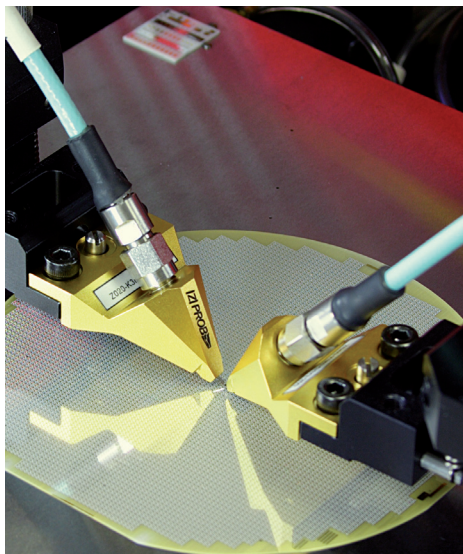


# Cascade Microtech, Inc.

## SPECIFICATION SHEET



Highest accuracy up to 20 GHz  
in GS/SG configuration

# IZI PROBE®

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

A Ground-Signal (GS) configuration is the most cost-effective RF design, as less wafer space is taken up with contact pads. Cascade Microtech's 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

## SPECIFICATIONS\*

### Electrical Characteristics

Characteristic impedance	50 $\Omega$
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 $\Omega$ **

### 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 $\mu\text{m}$ to 200 $\mu\text{m}$ with 25 $\mu\text{m}$ increments, 200 $\mu\text{m}$ to 500 $\mu\text{m}$ with 50 $\mu\text{m}$ 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

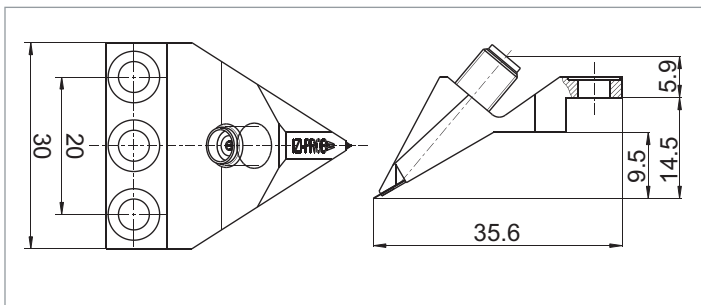
\*Data, design and specification depend on individual process conditions and can vary according to equipment configurations.

Not all specifications may be valid simultaneously.

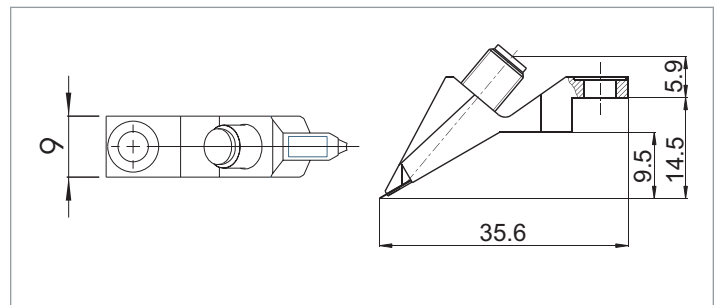
\*\*Typical for probes with pitches from 50  $\mu\text{m}$  to 200  $\mu\text{m}$

\*\*\*1MX technology is available for pitches up to 500  $\mu\text{m}$ .

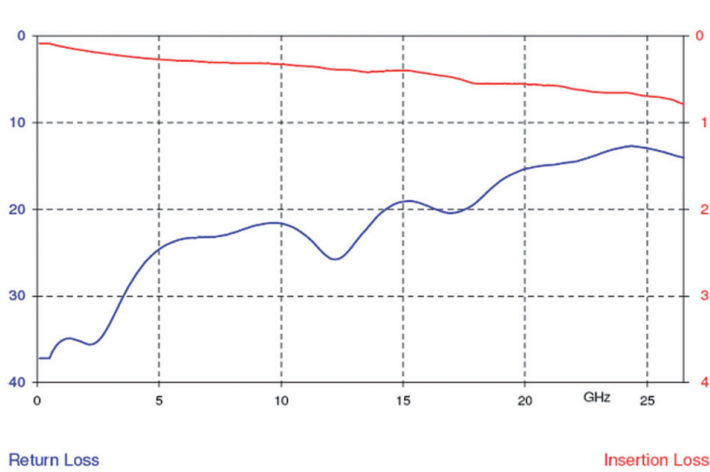
## PHYSICAL DIMENSIONS



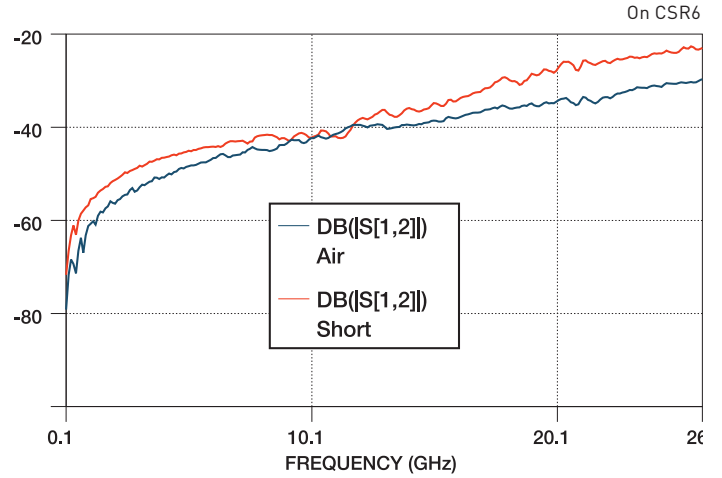
[Z] Probe standard case (all dimensions in mm).



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

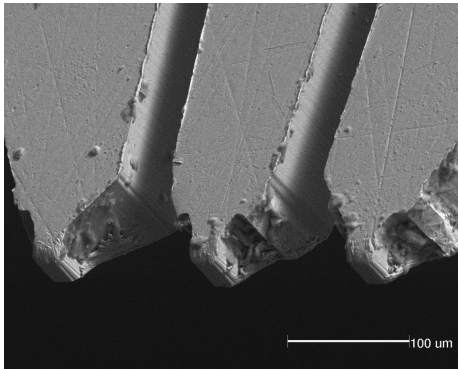


Uncalibrated performance of a IZI Probe 20 K3N GS 150.

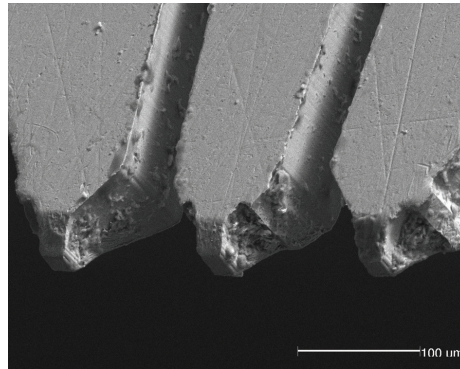


Signal isolation (crosstalk) of two IZI Probes separated by a distance of 150  $\mu\text{m}$ .

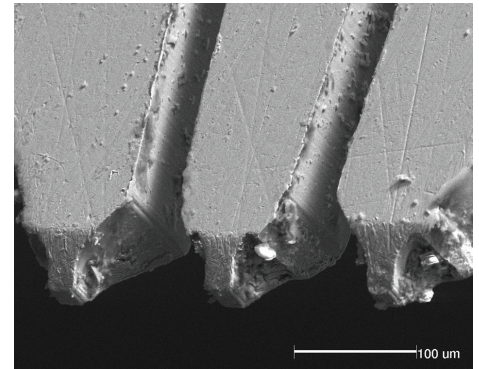
**Long lifetime of IZI Probe (Contact material: Al Overtravel: 75  $\mu\text{m}$ )**



New IZI Probe (upside-down).



The same probe after 1.5 million touchdowns.



The same probe after three million touchdowns.

© Copyright 2010 Cascade Microtech, Inc.  
All rights reserved. Cascade Microtech and IZI Probe are registered trademarks and IMX is a trademark of Cascade Microtech, Inc. All other trademarks are the property of their own respective owners.

Data subject to change without notice

ZProbe20-SS-0310

**Cascade Microtech, Inc.**  
toll free: +1-800-550-3279  
phone: +1-503-601-1000  
email: [cmi\\_sales@cmicro.com](mailto:cmi_sales@cmicro.com)

**Cascade Microtech GmbH**  
phone: +49-811-60005-0  
email: [cmg\\_sales@cmicro.com](mailto:cmg_sales@cmicro.com)

**Cascade Microtech Japan**  
phone: +81-3-5615-5150  
email: [cmj\\_sales@cmicro.com](mailto:cmj_sales@cmicro.com)

**Cascade Microtech Shanghai**  
phone: +86-21-3330-3188  
email: [cmc\\_sales@cmicro.com](mailto:cmc_sales@cmicro.com)

**Cascade Microtech Singapore**  
phone: +65-6873-7482  
email: [cms\\_sales@cmicro.com](mailto:cms_sales@cmicro.com)

**Cascade Microtech Taiwan**  
phone: +886-3-5722810  
email: [cmt\\_sales@cmicro.com](mailto:cmt_sales@cmicro.com)