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Find the *Tektronix P6248* at our website: *Click HERE*

Differential Probes

▶ P6248 • P6247 • P6246



▶ *P6248*

The P6246, P6247 and P6248 Differential Probes

The P6248, P6247 and P6246 enable users to make time domain or frequency domain measurements on high-bandwidth signals commonly found in disk drive, digital IC design (RAMBUS) and communication applications (Gigabit Ethernet, IEEE-1394 Firewire and Fibre Channel). The P6248 includes accessories that allow RAMBUS via probing and IEEE-1394 interconnect access. The small probe head geometry and assorted probe tip accessories allow these probes to easily accommodate manual probing of surface mount devices while maintaining high CMRR.

The P6246, P6247 and P6248 are ideal for design verification of disk drive read, channel electronics and timing analysis for troubleshooting ground bounce problems associated with high-speed logic. They can also be used for pulse shape or cross talk compliance testing of high-speed communication signals.

▶ Characteristics

Bandwidth (guaranteed) –
P6248: DC to 1.5 GHz.
P6247: DC to 1.0 GHz.
P6246: DC to 400 MHz.

Rise Time (specified) – <265 ps (P6248), <350 ps (P6247), <875 ps (P6246).

DC Attenuation Accuracy – ±2%.

Common Input Voltage Range – ±7.0 V, 1X; ±7.0 V, 10X.

Differential Input Voltage Range – ±850 mV, 1X; ±8.5 V, 10X.

Max. Nondestruct Input Voltage – ±25 V (DC + peak AC).

Electrostatic Immunity – >15 kV.

TEKPROBE® Interface – Probe power, auto-scaling, auto-termination with TDS oscilloscopes.

Bandwidth Limit – Switchable, 200 MHz (P6246 and P6247).

DC Reject – 0.4 Hz, 1X; 4.0 Hz, 10X (P6246 and P6247).

Typical Specifications

Input C –
<1 pF (differential mode),
<2 pF (common mode).

Input R –
200 kΩ (differential mode),
100 kΩ (common mode).

▶ Features & Benefits

P6248

1.7 GHz (Typical Probe Only ≤27 °C) 1X Mode

1.5 GHz Bandwidth (Guaranteed)

1.85 GHz (Typical Probe Only ≤27 °C) 10X Mode

P6247

>1.0 GHz Bandwidth (Guaranteed)

P6246

400 MHz Bandwidth (Guaranteed)

Features & Benefits

Low Input Capacitance: <1 pF Differential

Probe Input Connector: Two Standard 0.025 in./0.63 mm (0.1 in. center) Square Pin Receptacle (Female)

Electrostatic Discharge Tolerant (IEC 801-2)

Connects to TEKPROBE™ BNC Interface on TDS Series Oscilloscopes or Other Instruments Using 1103 TEKPROBE® Power Supply

For Use With Oscilloscopes, Spectrum or Network Analyzers

>60 dB (1000:1) Common Mode Rejection Ratio (CMRR)

Small Probe Head Allows Easy Probing of SMDs

▶ Applications

Communications (Gigabit Ethernet, IEEE-1394, Fibre Channel)

Semiconductor Characterization (RAMBUS)

Disk Drive Read Channel Design

Communication Pulse Shape Compliance

Jitter, Cross-Talk, BERT Measurements

Location of Ground Bounce

Tektronix
Enabling Innovation

Linearity – ±2%.

Noise – <50 nV/squareroot Hz.

Harmonic Distortion – ≤1.5%

Passband Ripple –
<±0.25 dB.
P6248: DC to 1.5 GHz.
P6247: DC to 850 MHz.
P6246: DC to 400 MHz.

Output Termination –
Terminate into 50 Ω.

Physical Characteristics

Weight (probe only) – 160 g (0.36 lb.).

Probe Head Volume – 6 cm^3 (0.3 $in.^3$).

Probe Head Input Connection –
0.63 mm (0.025 in.) square pins on 2.54 mm (0.1 in.) centers.

Output Cable Length – 1.2 m (4.0 ft.).

Environmental Characteristics

Temperature –
Operating: 0 ºC to 50 ºC.
Nonoperating: -55 ºC to +75 ºC.

Humidity (0 to 90% RH) –
Operating: 30 ºC to 50 ºC.
Nonoperating: 30 ºC to 60 ºC.

▶ Ordering Information

P6248

1.7 GHz Differential Probe (typical ≤ 27 ºC).
1.5 GHz Differential Probe (guaranteed).

P6247

1.0 GHz Differential Probe (guaranteed).

P6246

400 MHz Differential Probe (guaranteed).

Certificate of Traceable Calibration.

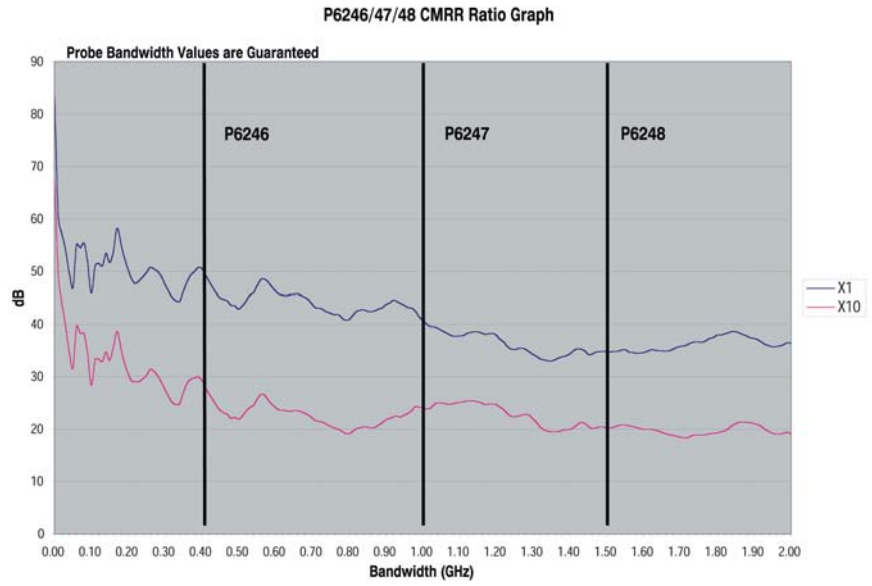
P6246 and P6247 Manual Set –
User Manual (English, German, French and Japanese): Order 070-9898-02.
Service Manual: Order 070-9899-01.

P6248 Manual Set –
User Manual (English): Order 071-0566-00.
Service Manual: Order 071-0573-00.

Carrying Case – Differential probe, inserts and label, plastic storage case:

P6246: Order 016-0156-06.
P6247: Order 016-1787-00.
P6248: Order 016-1787-00.

Frequency	Attenuation Setting	P6246	P6247	P6248
1 MHz	÷ 1	>60 dB	>60 dB	>60 dB
	÷ 10	>45 dB	>45 dB	>45 dB
100 MHz	÷ 1	>38 dB	>38 dB	>38 dB
	÷ 10	>25 dB	>25 dB	>25 dB
500 Mhz	÷ 1	N/A	>35 dB	>35 dB
	÷ 10	N/A	>20 dB	>20 dB
1 GHz	÷ 1	N/A	>30 dB	>30 dB
	÷ 10	N/A	>18 dB	>18 dB
1.5 GHz	÷ 1	N/A	N/A	>25 dB (typical)
	÷ 10	N/A	N/A	>18 dB (typical)



Service

Opt. C3 – Calibration Service 3 Years.

Opt. C5 – Calibration Service 5 Years.

Opt. D1 – Calibration Data Report.

Opt. D3 – Calibration Data Report 3 Years (with Option C3).

Opt. D5 – Calibration Data Report 5 Years (with Option C5).

Opt. R3 – Repair Service 3 Years.

Opt. R5 – Repair Service 5 Years.

Recommended/Replacement Accessories

IEEE-1394 Breakout Connector – Order 679-5027-00.

50 Ω, BNC (M) to BNC (M) Coaxial Cable – 18 in. Order 012-0076-00.

50 Ω, BNC Coaxial Terminator – Order 011-0049-02.

50 Ω, SMA (F) to BNC (M) Adapter – Order 015-0572-00.

P6046/HP1141A Probe Tip Adapter – Order 013-0309-00.

▶ Included Accessories

Product Name/Description	P6246/P6247 Quantity	P6248 Quantity	Re-order Part Number*[1]
Y Lead Adapter	2 Each	2 Each	196-3434-00 (1 pkg. of 1)*[2]
3 in. Ground Lead	None	4 Each	196-3437-10 (1 pkg. of 2)*[2]
6 in. ground lead	2 Each	2 Each	196-3436-10 (1 pkg. of 2)*[2]
SMT KlipChip™ Adapter	3 Each	4 Each	206-0364-00 (1 pkg. of 1)
BNC to Probe Tip Adapter	1 Each	1 Each	679-4094-00 (1 pkg. of 1)
TwinFoot™ Adapter	2 Each	4 Each	016-1785-00 (1 pkg. of 4)
TwinTip™ Adapter	2 Each	4 Each	016-1786-00 (1 pkg. of 4)
Short Ground Contact	2 Each	10 Each	016-1783-00 (1 pkg. of 10)
Spring Loaded Ground	2 Each	6 Each	016-1782-00 (1 pkg. of 6)
Probe Tip Connector Saver	None	2 Each	016-1781-00 (1 pkg. of 2)
Longhorn Via Adapter	None	5 Each	016-1780-00 (1 pkg. of 5)
VariTip™ Adapter	None	8 Each	016-1891-00 (1 pkg. of 8)
Straight Tip	None	8 Each	016-1890-00 (1 pkg. of 8)
Color Coding Clips (2 each of 5 colors)	1 Each	1 Each	016-1315-00 (1 pkg. of 2/each of 5 colors)
Certificate of Traceability	1 Each	1 Each	

*[1] Reorder quantities may differ from original included quantities.

*[2] Part number 196-3462-00 includes: 2 each, Y Lead Adapters (replacement part number 196-3434-00 pkg of 1); 2 each, 6-in. ground leads (replacement part number 196-3436-10 pkg. of 2); 4 each, 3-in. ground leads (replacement part number 196-3437-10 pkg. of 2).

Related Products

1103 – TEKPROBE® II power supply for interfacing with other BNC instruments.

Power Plug Options for 1103

Opt. A0 – US Plug, 115 V, 60 Hz
Opt. A1– Euro Plug, 220V, 50 Hz
Opt. A2 – UK Plug, 240V, 50 Hz
Opt. A3 – Australian Plug, 240V, 50 Hz
Opt. A4 – N. American Plug, 240V, 50 Hz
Opt. A5 – Swiss Plug, 220V, 50 Hz

Differential Probes

▶ P6248 • P6247 • P6246



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www.tektronix.com

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