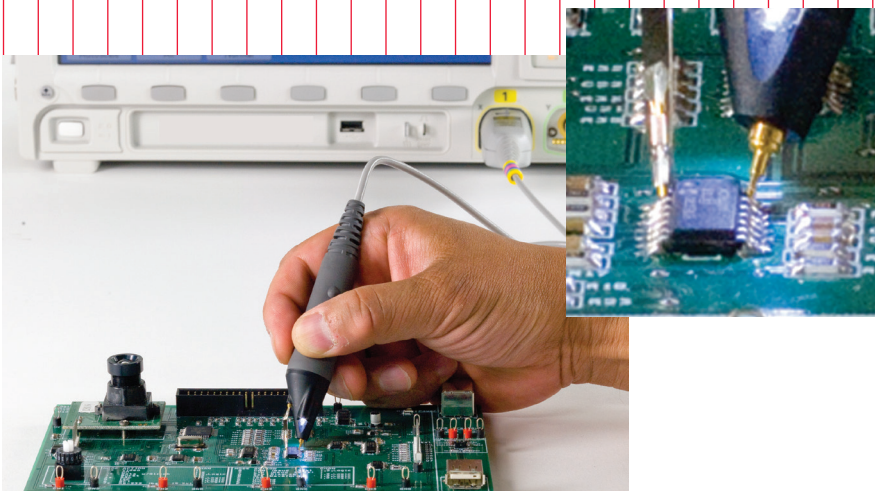
Keysight Technologies
N2795A/96A/97A
Single-ended Active Probes

Data Sheet



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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

The N2795A/96A are low-cost, 1 and 2 GHz single-ended active probes with the AutoProbe interface (compatible with the Keysight Technologies, Inc. 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.

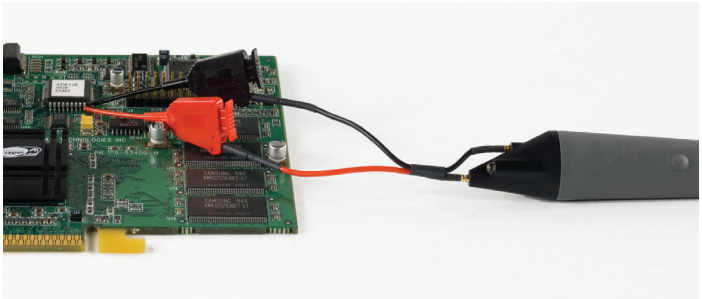
For high signal integrity probing, the N2795A 1 GHz and N2796A 2 GHz active probes are perfect complements to Keysight's 500 MHz – 600 MHz and 1 GHz bandwidth scopes, respectively. The N2796A 2 GHz probe can also be used with Keysight's 2 GHz or higher bandwidth Infiniium scope as a low cost alternative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

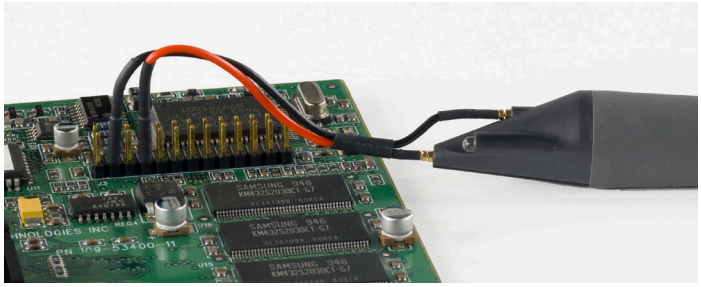
The N2795A/96A/97A are equipped with a pleasant white LED headlight to illuminate the circuit under test. The probes are powered directly by the InfiniiVision and Infiniium Autoprobe interface, eliminating the need for an additional power supply. The probes also come with a number of accessories that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

N2795A/96A active probe with standard accessories

N2797A with standard accessories



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 Keysight oscilloscope)	500/600 MHz (with Keysight's 500/600 MHz InfiniiVision/ Infiniium oscilloscope)	1 GHz (with Keysight's 1 GHz InfiniiVision/ Infiniium oscilloscope)	1 GHz (with Keysight'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		

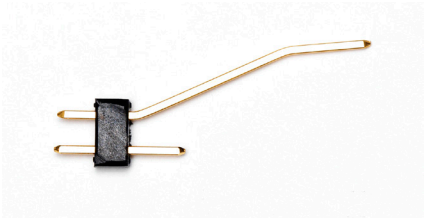
* denotes warranted electrical specifications after 20 minute warm-up, all others are typical
** typical 2 GHz, when used with rigid probe tip, ground blade and handheld

	N2795A	N2796A	N2797A
Internal power	Keysight 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 dual lead socketed adapter, 9 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 dual lead socketed adapter, 9 cm (800 MHz) – 2 each dual lead socketed 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 Keysight scopes	Keysight InfiniiVision 3000 X-, 4000 X-, 6000 X-, 5000, 6000, 7000 (except 6000 100MHz) and Infiniium S-Series, 9000, 90000A, 90000 X-, 90000 Q-, Z-Series(with N5442A)		Keysight InfiniiVision 3000 X-, 4000 X-, 6000 X-, and Infiniium S-Series, 9000, 90000A, 90000 X-, 90000 Q-, Z-Series (with N5442A)

N4839A Dual lead socketed adapter, 6 cm

N4840A Dual lead solder-in adapter, 5 cm

N4841A Dual lead socketed adapter, 9 cm



N4842A Dual pin PCB header

N4843A Solderable tips, qty 10

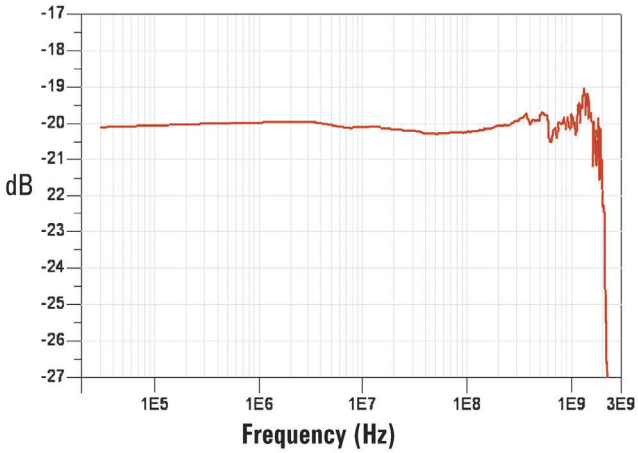
N4844A Right angle ground lead, 5 cm

N4845A Ground blade

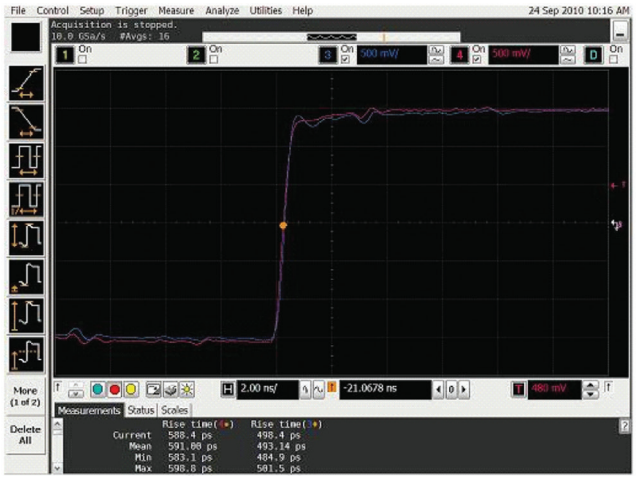
N4846A Offset ground

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
N4839A	Dual lead socketed adapter, 6 cm (1.4 GHz, not included in the N2795A/96A standard probe kit)
N4840A	Dual lead solder-in adapter, 5 cm (1.4 GHz, not included in the standard probe kit)
N4841A	Dual lead socketed adapter, 9 cm (1 GHz)
N4842A	Dual pin PCB header (not included in the standard probe kit)
N4843A	Solderable tips, qty 10
N4844A	Right angle ground lead, 5 cm
N4845A	Ground blade
N4846A	Offset ground

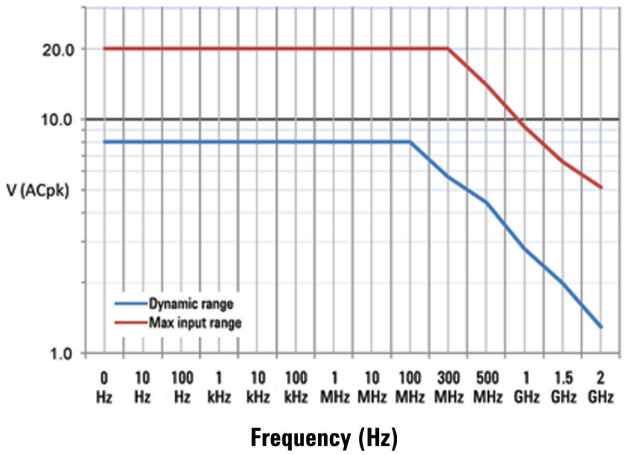
Measurement Plots



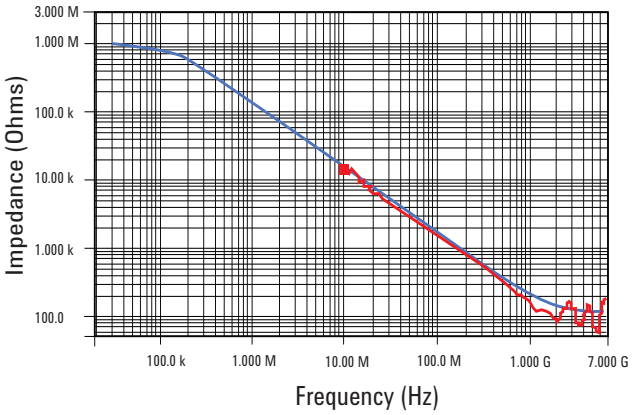
Frequency response of N2796A (Vout/Vin)



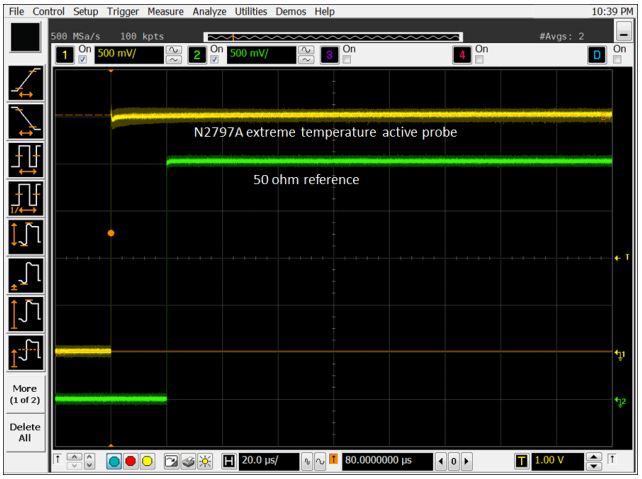
Time domain step response of N2796A (with Keysight MSO9404A)



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

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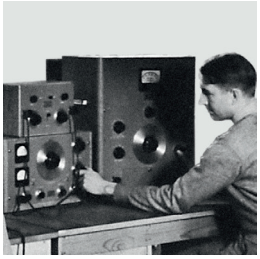

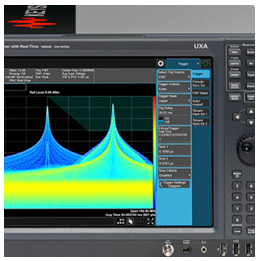

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