

N2792A 200 MHz and N2793A 800 MHz differential probes

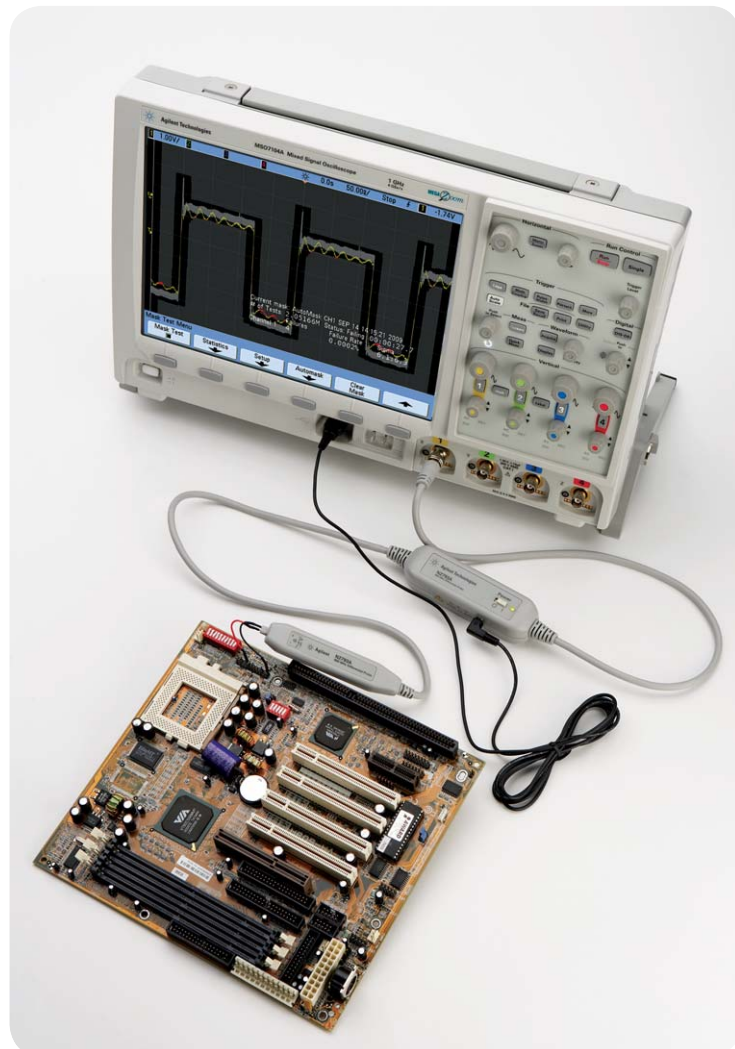
Data sheet

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 M Ω (for N2792A) and 200 k Ω (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 50 Ω 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).



Agilent Technologies

N2792A 200 MHz differential probe – Plots

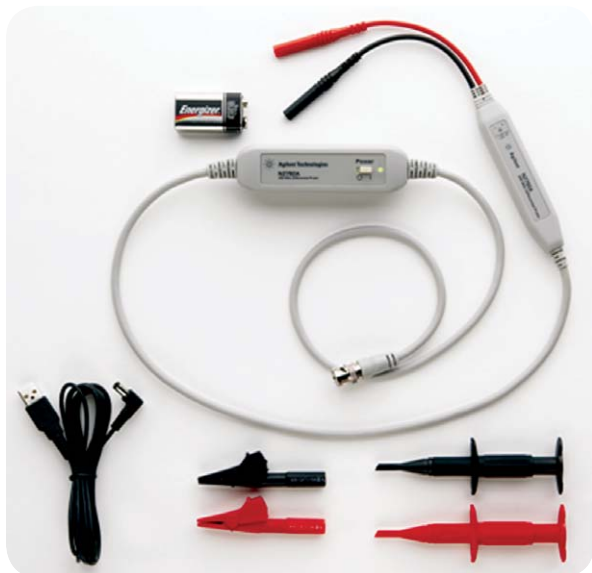


Figure 1. N2792A 200 MHz differential probe with standard accessories

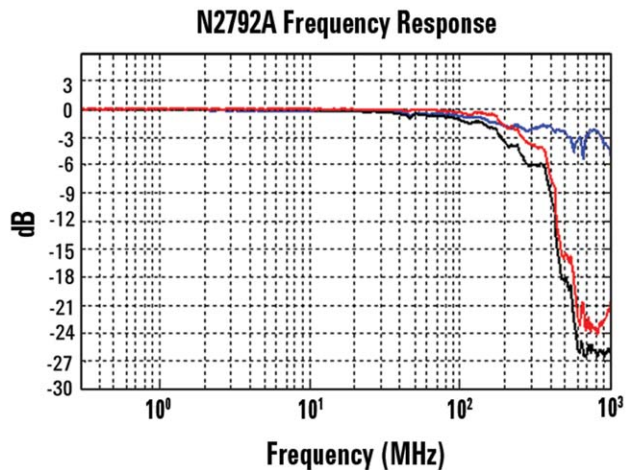


Figure 2 V_{out}/V_{in} vs. Frequency response of N2792A (red = V_{out}/V_{in} , blue = V_{in} , black = V_{out})

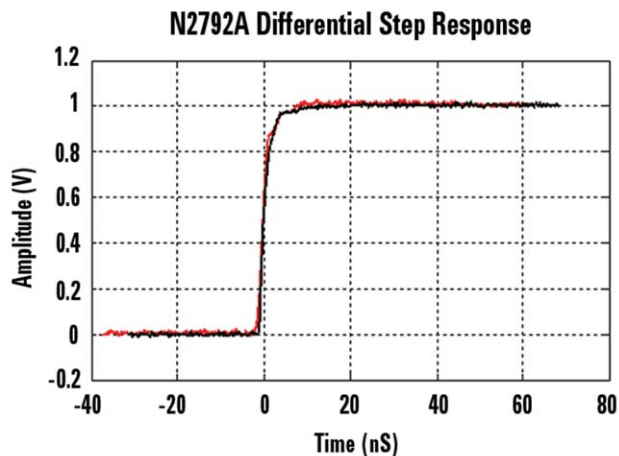


Figure 3. Normalized differential step response of N2792A (red = measured step response, rise time = 3.5 nsec for 10-90%, black = input step signal, 3.5 nsec for 10-90%)

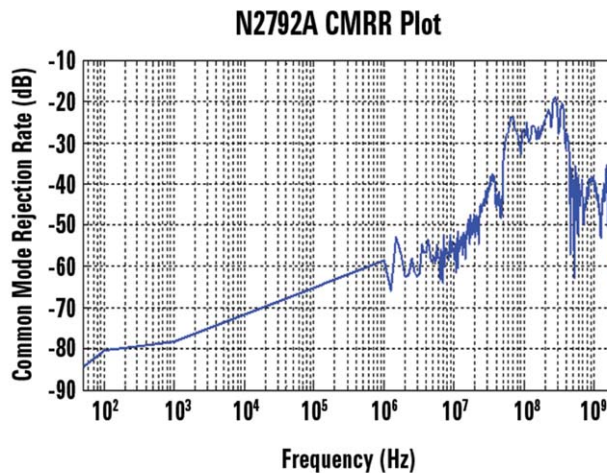


Figure 4. Frequency response (V_{out}/V_{in}) of N2792A when inputs driven in common (Common Mode Rejection)

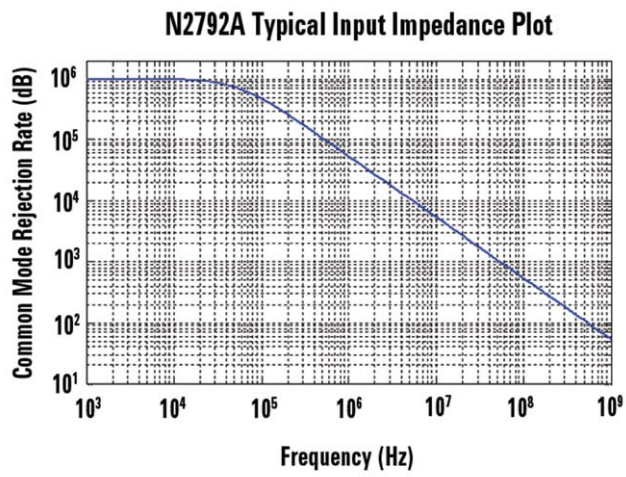


Figure 5. Input impedance vs. Frequency of N2792A

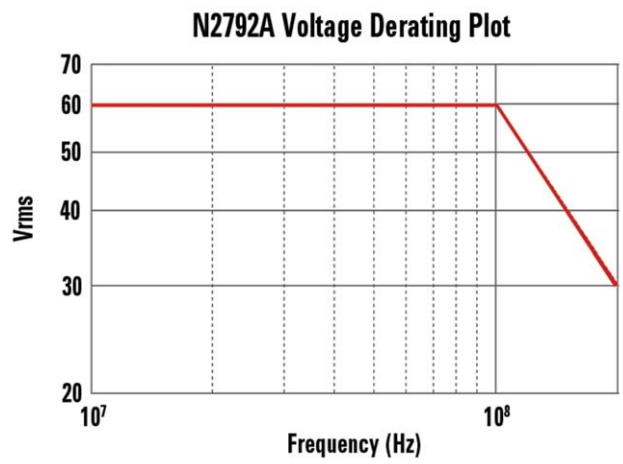


Figure 6. Voltage derating curve of N2792A (voltage between either input and ground)

N2793A 800 MHz differential probe – Plots



Figure 7 N2793A 800 MHz differential probe with standard accessories

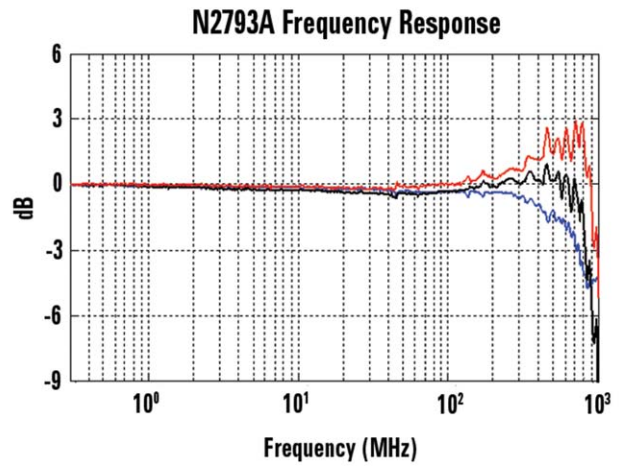


Figure 8. V_{out}/V_{in} vs. Frequency response of N2793A (red = V_{out}/V_{in} , blue = V_{in} , black = V_{out})

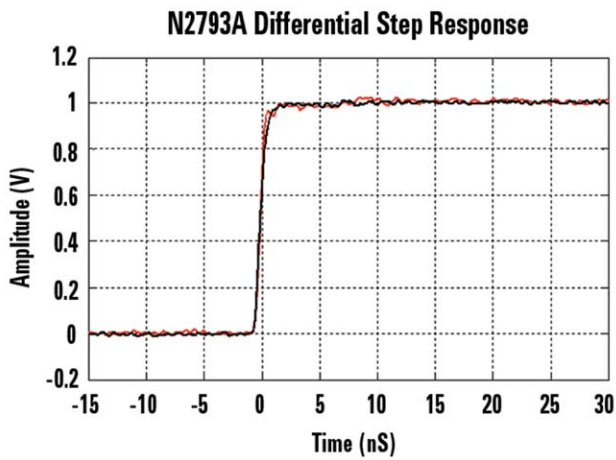


Figure 9. Normalized differential step response of N2793A (red = measured step response, rise time = 900 psec for 10-90%, black = input step signal, 900 psec for 10-90%)

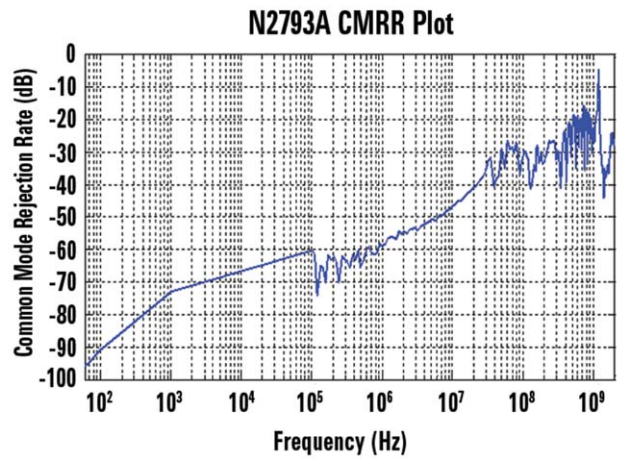


Figure 10. Frequency response (V_{out}/V_{in}) of N2793A when inputs driven in common (Common Mode Rejection)

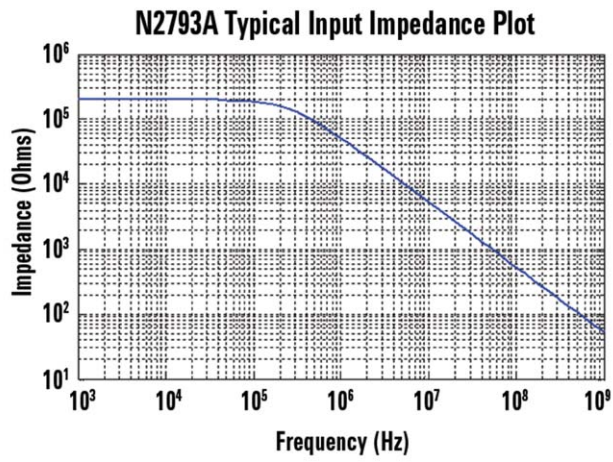


Figure 11. Input impedance vs. Frequency of N2793A

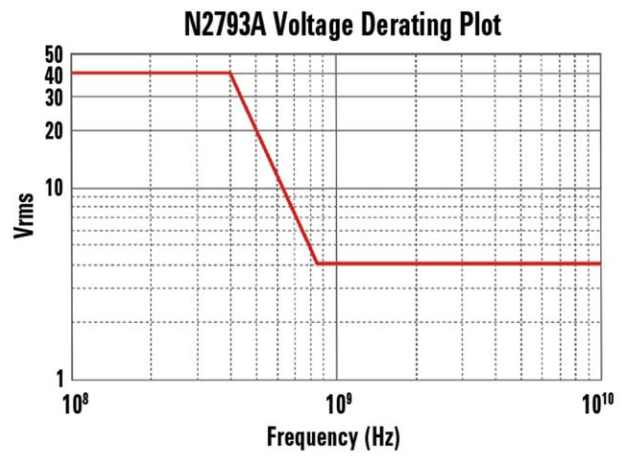


Figure 12. Voltage derating curve of N2793A (voltage between either input and ground)



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
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	<ul style="list-style-type: none"> - 2 hook clips (black and red) - 2 alligator clips (black and red) - USB power cord (2m) - 9V battery - user's guide 	<ul style="list-style-type: none"> - 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 dual signal pins, 16.8 mm - 2 dual signal pins, 12.8 mm - 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)



Agilent Email Updates

www.agilent.com/find/emailupdates

Get the latest information on the products and applications you select.



Agilent Direct

www.agilent.com/find/agilentdirect

Quickly choose and use your test equipment solutions with confidence.

Agilent Channel Partners

www.agilent.com/find/channelpartners

Get the best of both worlds: Agilent's measurement expertise and product breadth, combined with channel partner convenience..



www.lxistandard.org

LXI is the LAN-based successor to GPIB, providing faster, more efficient connectivity. Agilent is a founding member of the LXI consortium.

Windows® is a U.S. registered trademark of Microsoft Corporation.

Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment throughout its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements.

Agilent offers a wide range of additional expert test and measurement services for your equipment, including initial start-up assistance onsite education and training, as well as design, system integration, and project management.

For more information on repair and calibration services, go to

www.agilent.com/find/removealldoubt

www.agilent.com

www.agilent.com/find/differential

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

www.agilent.com/find/contactus

Americas

Canada	(877) 894-4414
Latin America	305 269 7500
United States	(800) 829-4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Thailand	1 800 226 008

Europe & Middle East

Austria	43 (0) 1 360 277 1571
Belgium	32 (0) 2 404 93 40
Denmark	45 70 13 15 15
Finland	358 (0) 10 855 2100
France	0825 010 700*
	*0.125 €/minute
Germany	49 (0) 7031 464 6333
Ireland	1890 924 204
Israel	972-3-9288-504/544
Italy	39 02 92 60 8484
Netherlands	31 (0) 20 547 2111
Spain	34 (91) 631 3300
Sweden	0200-88 22 55
Switzerland	0800 80 53 53
United Kingdom	44 (0) 118 9276201
Other European Countries:	

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

October 1, 2009

© Agilent Technologies, Inc. 2009
Printed in USA, October 27, 2009
5990-4753EN



Agilent Technologies