N2792A 200 MHz and N2793A 800 MHz differential probes

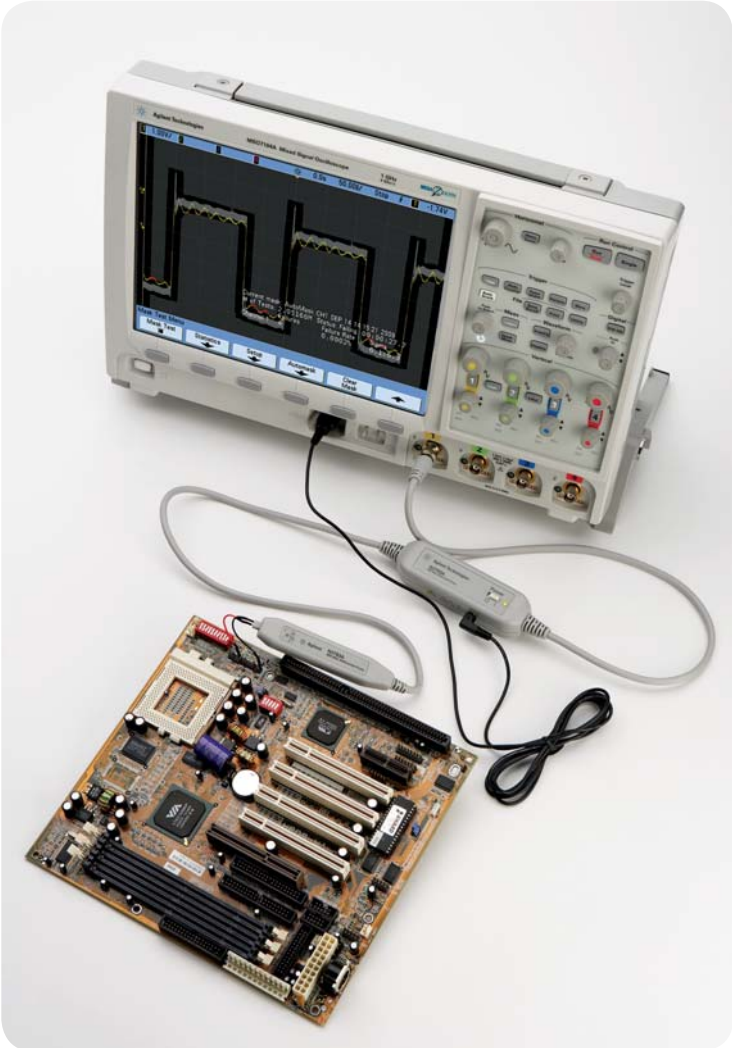
Data sheet

Introduction

The N2792A and N2793A differential probes provide the superior general-purpose differential signal measurements required for today's high-speed power measurements, vehicle bus measurements and digital system designs.

The N2792A and N2793A differential probes offer a 10:1 attenuation setting, allowing them to be used for a broad range of applications. The probes come with various probe tip accessories for use with small and large components in tight places.

The differential probes have an input resistance of 1 MΩ (for N2792A) and 200 kΩ (for N2793A) and a low input capacitance of 3.5 pF (for N2792A) and 1 pF (for N2793A) to minimize circuit loading. Both N2792A and N2793A probe are compatible with any oscilloscope with 50Ω BNC inputs. The probe can be powered by any USB port on a scope or computer, or by an internal battery (1x 9V battery included).



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N2792A 200 MHz differential probe – Plots

Figure 1. N2792A 200 MHz differential probe with standard accessories

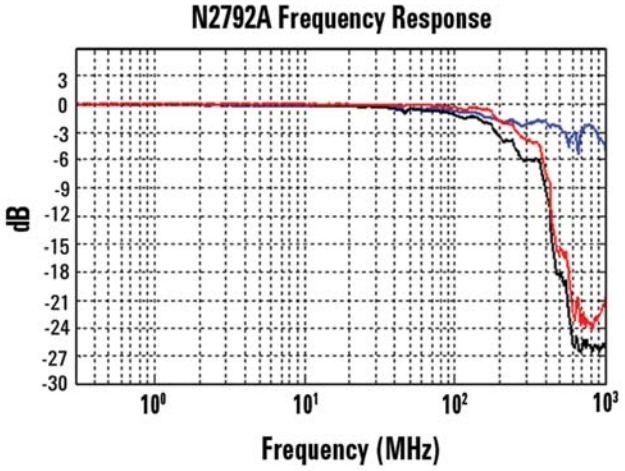

Figure 2 Vout/Vin vs. Frequency response of N2792A (red = Vout/Vin, blue = Vin, black = Vout)

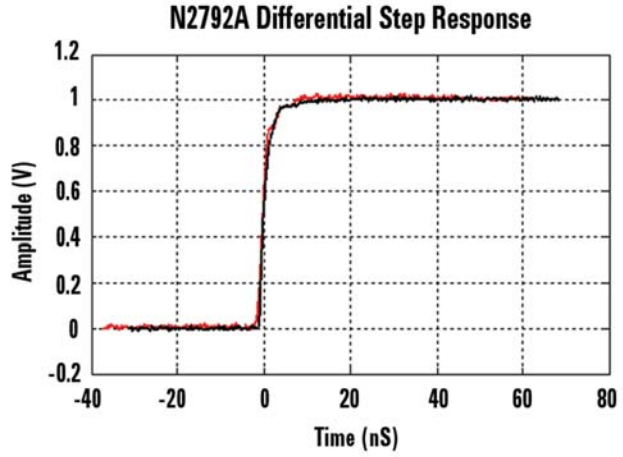

Figure 3. Normalized differential step response of N2792A (red = measured step response, rise time = 3.5 nsec for 10-90%, black = input step signal, 3.5 nsec for 10-90%)

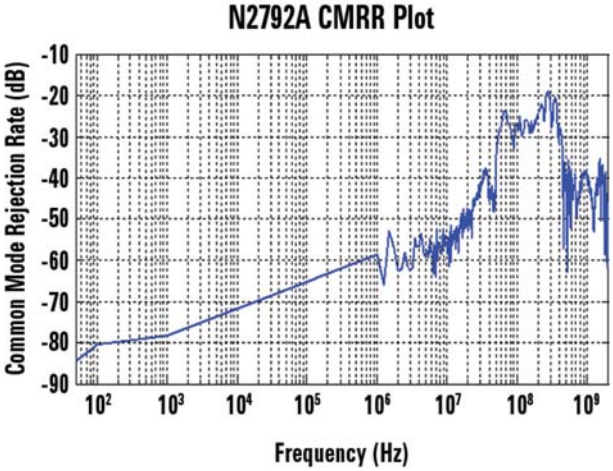

Figure 4. Frequency response (Vout/Vin) of N2792A when inputs driven in common (Common Mode Rejection)

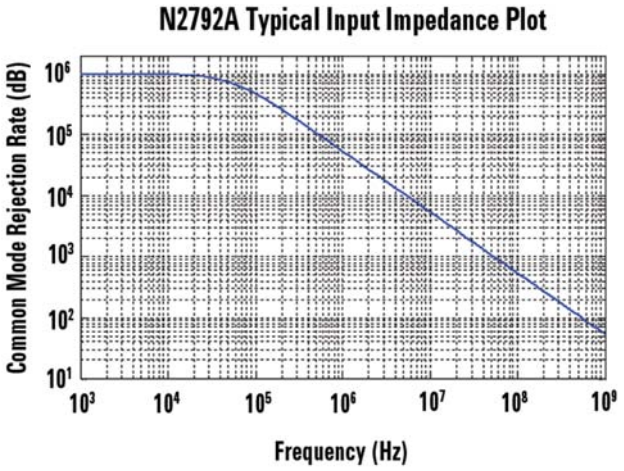

Figure 5. Input impedance vs. Frequency of N2792A

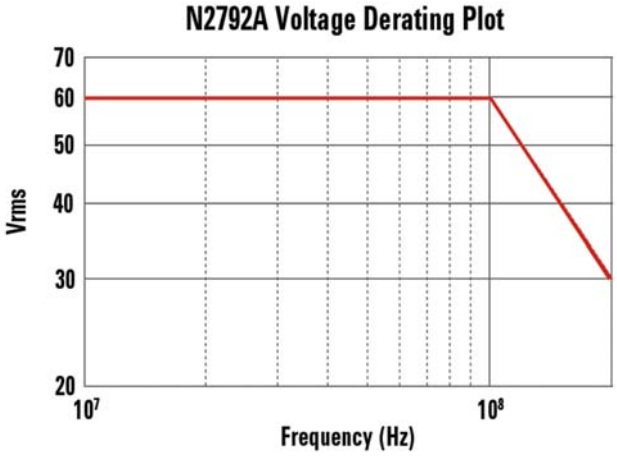

Figure 6.Voltage derating curve of N2792A (voltage between either input and ground)

N2793A 800 MHz differential probe – Plots

Figure 7 N2793A 800 MHz differential probe with standard accessories

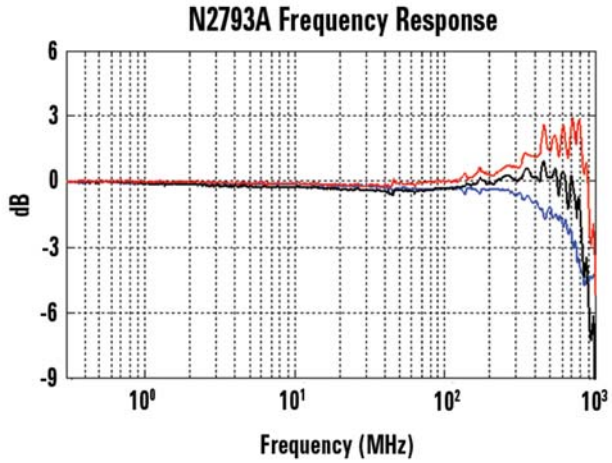

Figure 8. Vout/Vin vs. Frequency response of N2793A (red = Vout/Vin, blue = Vin, black = Vout)

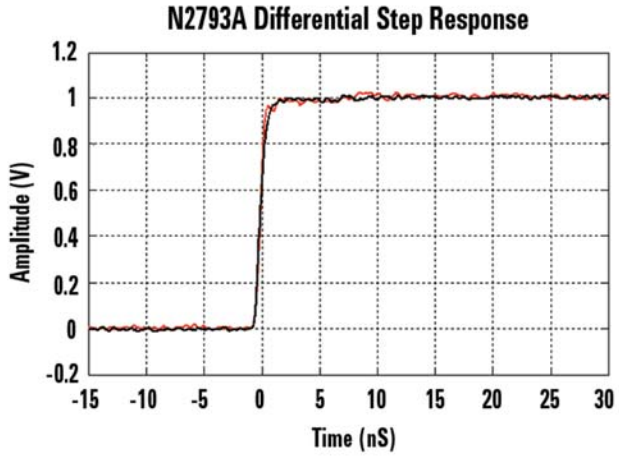

Figure 9. Normalized differential step response of N2793A (red = measured step response, rise time = 900 psec for 10-90%, black = input step signal, 900 psec for 10-90%)

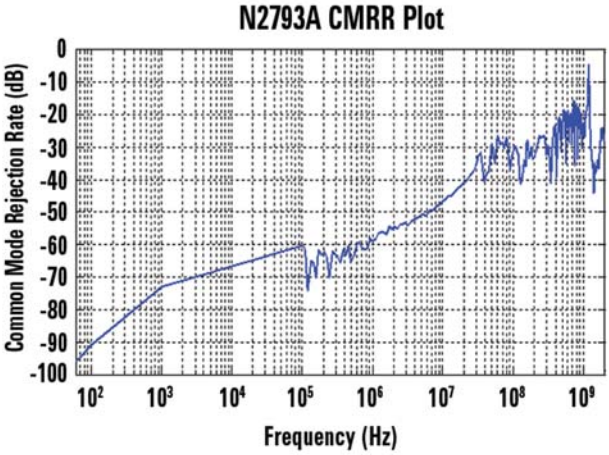

Figure 10. Frequency response (Vout/Vin) of N2793A when inputs driven in common (Common Mode Rejection)

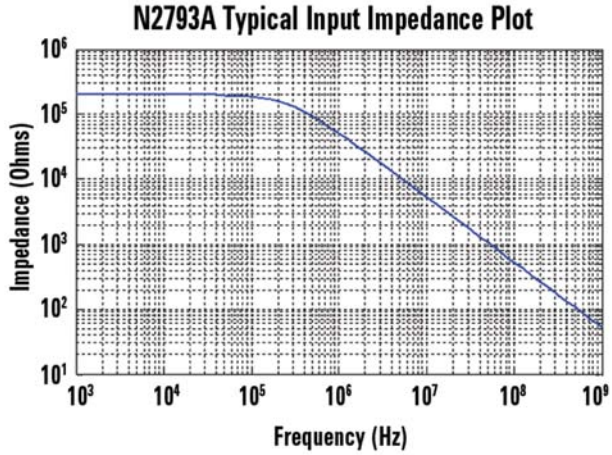

Figure 11. Input impedance vs. Frequency of N2793A

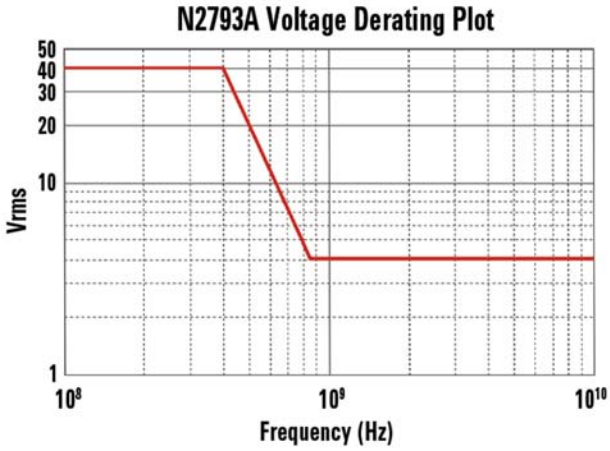

Figure 12. Voltage derating curve of N2793A (voltage between either input and ground)

Figure 13. N2793A differential probe with its standard case

Figure 14. Use the N2793A with a DC blocking capacitor to block out unwanted DC components of the input signal.

Figure 15. The variable pitch spacing adapter that fits over the N2793A allows you to probe two adjacent IC leads or test points easily.

Performance characteristics and specifications

Characteristics	N2792A	N2793A
Bandwidth (-3dB)	200 MHz	800 MHz
Attenuation	10:1	10:1
Probe Rise time (10% - 90%)	1.75 nsec	437 psec
Gain accuracy (% of reading)	±2%	±2%
Absolute Maximum Rated Input Voltage (each side to ground)	±60 V	±40 V
Maximum Differential Input Voltage (DC + AC peak)	±20 V	±15 V
Maximum Common Mode Input Voltage	±60 V	±30 V
Input Resistance // Capacitance	500 kΩ // 7 pF (each side to ground) 1 MΩ // 3.5 pF (between inputs)	100 kΩ // 2 pF (each side to ground) 200 kΩ // 1 pF (between inputs)
Output Voltage Swing	±2 V (driving 50 Ω scope input)	±1.5 V (driving 50 Ω scope input)
Offset (typical)	±2 mV	±5 mV
Offset adjustment range	-95 mV to +95 mV	-20 mV to +20 mV
AC CMRR	> -80 dB at 50/60 Hz > -50 dB at 10 MHz	> -60 dB at 50/60 Hz > -15 dB at 500 MHz
Power Requirements	One 9V battery or USB power cord (5 V to 9V, 90mA)	One 9V battery or USB power cord (5 V to 9V, 90mA)
Approximate Battery Life	7.5 hours (alkaline battery)	4.5 hours (alkaline battery)
Battery / Power Cord	The supplied voltage must be less than 12 V and greater than 4.5 V or else the probe could be damaged	The supplied voltage must be less than 12 V and greater than 4.5 V or else the probe could be damaged
Ambient operating temperature	-10 to +40 deg °C	-10 to +40 deg °C
Ambient nonoperating temperature	-30 to +70 deg °C	-30 to +70 deg °C
Operating humidity	25 - 85% RH	25 - 85% RH
Non-operating humidity	25 - 85% RH	25 - 85% RH
Operating altitude	3,000 m (9,842 feet)	3,000 m (9,842 feet)
Non-operating altitude	15,300 m (50,196 feet)	15,300 m (50,196 feet)
Pollution Degree	2	2
Approximate weight (not including battery and accessories)	170 g (6 oz)	170 g (6 oz)
BNC cable length (output)	120 cm (47 inches)	120 cm (47 inches)
Input lead length	15 cm (5.9 inches)	15 cm (5.9 inches)
Housing dimension (LxWxH)	111mm x 22mm x 14mm (4.4 in x 0.9 in x 0.6 in)	111mm x 22mm x 14mm (4.4 in x 0.9 in x 0.6 in)

Performance characteristics and specifications

Characteristics	N2792A	N2793A
Standard accessories	- 2 hook clips (black and red) - 2 alligator clips (black and red) - USB power cord (2m) - 9V battery - user's guide	- 2 pincer clips (black and red) - 2 micro IC clips (black and red) - 2 extension leads, 0.8 mm J-P, 5 cm (black and red) - 2 extension leads, 0.8 mm J-P, 10 cm (black and red) - 2 DC blocking capacitors (30 kHz - 1 GHz, 100V max) - 2 variable pitch spacing adapters - 6 single signal pins, 0.8 mm - USB power cord (2m) - 9V battery - user's guide
Regulatory markings	CEI/IEC61010-031 CAT II	CEI/IEC61010-031 CAT II

Ordering information

Product Number	Description
N2792A	200 MHz differential probe
N2792-68700	Differential probe accessory kit for N2792A (including 2 each clip hook, 2 each alligator clip and USB power cord)
N2793A	800 MHz differential probe
N2793-68700	Differential probe accessory kit for N2793A (including 2 each pincer clip, 2 each micro IC clip, 2 each extension lead, 0.8 mm J-P, 5 cm, 2 each extension lead, 0.8 mm J-P, 10 cm, 2 dual signal pins, 16.8 mm, 2 dual signal pins, 12.8 mm, 6 single signal pins, 0.8 mm, USB power cord)

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Product specifications and descriptions in this document subject to change without notice.

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