AC/DC Current Probe

TCP0150 Datasheet

The TCP0150 is a high performance and easy-to-use 150 A AC/DC current probe designed for use and direct connection to the TekVPI™ probe interface.

Key performance specifications

- DC to 20 MHz bandwidth
- 150 A_{RMS} maximum current capability
- 500 a peak pulse current capability
- High accuracy with typically less than 1% DC gain error
- Accurately measures current levels as low as 5 mA

Key features

- Easy-to-Use and accurate AC/DC current measurements
- Connects directly to oscilloscopes with the TekVPI™ probe interface
- Low noise and DC drift
- Provides automatic units scaling and readout on the oscilloscope's display
- Remote GPIB/USB probe control through the oscilloscope
- Split-core probe head construction allows easy connection to conductors
- Easy to degauss and autozero
- Setup controls and probe status and diagnostic indicators are provided on both the probe hardware and through an Easy-to-Access scope UI display menu

Applications

- Power supplies
- Semiconductor devices
- Power inverters/converters
- Electronic ballasts
- Industrial/consumer electronics
- Motor drives
- Transportation systems

This AC/DC current measurement probe provides 20 MHz of frequency bandwidth with selectable range control for 25 A and 150 A measurement ranges. It also provides low-current measurement capability and accuracy to current levels as low as 5 mA per division — important for achieving broad dynamic current range of high-level and low-level measurement signals.

Specifications

All specifications are guaranteed unless noted otherwise. All specifications apply to all models unless noted otherwise.

Warranted characteristics

Bandwidth	DC to ≥20 MHz (-3 dB). Derate with frequency. See Figure 1. (Calculated from Rise Time BW = .35/Rise Time)
Rise time	≤17.5 ns
Max RMS current	150 A
Max peak pulse current	500 A
Minimum sensitivity	5 mA (on oscilloscope's 1 mV/div setting) AC coupling (on oscilloscopes that support AC/DC coupling)
Current ranges	25 A and 150 A
Maxbare-wire voltage	600 V_{RMS} CAT I and II 300 V_{RMS} CAT III

Typical characteristics

DC accuracy	±1% typical (3% warranted)
Max amp-second product	
25 A range	3,000 Aμs
150 A range	15,000 Aμs
Insertion impedance	0.03 Ω at 1 MHz 0.075 Ω at 5 MHz 0.125 at 10 MHz 0.3 at 20 MHz
Signal delay	≈ 21 ns
Displayed RMS noise	≤500 μA_{RMS} (probe only)

Physical characteristics

Cable length	2 m (79 in.)
Probe head size	
Length	26.8 cm (10.55 in.)
Width	4.1 cm (1.6 in.)
Height	15.6 cm (6.13 in.)
Max conductor diameter	21 mm x 25 mm (0.83 in. x 1.0 in.)
Shipping weight	0.7865 kg (1.734 lb.)
Power requirements	TCP0150 is powered directly by oscilloscopes with the TekVPI interface

Environmental

Temperature	
Operating	0 ºC to +50 ºC

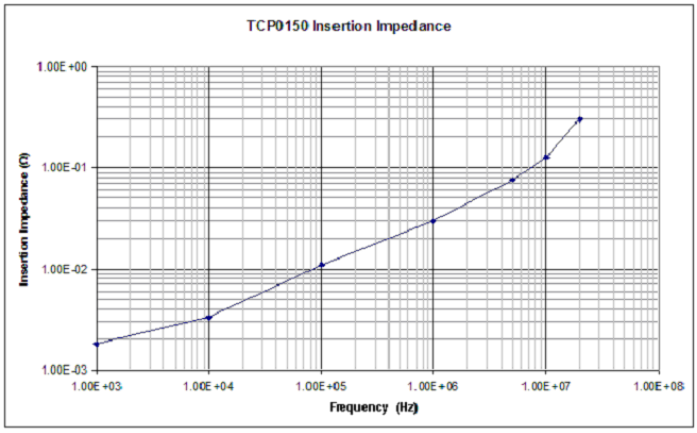
Nonoperating	-40 °C to +75 °C
Humidity	
Operating	5% to 95% RH (Relative humidity) at up to +30 °C 5% to 85% RH above 30 °C up to +50 °C, noncondensing
Nonoperating	5% to 95% RH (Relative humidity) at up to +30 °C 5% to 85% RH above 30 °C up to +75 °C, noncondensing
Altitude	
Operating	Up to 2,000 m (6,560 feet)
Nonoperating	Up to 12,000 m (40,000 feet)

Recommended oscilloscopes

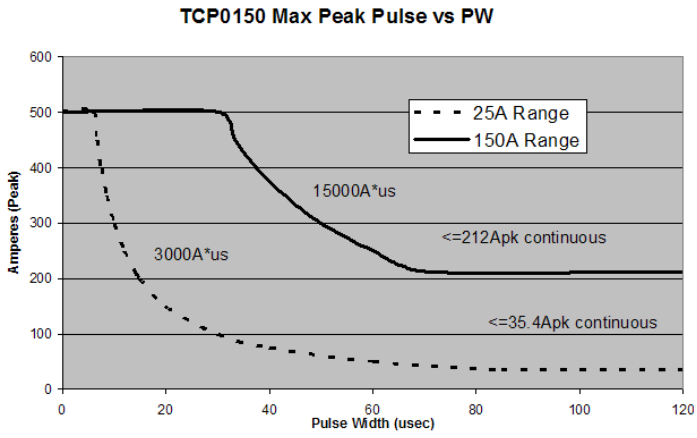
Oscilloscopes with the TekVPI probe interface.

For best probe support, download and install the latest version of the oscilloscope software from *tek.com*.

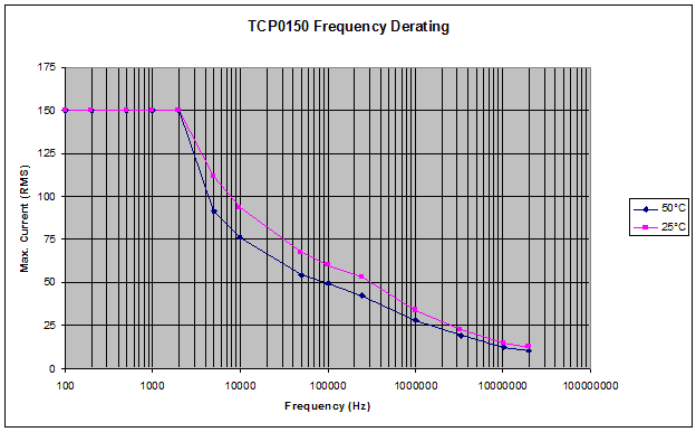
Performance graphs



TCP0150 insertion impedance



TCP0150 Max Peak Pulse versus PW



Do not apply currents greater than the max continuous current for more than 10 seconds to minimize heating effects.

Ordering information

TCP0150	AC/DC current probe with TekVPI interface. Includes protective cover (016-1924-xx), certificate of traceable calibration, and data standard.

Language options

Opt. L0	English manual
Opt. L5	Japanese manual
Opt. L7	Simplified Chinese manual
Opt. L9	Korean manual

Service options

Opt. CA1	Single Calibration or Functional Verification
Opt. C3	Calibration Service 3 Years
Opt. C5	Calibration Service 5 Years
Opt. D3	Calibration Data Report 3 Years (with Opt. C3)
Opt. D5	Calibration Data Report 5 Years (with Opt. C5)
Opt. R3	Repair Service 3 Years (including warranty)
Opt. R5	Repair Service 5 Years (including warranty)
Opt. SILV600	Standard warranty extended to 5 years

Recommended accessories

015-0601-50	Current loop, 1 turn, 50 Ω with BNC connector used for performance verification
067-1701-xx	TekVPI calibration fixture
067-1686-xx	Cal/Deskew fixture for DPO7000/70000 series

Tektronix is ISO 14001:2015 and ISO 9001:2015 certified by DEKRA.

Product(s) complies with IEEE Standard 488.1-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

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* European toll-free number. If not accessible, call: +41 52 675 3777

For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit *www.tek.com*.

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