N2795A/96A/97A Single-ended Active Probes

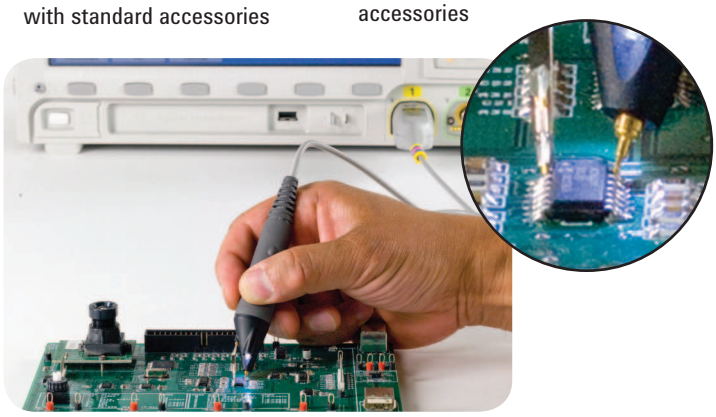
Data Sheet

Key Features

- High resistance (1MΩ) and low capacitance (1 pF) input for low loading
- Wide input dynamic range (±8V) and offset range (±12V for N2796A/97A, ±8V for N2795A)
- Built-in headlight for better visibility while probing
- Includes various probe tip accessories
- Direct connection to AutoProbe interface (no power supply required)
- Provides full system bandwidth with InfiniiVision and Infiniium oscilloscopes with bandwidths up to 1 GHz
- N2797A for extreme temperature environmental chamber testing at –40 to +85 °C

N2795A/96A active probe with standard accessories

N2797A with standard accessories



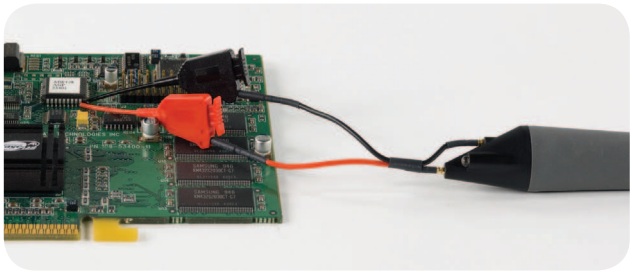
A White LED headlight can be turned on to illuminate the circuit under test for better visibility while probing

The N2795A/96A are low-cost, 1 and 2 GHz single-ended active probes with the AutoProbe interface (compatible with Agilent's InfiniVision and Infiniium family of oscilloscopes). These probes integrate many of the characteristics needed for today's general-purpose, high-speed probing - especially in digital system design, component design/characterization, and educational research applications. Its 1MΩ input resistance and extremely low input capacitance (1 pF) provide ultra low loading of the DUT. This, accompanied with superior signal fidelity, makes these probes useful for most of today's digital logic voltages. And with their wide dynamic range (±8 V) and offset range (±12 V for N2796A/97A, ±8 V for N2795A), these probes can be used in a wide variety of applications.

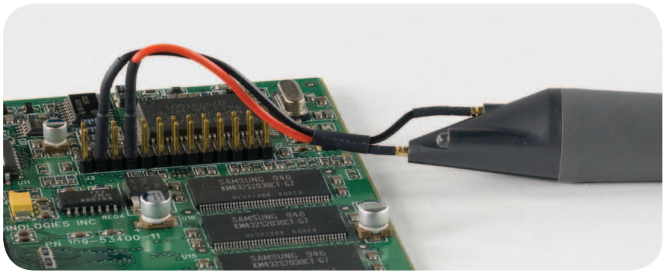
For high signal integrity probing, the N2795A 1 GHz and N2796A 2 GHz active probes are perfect complements to Agilent's 500 MHz – 600 MHz and 1 GHz bandwidth scopes, respectively. The N2796A 2 GHz probe can also be used with Agilent's 2 GHz or higher bandwidth Infiniium scope as a low cost alternative to InfiniiMax probes.

Testing devices over extreme temperature ranges is quite common these days. The N2797A single-ended active probe is the industry's first low-cost high input impedance active probe with rugged probe tips for environmental chamber testing of ICs and devices. The probe gives the ability to probe signals at drastic temperature swings ranging from –40 to +85 °C. The probe provides 1.5 GHz of bandwidth and a 2 m long cable.

The N2795A/96A/97A are equipped with a pleasant white LED headlight to illuminate the circuit under test. The probes are powered directly by the InfiniiVision and Infiniium Autoprobe interface, eliminating the need for an additional power supply. The probes also come with a number of accessories that allow for easy connections to the circuit under test.



Use flex nose clip adapters with the dual lead adapter to obtain access to IC leads or head connectors.



The dual lead adapter allows you to easily connect the probe to a popular 0.1" pin header with 0.025" square pins.

	N2795A	N2796A	N2797A
Probe bandwidth* (–3 db)	1 GHz	2 GHz	1.5 GHz**
Risetime (calculated, 10-90%)	350 psec	175 psec	233 psec
System bandwidth (with Agilent oscilloscope)	500/600 MHz (with Agilent's 500/600 MHz InfiniiVision/ Infiniium oscilloscope)	1 GHz (with Agilent's 1 GHz InfiniiVision/ Infiniium oscilloscope)	1 GHz (with Agilent's 1 GHz InfiniiVision/ Infiniium oscilloscope)
Attenuation ratio (@DC)	10:1 ± 0.5%		
Input dynamic range	–8 V to +8 V (DC or peak AC)		
Non-destructive max input voltage	–20 V to +20 V		
Offset range	±8 V	±12 V	±12 V
DC offset error (Output zero)	< ±1 mV		
Flatness (at 25 °C)	Typical 0.4 dB (100 kHz - 100 MHz) Typical 0.6 dB (100 MHz - 500 MHz) Typical 0.8 dB (500 MHz - 1 GHz) Typical 1.3 dB (1 GHz - 2 GHz)		Typical 0.3 dB (10 Hz – 100 MHz) Typical 0.8 dB (100 MHz – 1 GHz) Typical 2.0 dB (1 GHz – 1.5 GHz)
Flatness over temperature (–40 to +85 °C)			Typical 0.3 dB (10 Hz – 100 kHz) Typical 0.6 dB (100 kHz – 100 MHz) Typical 0.8 dB (100 MHz – 500 MHz) Typical 2.0 dB (500 MHz – 1 GHz) Typical 2.5 dB (1 GHz – 1.5 GHz)
Input resistance*	1 MΩ +0 %, –2.5 %		1 MΩ ±3%
Input capacitance	1 pF		
Probe noise	< 2.5 mVrms (referred to input)		
Output impedance	50 Ω		

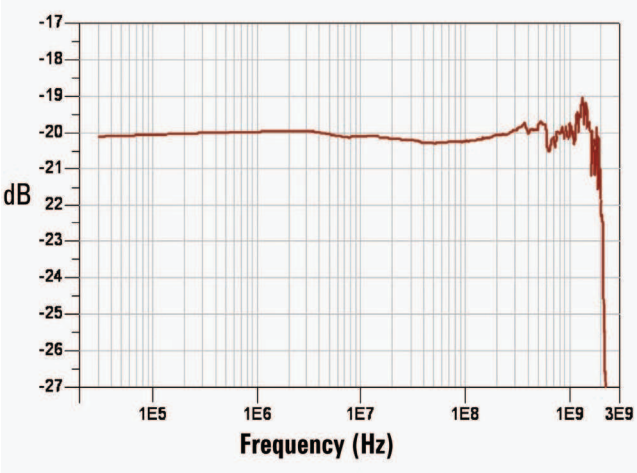
	N2795A	N2796A	N2797A
Internal power	Agilent Autoprobe Interface from scope (InfiniiVision and Infiniium)		
Cable length	1.3 m		2 m
Probe weight	Approx. 100 g		Approx. 108 g
Ambient operating Temperature	0 to 50 °C		–40 to +85 °C
Ambient non-operating temperature	–40 to 70 °C		–40 to +85 °C
Operating humidity	95% RH @ 40 °C		
Non-operating humidity	90% RH @ 65 °C		
Operating altitude	4000 m		
ESD	8 kV HBM		
Standard accessories	- 2 each spring probe tip - 2 rigid probe tip - 1 each flex nose clip adapter (red and black) - 1 each copper pad, 10x - 1 each Y-lead adapter, 10 cm - 1 each right angle ground, 5 cm - 1 each right angle ground, 10 cm - 2 each ground blade - 1 each offset ground - 1 each flex ground - 4 color coded rings (each yellow, green, blue and purple)		- 10 each solderable tip - 5 each rigid probe tip - 2 each flex nose clip adapter (red and black) - 1 each pico hook tip (red and black) - 2 each Y-lead adapter, 9 cm (800 MHz) - 2 each Y-lead adapter, 6 cm (1 GHz) - 2 each right angle ground, 5 cm - 2 each ground blade - 4 color coded rings (each yellow, green, blue and purple)
Others (included)	-1 each accessory configuration card		
Compatible Agilent scopes	Agilent InfiniiVision 3000 X-, 4000 X-, 5000, 6000, 7000 (except 6000 100MHz) and Infiniium 9000, 90000, 90000 X-Series (with N5442A)		Agilent InfiniiVision 3000 X-, 4000 X- and Infiniium 9000, 90000 and 90000 X-/Q-Series (with N5442A)

Model number	Description
N2795A	1 GHz single-ended active probe
N2796A	2 GHz single-ended active probe
N2797A	1.5 GHz extreme temperature single-ended active probe
N2798A	Accessory kit for N2797A

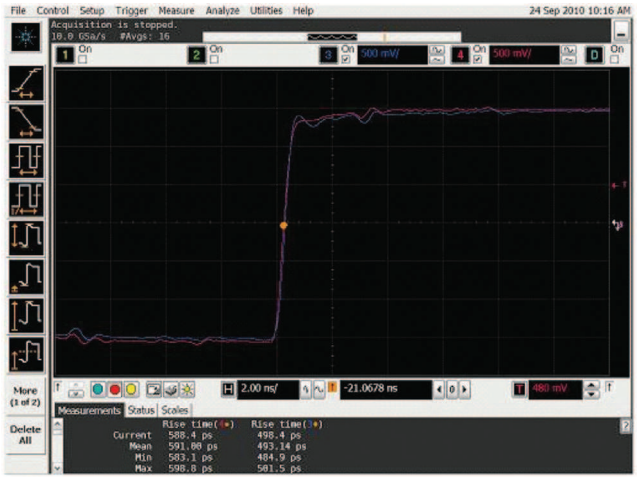
* denotes warranted electrical specifications after 20 minute warm-up, all others are typical

** typical 2 GHz, when used with rigid probe tip, ground blade and handheld

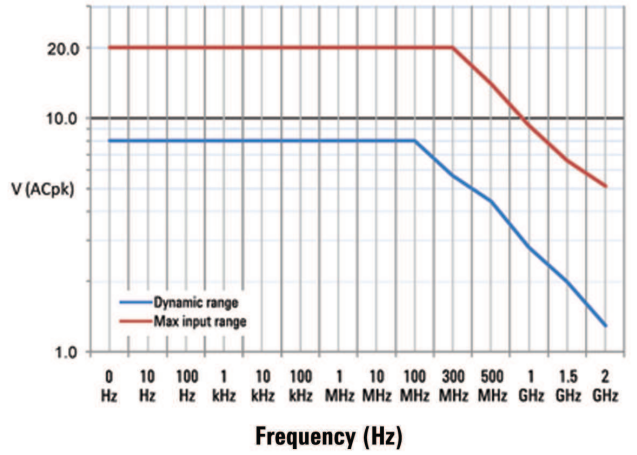
Measurement Plots



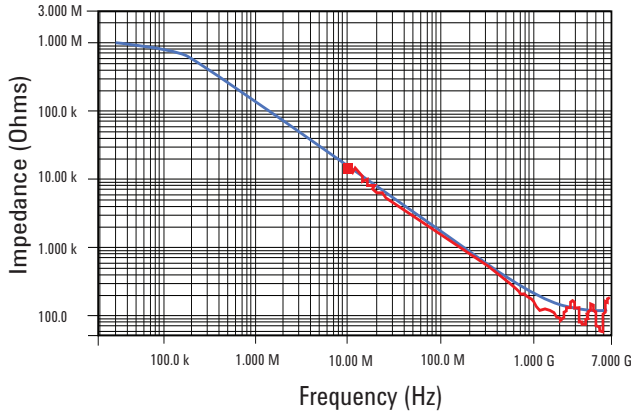
Frequency response of N2796A (Vout/Vin)



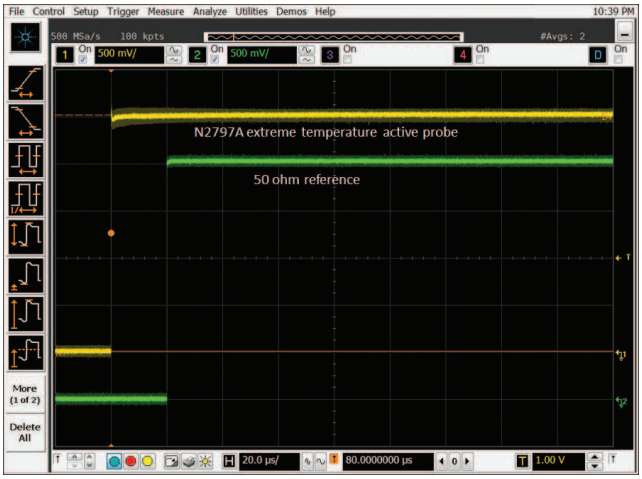
Time domain step response of N2796A (with Agilent MSO9404A)



Voltage derating over frequency (N2796A)



Input impedance over frequency (Red = measured, Blue = model)



N2797A measuring a step signal over –40 to +90 °C, oscilloscope in infinite persistence mode

www.agilent.com
www.agilent.com/find/N2795A

myAgilent

www.agilent.com/find/myagilent
A personalized view into the information most relevant to you.

www.axiestandard.org
AdvancedTCA® Extensions for Instrumentation and Test (AXIe) is an open standard that extends the AdvancedTCA for general purpose and semiconductor test. Agilent is a founding member of the AXIe consortium.

www.lxistandard.org
LAN eXtensions for Instruments puts the power of Ethernet and the Web inside your test systems. Agilent is a founding member of the LXI consortium.

www.pxisa.org
PCI eXtensions for Instrumentation (PXI) modular instrumentation delivers a rugged, PC-based high-performance measurement and automation system.

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.agilent.com/find/ThreeYearWarranty
Agilent's combination of product reliability and three-year warranty coverage is another way we help you achieve your business goals: increased confidence in uptime, reduced cost of ownership and greater convenience.

www.agilent.com/find/AdvantageServices
Accurate measurements throughout the life of your instruments.

www.agilent.com/quality

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
Brazil	(11) 4197 3600
Mexico	01800 5064 800
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
Other AP Countries	(65) 375 8100

Europe & Middle East	
Belgium	32 (0) 2 404 93 40
Denmark	45 45 80 12 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
United Kingdom	44 (0) 118 927 6201

For other unlisted countries:
www.agilent.com/find/contactus
(BP-3-1-13)

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

Printed in USA, June 12, 2013
5990-6480EN

Agilent Technologies