

InfinityXF™ Probe

RF/mmW Probe Series

PRELIMINARY

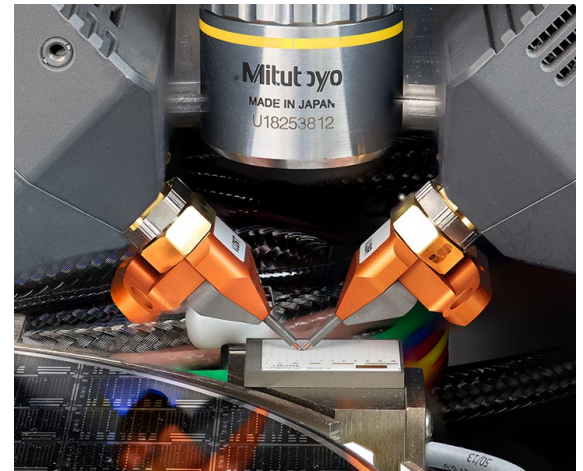
Overview

InfinityXF™ redefines coaxial wafer probing with broadband performance up to 250 GHz, setting a new standard for high-performance S-parameter measurements.

Building on FormFactor's industry-leading Infinity platform, InfinityXF expands the single-sweep coaxial frequency range to DC–250 GHz by integrating new advanced capabilities. Developed in collaboration with Keysight Technologies, it supports their latest broadband PNA-X system and new 250 GHz coaxial frequency extension modules, utilizing Keysight's proprietary 0.5 mm coaxial connectors.

When combined with FormFactor's fully integrated probing systems, InfinityXF enables fast setup and smooth, repeatable measurements across the entire frequency range. This eliminates the need for time-consuming setups that involve multiple frequency extenders, mixed coaxial and waveguide probes, and complex cross-band calibration techniques. As a result, InfinityXF delivers a streamlined and efficient solution for high-frequency wafer probing.

This advanced probing system is ideally suited for broadband modeling validation measurements, high-speed multi-gigabit digital communication systems such as PAM4 448 Gb multi-channel modulation and PCIe Gen6, as well as other high-bandwidth digital signaling, high-frequency advanced wireless system development, and many other applications.



Features / Benefits

Ultra-compact probe body	• Direct docks to Keysight NA5307A. • Minimizes signal path and insertion loss while maintaining excellent return loss.
Flexible tip configurations	• GSG, GSGSG, GSSG styles available. • Pitches from 50 µm to 150 µm supported.
Excellent tip visibility	• Enables precise, repeatable tip placement. • Reduces setup time and user error, and helps ensure accurate S-parameter measurements.
Differential calibration support	• Enabled by WinCal 5.1 differential calibration algorithms. • Improves broadband calibration accuracy. • Multiple new ISS substrates are available to support higher frequencies and differential tip configurations.
Solid rhodium tips	• Provides low, consistent contact resistance. • Offers long-lasting durability and stable performance.

➤ Features / Benefits

Integrated alignment pin	• Maintains planarity during probe mounting to Keysight NA5307A. • Improves mechanical and electrical consistency.
Quick probe arm swapping	• Supports fast probe changes via RFA mounting system. • Enhances workflow flexibility and safety.
Horizontal storage pod	• Ergonomic access to connectors. • Simplifies probe attachment and removal.
Wide temperature compatibility	• Operates from -40°C to +175°C. • Compatible with TopHat and IceShield environments.

➤ Specifications (Preliminary)

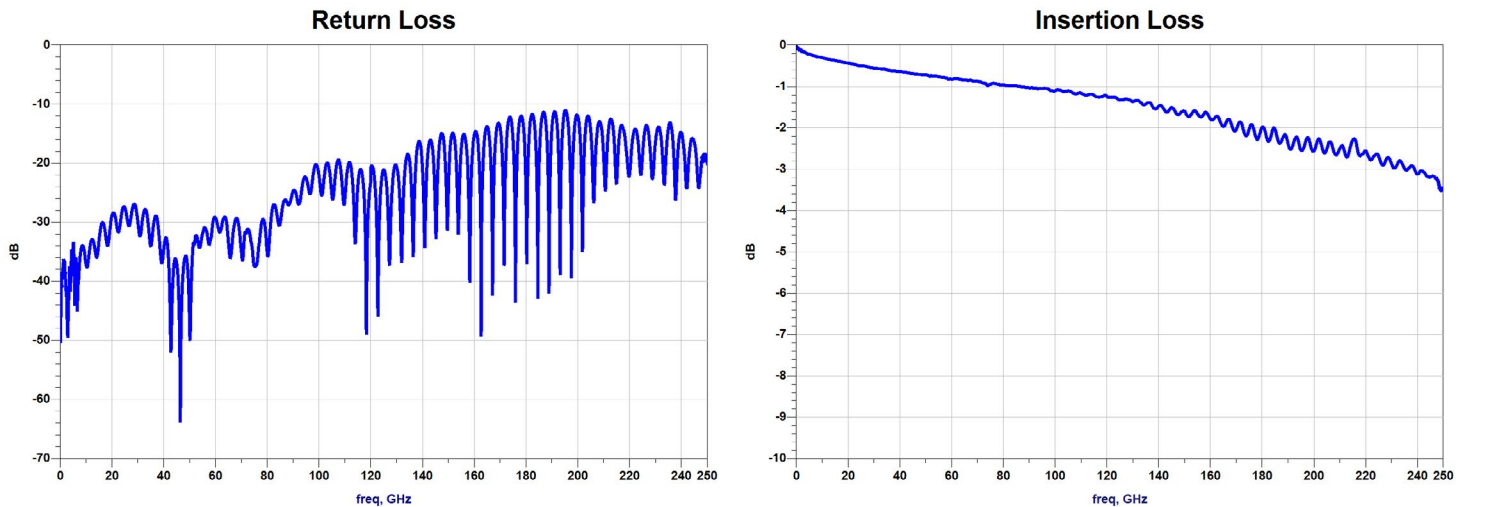
Mechanical Specifications

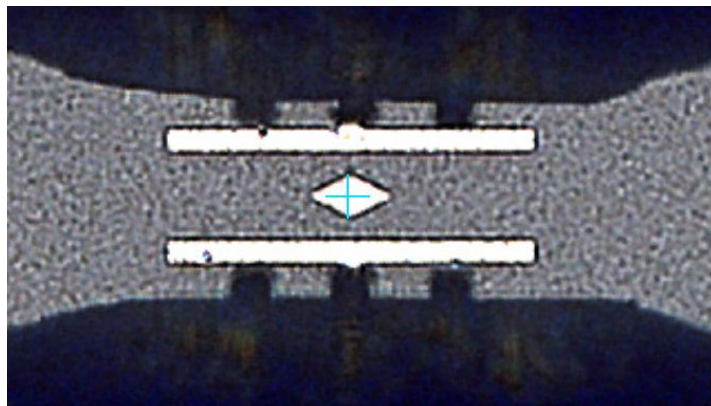
Body Architecture	Ultra-compact, optimized for minimal insertion loss
Tip Architecture	Microstrip / CPW hybrid
Tip Visibility for Alignment	High
Available Tip Styles	GSG, GSGSG, GSSG
Tip Material / Size	Solid Rhodium beam / 13 μm
Connector	0.5 mm Ruggedized NMD Female
Pitch Range	50, 75, 100 μm initially; Roadmap to 50–80 μm (5 μm increments), 90, 125, 150 μm
Temperature Range	-40°C to +175°C

Electrical Specifications

Characteristic Impedance	50 Ω
DC Current	350 mA
DC Voltage	250 V
Contact Resistance (Au / Al)	5 mΩ / 45 mΩ

Typical S-Parameter Performance of an IXF250-A-GSG-50





InfinityXF dual probe, supporting both GSGSG and GSSG configurations.

Great tip visibility enables precise, repeatable tip placement.

➤ Applications

- Modeling and device characterization
- Load pull and noise characterization
- Multi-Gbps system and TIA testing
- Harmonic and spectral purity measurements
- Any application requiring best-in-class broadband coaxial probing

➤ Compatible Probe Stations

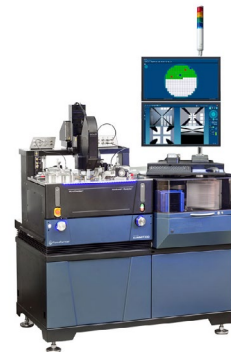
FormFactor's InfinityXF is compatible with the EVOLVITY, CM300xi, and SUMMIT200 Probe Stations.



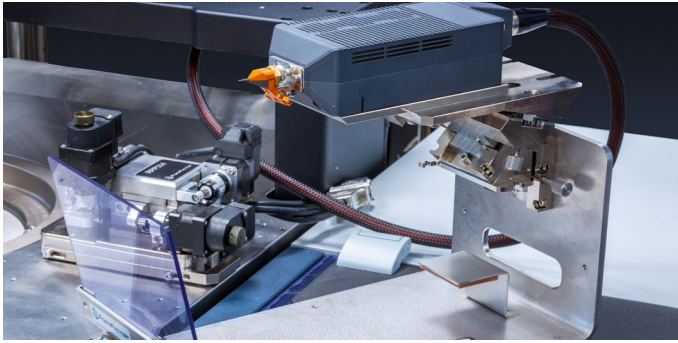
EVOLVITY™ 300



CM300xi



SUMMIT200



Fully Compatible with Modular RF Probe Arms and Storage Pod

FormFactor's modular RF probe arms are fully compatible with the InfinityXF and Keysight NA5307A, allowing for fast and safe swapping with other probe arms for RF, millimeter-wave, Terahertz, and load-pull applications.

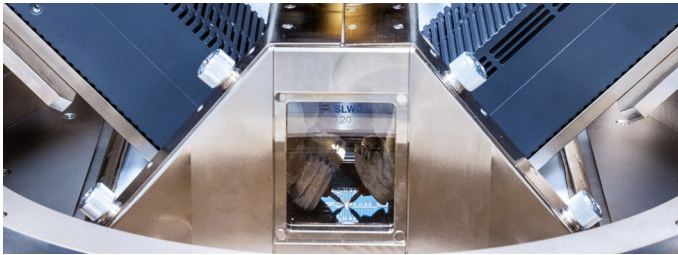
Positioner bodies can be either motorized or manual. When not in use, fully populated probe arms can be safely stored in a storage pod.

Probe arms can be mounted in a horizontal position for improved safety and ergonomics during probe installation.



Fully Compatible with Autonomous RF

The InfinityXF is fully compatible with FormFactor's exclusive Autonomous RF Measurement Assistant, which, together with WinCal, delivers superior probe contact repeatability, continuous calibration monitoring, and automatic re-calibration. This enables true unattended 24/7 testing and reduces measurement uncertainty.



InfinityXF is compatible with EMI Shielded TopHat enclosure and open environment IceShield™ insert for over temperature measurements.

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