

## High-Voltage Differential Probes — DP0001A

- High voltage differential probe for high voltage, high speed power device testing
- Measure up to 2 kV mains isolated, 1 kV CAT III and 400 MHz
- Unmatched electrical performance - flat frequency response and high CMRR



DP0001A high voltage differential probe

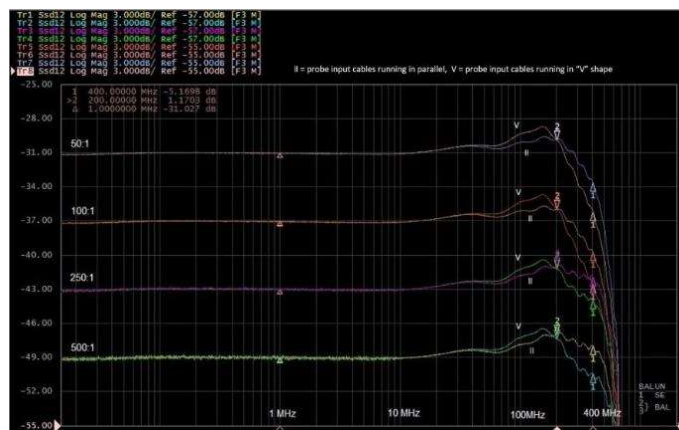
The DP0001A is a 400 MHz high voltage differential probe with 2 kV mains isolated or 1 kV CAT III rating designed for making accurate high-voltage power measurements required for testing today's WBG power devices, power converters or motor drives. Thanks to high bandwidth and low loading characteristics, the probe can accurately measure 1 kV transient pulse with as fast as 1.2 nsec of edge speed in modern switching power supplies. Also, high CMRR simplifies the measurement challenges found in noisy, high common-mode power electronics environments.

When used with an Infiniium oscilloscope, the probe supports an auto-switchable attenuation ratio that automatically sets the probe attenuation to the value necessary to make the dynamic range of the probe greater than or equal to the level required to measure the current input signal. A variety of accessories are shipped with this probe to suit various DUT connection scenarios and to make the connection to compact target devices possible.

The differential probes have a differential input resistance of 10 M $\Omega$  and low input capacitance of 2 pF to minimize circuit loading. The DP0001A is compatible with Keysight oscilloscopes with a 50- $\Omega$  AutoProbe interface, which configures the scope for the probe automatically.

When probing differential signals inside of environmental chambers at extreme temperatures, Keysight offers the N7013A extreme temperature extension kit. The N7013A is compatible with the DP0001A with a de-rated bandwidth of 70 MHz. The 70 cm long differential cable set and accessories can operate in temperatures ranging from -40 °C to +85 °C.

The probe is compatible with Infiniium MXR, S, 9000A and the high-end models including 90000X, V, Z, UXR <=33 GHz (with N5442A adapter).




Frequency response of DP0001A



DP0002A Accessory kit for DP0001A

## DP0001A characteristics and specifications

Characteristics	Value measured at the four supported attenuation modes				
	50:1	100:1	250:1	500:1	
<b>Probe bandwidth (-3 dB)<sup>6</sup></b>					
	400 MHz	400 MHz	400 MHz	400 MHz	
<b>Risetime (10% - 90%)</b>					
Input voltage 50 V	1.2 nsec	1.2 nsec	875 psec	875 psec	
Input voltage 500 V	Not Applicable	Not Applicable	1.2 nsec	1.2 nsec	
Input voltage 1000 V	Not Applicable	Not Applicable	Not Applicable	1.2 nsec	
<b>Maximum rated input voltage</b>					
Mains isolated <sup>1</sup> 	2000 Vrms				
	6000 V Overvoltage Transient				
CAT III <sup>2</sup>	1000V				
Noise (Vrms <sup>3</sup> / spectral density) (Referred to the input)	180 mV / 9 µV/rt (Hz)	180 mV / 9 µV/rt (Hz)	280 mV / 14 µV/rt (Hz)	300 mV / 15 µV/rt (Hz)	
Typical Propagation Delay	10 ns				
Maximum Differential Input Voltage (DC + AC peak)	± 200 V	± 400 V	± 1000 V	± 2000 V	
Common mode voltage	± 2000 Vpk (1400 Vrms)				
DC gain accuracy <sup>6</sup>	± 0.7 %	± 0.7 %	± 0.7 %	± 0.35 %	
Offset drift <sup>4</sup>	150 µV / °C	150 µV / °C	40 µV / °C	40 µV / °C	
<b>Input impedance</b>					
Each input to ground	5 MΩ    4pF				
Differential input impedance	10 MΩ    2pF				
Input coupling of the oscilloscope <sup>5</sup>	AutoProbe Interface 50 Ω				
Typical CMRR (dB)	DC	> 80	> 80	> 80	> 80
	100 kHz	75	70	65	60
	1 MHz	75	70	65	60
	10 MHz	70	58	54	50
	100 MHz	45	40	35	32
Standard accessories	Spring tips (qty 4), contact pins (qty 10), probe tip adapters (qty 2), safety alligator clips (qty 2), alligator plunger clips (qty 2), spade terminals (qty 2), pincer clips (qty 2), hook tip adapters (qty 2), coupler f-f (qty 1)				

1. Mains isolated is for measurements performed on circuits not directly connected to a mains supply.
2. Measurement category III is for measurements performed in the building installation.
3. Broadband Noise, Bandwidth 400 MHz.
4. Referred to the output of the probe.
5. Must be met to achieve the best performance and to avoid damage to the probe.
6. DC gain and bandwidth are the only warranted specifications. All others are typical.

## DP0001A characteristics and specifications

Model number	Description
DP0001A	400 MHz high voltage differential probe
DP0002A	Accessory kit for DP0001A
N7007A	Extreme temperature probing kit for differential probe, probe BW derated to < 70 MHz with the extension cable used