

KEYSIGHT TECHNOLOGIES (AGILENT HP)

54754A

The Keysight (Agilent) 54754A is a high-performance 18-GHz differential TDR/TDT sampling module designed for use with Infiniium DCA, DCA-J, and legacy Agilent digitizing oscilloscope mainframes. It features two channels with built-in TDR step generators that can operate independently or in tandem for differential or common-mode stimulus-response measurements. When the TDR generators are disabled, the module functions as a high-bandwidth vertical acquisition system.

SPECIFICATIONS

General

Interfaces	Internal mainframe plug-in interface
Display	None (utilizes host mainframe display)
Warm-up Time	1 hour
Calibration Cycle	1 year

Physical

Power Supply	Powered by host mainframe
Operating Temperature	10 °C to 40 °C °C

Vertical System

Channels	2
Electrical Bandwidth	18 GHz / 12.4 GHz (user-selectable)
Calculated Rise Time (10% to 90%)	19.4 ps (at 18 GHz), 28.2 ps (at 12.4 GHz)
RMS Noise (Typical)	0.25 mV (at 12.4 GHz BW), 0.5 mV (at 18 GHz BW)
RMS Noise (Maximum)	0.5 mV (at 12.4 GHz BW), 1.0 mV (at 18 GHz BW)
Maximum Input Signal	±2 Vdc
Nominal Input Impedance	50 Ω

TDR/TDT Step Generator

Number of TDR Pulser Channels	2
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Host Mainframe Integration

Slot Occupancy	1 slot
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Measurement Capabilities

Measurement Modes	TDR (Time Domain Reflectometry), TDT (Time Domain Transmission)
Impedance Measurements	Ohms (Ω)
Edge Speed Control	User-selectable normalized rise time filter

Inputs & Outputs

Maximum Safe Input Voltage	±2 V (DC + peak AC) or +16 dBm
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Performance

Input Dynamic Range	±400 mV relative to channel offset
Offset Range	±500 mV
Channel-to-Channel Isolation	≥ 60 dB (DC to 12.4 GHz), ≥ 50 dB (12.4 GHz to 18 GHz)
TDR System Reflected Rise Time (10% to 90%)	≤ 45 ps

TDR Performance

Step Source Impedance	50 Ω nominal
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TECHNOLOGY

Time-Domain Reflectometry (TDR) & Sampling Oscilloscopy

APPLICATIONS

Differential and common-mode TDR/TDT testing, high-speed digital interconnect analysis, impedance characterization, and S-parameter measurements.

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