TEKTRONIX

P6247

The Tektronix P6247 is a 1.0 GHz active differential oscilloscope probe designed for high-bandwidth time and frequency domain measurements. It is particularly suited for disk drive design verification, high-speed digital IC design, and testing compliance of fast communication standards like Gigabit Ethernet, IEEE-1394 Firewire, and Fibre Channel. Equipped with the TEKPROBE BNC interface, it offers seamless integration, automatic scaling, and power directly from compatible Tektronix oscilloscopes.

SPECIFICATIONS

General

Interfaces	TEKPROBE BNC Interface

Physical

Power Supply	Powered via TEKPROBE interface from host oscilloscope, or via optional 1103 TEKPROBE external power supply
Operating Temperature	0 to +50 °C
Weight	0.16 kg kg
Probe Head Dimensions	12.0 mm × 8.1 mm × 68.6 mm (W×H×D)
Compensator Box Dimensions	41 mm × 27 mm × 103 mm (W×H×D)

Signal Fidelity & Bandwidth

Bandwidth (at -3 dB)	1.0 GHz (guaranteed)
Rise Time	< 350 ps
Attenuation Ratios	1X / 10X (switchable)
DC Attenuation Accuracy	±2%
Passband Ripple	< ±0.25 dB
Bandwidth Limit	Switchable, 200 MHz
Linearity	±2%

Electrical Characteristics

Differential Input Resistance	200 kΩ
Single-Ended Input Resistance	100 kΩ
Differential Input Capacitance	< 1.0 pF
Single-Ended Input Capacitance	< 1.6 pF
Linear Differential Dynamic Range (1X)	±850 mV
Linear Differential Dynamic Range (10X)	±8.5 V
Common Mode Dynamic Range	±7.0 V (for both 1X and 10X)
Maximum Non-Destructive Input Voltage	±25 V (DC + peak AC)
System Noise (Referred to Input)	< 50 nV/√Hz
Harmonic Distortion	≤ 1.5%
Electrostatic Immunity	> 15 kV

Common Mode Rejection Ratio (CMRR)

Common Mode Rejection Ratio (1 MHz)	≥ 60 dB (1000:1)
Common Mode Rejection Ratio (500 MHz)	≥ 35 dB
Common Mode Rejection Ratio (1 GHz)	≥ 30 dB

Interface & System Connectivity

Input Connector Type	Two standard 0.025 inch (0.63 mm) female square pin receptacles on 0.1 inch centers

Physical & Mechanical Properties

Cable Length	1.2 m (47 inches)

Environmental & Safety Compliance

Storage Temperature Range	-55 °C to +75 °C
Operating Altitude	Up to 4572 m (15,000 feet)
Storage Altitude	Up to 15240 m (50,000 feet)
Operating Humidity Range	Up to 95% RH at or below +30 °C; up to 75% RH up to +50 °C

Performance

Propagation Delay	5.3 ns ± 0.2 ns
CMRR at 100 kHz	>60 dB
CMRR at 100 MHz	>38 dB
DC Offset Range	±6.5 V
1X Range Overrange Threshold	±850 mV (typical)
10X Range Overrange Threshold	±8.5 V (typical)

Interface

Output Impedance	50 Ω (requires 50 Ω oscilloscope input)
TekProbe Interface Compatibility	TekProbe BNC (Level 2)

Compliance

Safety Standards	UL3111-1, CSA1010.1, EN61010-1, IEC61010-1

Power Requirements

+15 V Current Draw	10 mA to 12 mA
+5 V Current Draw	55 mA to 90 mA

Inputs & Outputs

Input Coupling	DC (AC coupling via optional accessory adapter)

TECHNOLOGY

Active Differential

APPLICATIONS

Disk drive read channel electronics, high-speed digital logic timing analysis, Gigabit Ethernet, IEEE-1394 Firewire, and Fibre Channel testing