

KEYSIGHT TECHNOLOGIES (AGILENT HP)

1169A

The Keysight Technologies (formerly Agilent) 1169A is a 12 GHz InfiniiMax II series differential active probe amplifier designed for high-speed signal measurements. Recognized for its excellent signal fidelity, extremely low loading, and high-frequency performance, it is widely utilized for debugging and characterizing high-speed digital buses, differential interfaces, and signal integrity testing on compatible Keysight Infiniium oscilloscopes.

SPECIFICATIONS

General

Interfaces	AutoProbe I interface
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Physical

Power Supply	Powered directly from host oscilloscope AutoProbe interface
Operating Temperature	5 °C to 40 °C °C

Bandwidth & Rise Time Performance

System Bandwidth	12 GHz
Probe-Only Bandwidth	12 GHz (typical)
Rise Time (10% to 90%)	33 ps (calculated)
Rise Time (20% to 80%)	25 ps (measured)

Input Characteristics

Attenuation Ratio	3.45:1 (differential)
Differential Input Resistance	50 kΩ ±1% at DC
Single-Ended Input Resistance	25 kΩ ±1% at DC
Differential Input Capacitance	0.27 pF (with N5381A solder-in head)
Single-Ended Input Capacitance	0.44 pF (with N5381A solder-in head)

Voltage & Dynamic Range

Dynamic Range	3.3 Vpp
DC Offset Range	±16 V
Common Mode Range	±6.75 V (DC to 100 Hz), ±1.25 V (>100 Hz)
Maximum Non-Destructive Input Voltage	±30 V (DC)

Noise & Distortion

Equivalent Input Noise	2.5 mV rms (with N5381A solder-in head)
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Oscilloscope Compatibility & Interface

Compatible Oscilloscopes	Keysight Infiniium series with AutoProbe I interface
Probe Interface Type	AutoProbe I
Automatic Probe Identification Support	Supported
Automatic Calibration Support	Supported (De-embedding and attenuation load characterization)

Probe Head & Accessory Compatibility

Compatible Solder-in Probe Head	N5381A / N5381B (12 GHz), E2677A (12 GHz legacy)
Compatible Browser Probe Head	N5382A (12 GHz), E2675A (6 GHz differential browser)
Compatible Socketed Probe Head	E2678A (12 GHz)
Compatible SMA/SMP Coaxial Adapters	N5380A / N5380B (12 GHz differential SMA)
Extreme Temperature Extension Cable Compatibility	N5450A extreme temperature extension cable

Physical & Mechanical Characteristics

Probe Cable Length	1.2 m
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Environmental & Regulatory

Non-Operating Temperature Range	-40 °C to +70 °C
Operating Humidity	Up to 95% RH at 40 °C (non-condensing)
Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,300 m (50,000 ft)

Performance

CMRR (1 MHz)	60 dB (with N5381A solder-in head)
CMRR (100 MHz)	38 dB (with N5381A solder-in head)
CMRR (1 GHz)	30 dB (with N5381A solder-in head)
CMRR (10 GHz)	18 dB (with N5381A solder-in head)
Propagation Delay	6.1 ns (probe amplifier and cable)
Nominal Probe Amplifier Attenuation	3.45:1
Single-Ended Dynamic Range	1.65 V p-p
Output Impedance	50 Ω (nominal)

Compliance & Safety

ESD Protection	> 8 kV (Human Body Model)
Compliance Standards	IEC 61010-031

Inputs

Input Coupling	DC
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Accuracy

DC Gain Accuracy (Uncalibrated)	±2.0%
DC Gain Accuracy (Calibrated)	±1.0%
DC Offset Accuracy (Uncalibrated)	±(1.5% of offset setting + 10 mV)
DC Offset Accuracy (Calibrated)	±(0.5% of offset setting + 4 mV)

Safety & Compliance

Measurement Category	CAT I
Pollution Degree	2
Use Environment	Indoor use only

TECHNOLOGY

Active Differential Probe (InfiniiMax II)

APPLICATIONS

High-speed digital design, signal integrity verification, differential and single-ended active probing

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