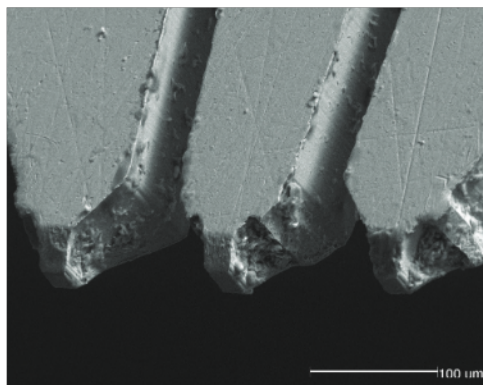


IZI Probe with 400 μm pitch on a SAW filter structure.

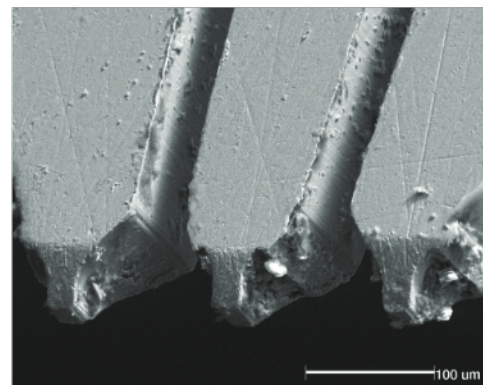
Long lifetime of IZI Probe (Contact material: Al Overtravel: 75 μm)



New IZI Probe (upside-down)



The same probe after 1.5 million touchdowns



The same probe after three million touchdowns

© Copyright 2020 FormFactor, Inc. All rights reserved.
FormFactor and the FormFactor logo are trademarks of FormFactor, Inc. All other trademarks are the property of their respective owners.

All information is subject to change without notice.

ZProbe10-ss-0620

Corporate Headquarters
7005 Southfront Road
Livermore, CA 94551
Phone: 925-290-4000
www.formfactor.com