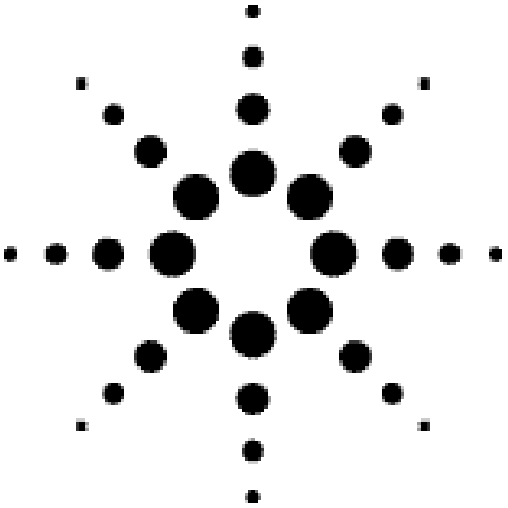

Agilent Technologies 54520C

Data Sheet

Product Specifications

General Specifications

Maximum Sample Rate
HP 54520C 1 GSa/s (1 CH on), 500 MSa/s (2 CH on)

Number of Channels (all are simultaneous acquisition)
HP 54520C: 2

Record Length
32,768 pts (real time) maximum
501 pts (repetitive)

Resolution
8 bits, 10 bits via HP-IB with averaging

Vertical Specifications

Repetitive Bandwidth
500 MHz (equivalent time) (rise time <= 700 ps)

Real Time Bandwidth
HP 54520C 125 MHz (2 CH) 250 MHz (1CH)

Sensitivity
1 mV/div to 5 V/div

dc Gain Accuracy
± 1.25% of full scale

Input Impedance
R: 1 Mohm ± 1% or 50 ohm ± l%
C: 7 pF nominal

Input Coupling
ac, dc

Maximum Input
1 Mohm ± 250 V (dc + ac) [ac< l0 kHz]

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50 ohms: 5 V rms

Offset Range
Vertical Sensitivity Available Offset
1 mV to 50 mV/div ±2 V
>50 mV to 250 mV/div ±l0 V
>250 mV to 1.25 V/div ±50 V
>1.25 V/div to 5 V/div ±250 V

Offset Accuracy
±(l.25% of channel offset + 2% of full scale)

Voltage Measurement Accuracy
Dual Cursor ±[(1.25%)(full scale)+(0.032)(V/div)]
Single Cursor ±[(1.25%)(full scale)+(offset accuracy)+
(0.016)(V/div)]
Horizontal Specifications
Time Base Range
500 ps/div to 5 s/div

Resolution
10 ps

Delta-t Accuracy
Repetitive: (> 8 averages) [(0.005%)(delta-t)+(100 ps +
0.1 % of full scale)]
Real Time [(0.005%)(delta-t)+(0.2)(sample period)]
Peak Detect [(0.005%)(delta-t)+(l sample period)]

Time Tag
Resolution 100 ps
Accuracy ±[0.005%(reading)+l00ps]

Delay Range (posttrigger) 10E07 x sample period
Delay Range (pretrigger) 32K x (sample period)
Ttrigger Specifications
Sensitivity dc to 100 MHz 100 MHz to 500 MHz
Internal 0.5 div 1.0 div
External (54520C) 0.0225 x (signal range) 0.045 x (signal range)
Auxiliary dc to 50 MHz: 250 mVp-p

Pulse Width (minimum) 1 ns

Level Range
Internal ±1.5 X full scale from center screen
External (54520C) ±25V
Auxiliary ±5V
Modes Edge, pattern, glitch, time qualified pattern,
line, state, event-delayed, time-delayed, TV
(NTSC, PAL, and user-definable formats)

Trigger Coupling dc, ac, low frequency reject
Display Characteristics
Display Mode "A" models feature monochrome CRT (Cathode Ray
Tube) displays. "C" models feature flat-panel color
TFT (Thin Film Transistor) liquid-crystal displays.

Modes Averaging from 2 to 2048, envelope, infinite&

variable persistence from 500 ms to 10 s, connect
the dots, peak detect

Graticules full grid, axes, frame, or no graticule
Measurements

Automatic 23 measurements on front panel or over HP-IB:
Rise time V p-p V dc rms
Fall time V min Preshoot
Frequency V max Overshoot
Period V avg Voltage at time
- Width V base Time at min voltage
+ Width V amptd Time at max voltage
Duty cycle V top Time at voltage
Delta time V ac rms

User-Definable
Both upper and lower thresholds can be set from
-25% to 125% for all automatic measurements

Modes
Continuous, statistics, limit test, or waveform
compare

Math/Analysis Functions Operators
add, subtract, multiply, versus, integrate,
differentiate, invert magnify, and FFT
Additional Characteristics
Peak Detect Captures and displays glitches or other high-speed
events as narrow as 1 ns in real-time mode at sample
rates of 250 MSa/s or less with sequential
single-shot turned off.

Sequential Captures successive single-shot events without
Single Shot capturing the dead time in between, and stores up
to 400 Kbytes of waveform data.

Sequential Single-shot Throughput
Record Waveforms Stored Max Number of
Length Per Second Waveforms Stored
50 1333 4395
500 1111 739
8000 294 49
32,000 90 12

Waveform Store
4 nonvolatile, 2 pixel (volatile), and segmentable
memory for storing measurement failure waveforms or
sequential single-shot waveforms.

Screen Update Rate (typical at 500 ns/div)
record length (points)
Real Time 500 8K 16K 32K
updates/s. 150 110 84 58

Repetitive normal 8 avgs 128 avgs
updates/s: 150 91 91

Optional Capabilities

Optional Telecommunication-Mask Application

Make telecom mask-template measurements to ANSI, CCITT, and ISDN standards using the HP 54520 or 54540 series oscilloscopes equipped with Option 001. Option 001 features 21 standard masks stored on a flexible disk. You can automatically trigger on positive isolated ones in live traffic for many standard telecom signals. The scope will automatically best-fit the test signal to many masks and give automatic pass-fail comparisons of the mask to its corresponding input signal.

For more information on Option 001, Telecommunications Masks Applications ask your HP Sales representative for HP Product Overview 5963-1859E (international version) or 5963-1859 EUS (US version).

Optional Active Probing

The HP 1144A active probe features 800-MHz bandwidth, 2-pF input capacitance, and 1-Mohm input resistance. The HP 1145A two-channel active probe features 750-MHz bandwidth, 2-pF input capacitace, and 1 Mohm input resistance and is designed for easy connection to surface mount devices.

I/O Characteristics
HP-IB Fully programmable, complies with IEEE 488.2
RS-232 Bidirectional serial communication
Centronics Talk-only parallel communication for HP PCL compatible printers

Hardcopy Supported Printers

Color "C" Models	Monochrome "A" Models
HP 540 Centronics	Thinkjet HP-IB, RS232
HP 560C Centronics	HP 540 Centronics
HP 560C, Centronics	
B/W only	

Supported Plotters:

HP ColorPro HP-IB	HP 7440A HP-IB
HP 7475A HP-IB	HP 7475A HP-IB
HP 7470A HP-IB	HP 7470A HP-IB
HP 7550A HP-IB	HP 7550A HP-IB

Disk Drive
DOS-compatible, 3-1/2" disk drive to store and recall setups, waveforms, and screen images (TIFF, PCX, and EPS). The disk drive is also utilized to download the oscilloscope's operating-system software and can be used to upgrade the scope's software as future upgrades become available. A free software-upgrade notification service is offered to registered users.

Front Panel Setups
9 (nonvolatile memories)

FFT Characteristics
Frequency Range dc to:
500MHz (1 ch)
250MHz (2 ch)

Frequency Resolution:

Minimum (max samp rate)/(512 pts):
 977 kHz (2ch)
 1.95 MHz (1 ch on)

Maximum (min samp rate)/(32,768 pts):
 0.305 MHz

Horizontal Magnify
 Specify the frequency that is displayed at center
 screen, and magnify the frequency-domain display
 about that point.

Frequency Accuracy
 [1/2 (sample frequency) (1/32768)]+
 (5 x 10E-5)(signal frequency)

Amplitude Display
 Power in dBm

Windowing
 Hanning, Flattop, Rectangular
Environmental Characteristics

Power Voltage 115/230 Vac, -25% to +15%, 48 to 440Hz,
 350 VA maximum

Weight Net: approximately 11.8 kg (26lb)
 Shipping: Approximately 21.3 kg (47 lb)

Dimensions Height: 218 mm (8.6 in)
 Width: 440 mm (17.3 in)
 Depth: 367 mm (14.5 in)