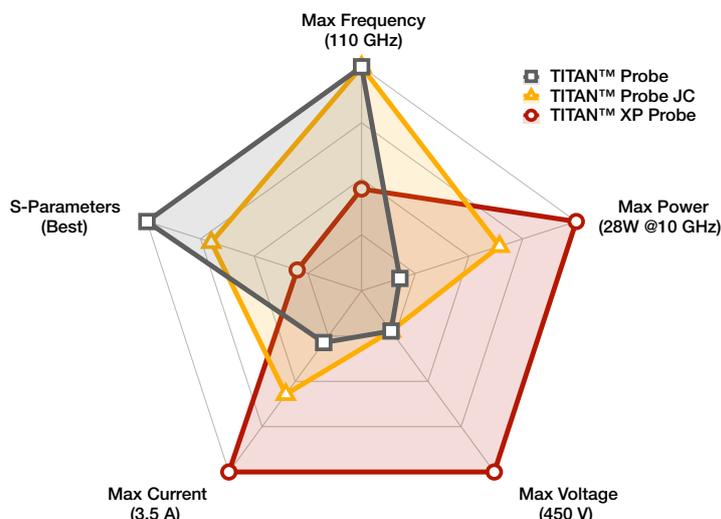


# TITAN™ Probe Family for High Power Applications



## TITAN™ Probe JC and TITAN™ XP Probe

MPI Corporation presents the TITAN™ Probe JC and TITAN™ XP Probe, designed to address intricate challenges in high-power RF device characterization. The TITAN™ High Power Probes were meticulously developed to deliver high power, current, and voltage signals for precise device under test (DUT) analysis.

### TITAN™ XP Probe Series

The TITAN™ XP Probe series is optimized for high-power RF applications, capable of delivering continuous wave (CW) power of up to 28 W to the DUT at 10 GHz frequency and up to 3.5 Amps current. Available in 26, 40, and 50 GHz versions. The 40 GHz TITAN™ XP Probe model is qualified for Low-PIM (Low Passive Intermodulation) characterization.

### JC Option

The JC option enhances the standard 26, 40, 50, 67, and 110 GHz TITAN™ Probes by extending the maximum current to 2 A and RF power to 18 W CW at 10 GHz, while maintaining the features of our standard RF probe design such as 30 and 20  $\mu\text{m}$  wide contacts and top-tier S-parameter measurement functionality. The JC option is well-suited for measurement scenarios involving integrated high-power RF and S-Parameter characterization up to 110 GHz, small DUT pads, and high DUT temperatures up to 200 °C.

### Low-Loss Configuration

All models, including the TITAN™ Probe, TITAN™ Probe JC, and the TITAN™ XP Probe, are available in a Low-Loss (LL) configuration. The Low-Loss configuration ensures precision, particularly for modulated signals. Notably, the Low-Loss configuration guarantees the highest gamma and effectively mitigates impedance skew during wideband signal measurements. Phase errors, commonly observed in modulated signals, are influenced by factors like probe length and electrical delays, which are minimized by the Low-Loss probe's physically smaller, more compact design.

**TITAN™ XP Probe Characteristics**

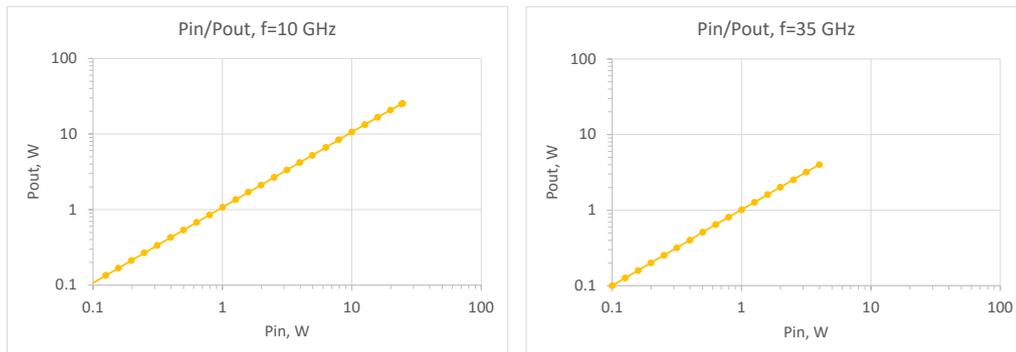
**Electrical Characteristics**

Characteristic impedance	50 Ω
DC current	≤ 3.5 A
DC voltage	≤ 450 V
RF power, @10 GHz	≤ 28 W
Available models	26 GHz, 40 GHz, 50 GHz
Low-Loss LL mode	Available

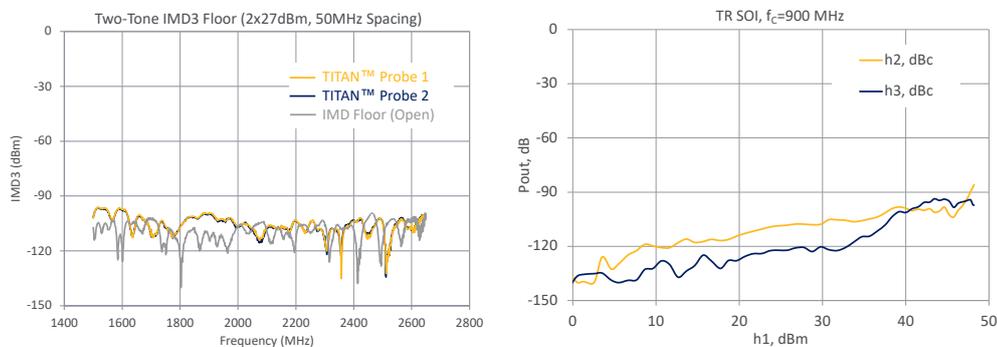
**Mechanical Characteristics**

Pitch range	100 μm, 125 μm, 150 μm, 200 μm, 250 μm
Tip width	40 μm
Tip configuration	GSG
Connector style	A-Style: 45-degree
Max DUT temperature	≤ 200 °C

Typical Pin/Pout test results measured on a thru standard at 10 GHz (below, left) and at 35 GHz (below, right) on a power characterization test bench configured with T26XP-GSG0100 and T40XP-GSG0100 probes, respectively.



The TITAN™ XP Probe 40 GHz model is qualified for the low-PIM measurement tasks, such as the two-tone third-harmonic inter-modulation distortion IMD3 (below, left), or Pin/Pout harmonic test (below, right) on the SOI thru device, respectively.



**TITAN™ Probe JC Characteristics**

**Electrical Characteristics**

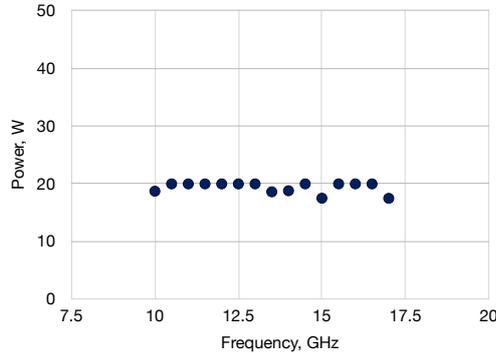
Characteristic impedance	50 Ω
DC current	≤ 2 A
DC voltage	≤ 100 V
RF Power, @10 GHz	≤ 18 W
Available models	26 GHz, 40 GHz, 50 GHz, 67 GHz, 110 GHz
Low-Loss LL mode	Available

**Mechanical Characteristics**

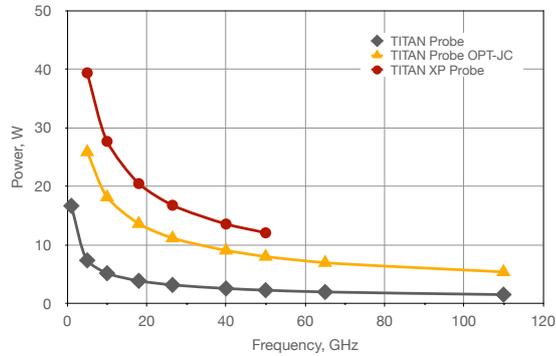
Pitch range*	From 50 μm to 450 μm with 25 μm step From 450 μm to 1250 μm with 50 μm step
Tip width	30 μm (standard), 20 μm (reduced contact, RC)
Tip configuration	GSG, GS, SG
Connector style	A-Style: 45-degree; V-Style: 90-degree
Max DUT temperature	≤ 200 °C

\*Pitch range offering depends on the probe frequency model and its tip configuration

**Example of the Pin/Pout test on the bench configured with the T40A-GSG0100-JC probes**



**The nominal RF Power for the TITAN™ Probe, TITAN™ Probe JC, and TITAN™ XP Probe**

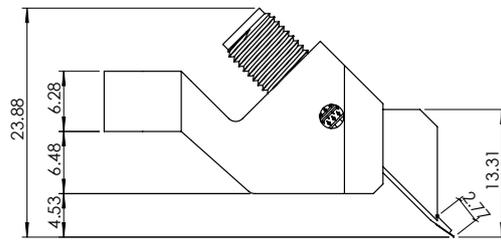
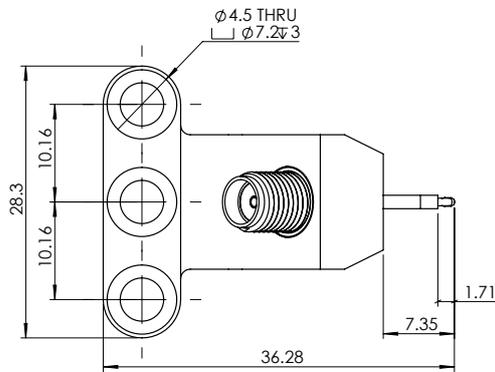


**Application Recommendations**

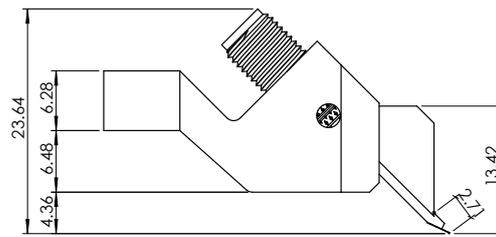
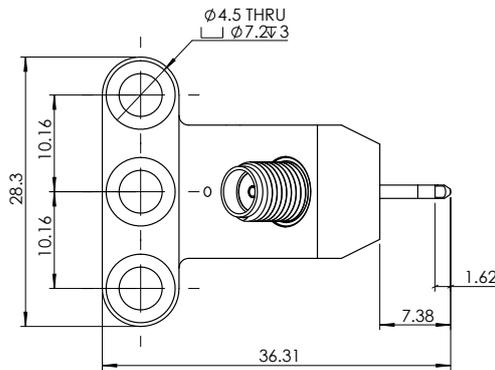
	TITAN™ Probe	TITAN™ Probe JC	TITAN™ XP Probe
Pin/Pout	○	◐	●
S-parameters	●	◐	○
High-temperature	○ 175 °C	◐ 200 °C	● 200 °C
High-current	○ 1 A	◐ 2 A	● 3.5 A
High-voltage	○ 100 V	○ 100 V	● 450 V
Small pads	●	●	○

**BODY DIMENSIONS**

**Probe JC**



**XP Probe**



Unit: mm

Note: Probe characteristics based upon testing conducted at room temperature. Results may vary depending upon test conditions, device temperature, device type, duty cycle, and combination of RF power, current, and voltage. Please contact MPI for assistance regarding your specific testing needs and solutions.

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