

KEYSIGHT TECHNOLOGIES (AGILENT HP)

54854A

The Keysight Technologies (formerly Agilent) Infiniium 54854A is a high-performance real-time digital storage oscilloscope featuring 4 GHz of analog bandwidth and an exceptional 20 GSa/s sample rate on all four channels simultaneously. Designed for demanding high-speed digital designs, the 54854A incorporates advanced MegaZoom deep memory options up to 32 Mpts, incredibly low trigger jitter, and the highly versatile InfiniiMax probing system interface, all powered by an open Windows XP-based user interface.

SPECIFICATIONS

General

Interfaces	GPIB, LAN (10/100Base-T), USB 2.0, RS-232, Parallel (Centronics), PS/2, External VGA (Dual-monitor support)
Display	8.4-inch color active-matrix TFT-LCD, 640 x 480 (VGA)

Physical

Power Supply	100 - 240 VAC ($\pm 10\%$), 47 - 63 Hz, 550 W maximum power consumption
Operating Temperature	5 °C to +40 °C °C
Dimensions (W×H×D)	437 mm × 216 mm × 440 mm mm
Weight	14.1 kg kg

Vertical System

Analog Bandwidth (-3 dB)	4 GHz
Calculated Rise Time (10% to 90%)	100 ps
Calculated Rise Time (20% to 80%)	70 ps
Number of Input Channels	4
Input Impedance	50 Ω
Input Sensitivity Range	2 mV/div to 1 V/div
Vertical Resolution	8 bits (≥ 12 bits with averaging)
Maximum Input Voltage	5 V rms
DC Gain Accuracy	$\pm 2\%$ of full scale
Channel-to-Channel Isolation	40 dB (DC to 2 GHz), 30 dB (2 GHz to 4 GHz)
Probe Interface Support	Agilent InfiniiMax interface
Input Coupling	DC
Channel Offset Range	± 0.5 V (2 mV/div to 100 mV/div); ± 5.0 V (101 mV/div to 1 V/div)
Offset Accuracy	$\pm (1.5\%$ of channel offset + 1.5% of full scale + 1.5 mV)
Channel-to-Channel Deskew Range	± 25 μ s
Vertical RMS Noise Floor (Typical)	0.28 mV @ 5 mV/div, 0.40 mV @ 10 mV/div, 0.71 mV @ 20 mV/div, 1.70 mV @ 50 mV/div, 3.4 mV @ 100 mV/div, 6.8 mV @ 200 mV/div, 17.0 mV @ 500 mV/div, 34.0 mV @ 1 V/div

Horizontal System

Main Timebase Range	5 ps/div to 20 s/div
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Acquisition System

Maximum Real-Time Sample Rate (1 Channel)	20 GSa/s
Maximum Real-Time Sample Rate (2 Channels)	20 GSa/s
Maximum Real-Time Sample Rate (4 Channels)	20 GSa/s
Standard Memory Depth	262,144 pts per channel
Maximum Memory Depth (Option-dependent)	32 Mpts at 2 GSa/s and slower sample rates
Equivalent-Time Sample Rate	1 TSa/s maximum

Trigger System

Trigger Jitter	1.0 ps rms
Trigger Sources	Channel 1, Channel 2, Channel 3, Channel 4, Auxiliary, Line
Trigger Level Range	±8 divisions from center screen
Trigger Holdoff Range	100 ns to 10 s
Auxiliary Trigger Input Level	±5 V
Trigger Types	Edge, Glitch, Width, Pattern, State, Setup/Hold, Transition, Window, Timeout, Runt
Internal Trigger Sensitivity	0.5 div (DC to 2 GHz), 1.0 div (2 GHz to 4 GHz)
Auxiliary Trigger Sensitivity	150 mVp-p (DC to 1 GHz)
Auxiliary Trigger Input Impedance	50 Ω
Auxiliary Trigger Max Input Voltage	5 Vrms

Waveform Measurements and Analysis

Automatic Voltage Measurements	Peak-to-Peak, Maximum, Minimum, Amplitude, Top, Base, Overshoot, Preshoot, Average, RMS, Cycle RMS
Automatic Time Measurements	Period, Frequency, Positive Width, Negative Width, Duty Cycle, Rise Time, Fall Time, Delay, Phase
Waveform Math Operations	Add, Subtract, Multiply, Divide, Integrate, Differentiate, FFT, FFT Magnitude, FFT Phase, Low Pass, High Pass, User Defined
FFT Window Functions	Hanning, Flattop, Rectangular, Blackman-Harris

Computer System Hardware

Operating System Environment	Microsoft Windows XP Professional
Optical Drive Type	CD-RW
Internal Storage Capacity	Option 017 Removable Hard Disk Drive

Connectivity and Interfaces

External Reference Clock Input	10 MHz
Reference Clock Output	10 MHz
Auxiliary Output (Trigger Out)	Yes

Environmental Specifications

Non-Operating Temperature Range	-40 °C to +70 °C
Operating Humidity Range	Up to 95% relative humidity (non-condensing) at +40 °C
Operating Altitude Limit	Up to 4,600 meters (15,000 feet)
Non-Operating Altitude Limit	Up to 15,300 meters (50,000 feet)
Vibration (Operating)	0.3 g (rms), 5 Hz to 500 Hz
Vibration (Non-operating)	2.41 g (rms), 5 Hz to 500 Hz

Compliance and Standards

Calibration Interval Requirement	1 year
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Electrical & Environmental

Maximum Power Consumption	550 W
Line Voltage Range	100 - 240 VAC (±10%)
Line Frequency Range	47 - 63 Hz

Safety & Compliance

Safety Standards	IEC 61010-1, EN 61010-1, CSA C22.2 No. 1010.1, UL 3111
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Clock Reference Input

External Reference Input Frequency	10 MHz (± 5 ppm)
External Reference Input Impedance	50 Ω
External Reference Input Power Range	0 dBm to +12 dBm

Clock Reference Output

Reference Output Frequency	10 MHz
Reference Output Impedance	50 Ω
Reference Output Power Level	+5 dBm ± 4 dB (into 50 Ω)

Timebase

Timebase Temperature Stability	±0.1 ppm (0 °C to 50 °C)
Timebase Aging Rate	< 0.1 ppm/year

Connectivity

USB Ports	4 x USB 2.0 (rear panel)
LAN Interface	10/100Base-T RJ-45
GPIB Interface	IEEE-488
Video Output	15-pin D-sub (VGA)
Serial Interface	9-pin D-sub RS-232
Parallel Interface	25-pin D-sub (Centronics)

TECHNOLOGY

Digital Storage Oscilloscope (DSO)

APPLICATIONS

High-speed digital design debugging, signal integrity analysis, compliance testing, and RF/microwave characterization

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