

Passive High Voltage Probes

P5100A-TPP0850-P5122-P5150-P6015A Datasheet



Safe high voltage probe solutions for ground-referenced voltage testing. It is critical to safely and accurately capture real-time signal information from "elevated" or "floating" voltage systems. Our portfolio of high voltage probes provides the safety you need for single-ended, differential or isolated measurements.

Key performance specifications

P5100A

- DC to 500 MHz
- 2500 V_{Peak}, 1000 V_{RMS} CAT II
- 100X with readout coding

TPP0850

- DC to 800 MHz
- 2500 V_{Peak}, 1000 V_{RMS} CAT II
- 50X with readout coding
- Designed for use with the MSO/DPO5000 and MSO/DPO4000B Series Oscilloscopes

P5122

- DC to 200 MHz
- 1000 V_{RMS} CAT II when DC-coupled*¹
- 100 X
- Floatable up to 600 V_{RMS} CAT II
- For TPS2000 and THS3000 Series Oscilloscopes

P5150

- DC to 500 MHz
- 2500 V_{Peak}, 1000 V_{RMS} CAT II
- 50 X
- Floatable up to 600 V_{RMS} CAT II or 300 V_{RMS} CAT III
- For TPS2000 and THS3000 Series Oscilloscopes

P6015A

- DC to 75 MHz
- High Voltage - 20 kV DC / 40 kV Peak (100 ms Pulse Width)
- Optional 1000X readout coding

Applications

- Power supply design
- Design motor drive
- Electronic ballast
- Power semiconductors
- Switch mode control
- UPS systems
- Power converters

P5100A High-Voltage Probe

The P5100A is a low input capacitance, high-voltage probe (2.5 kV) designed for higher-frequency applications. The probe can be compensated to match plug-ins and oscilloscopes with nominal input capacitances of 7-30 pF. A variety of screw-on accessories provide easy connection to the device-under-test.

TPP0850 High-Voltage Probe

The TPP0850 offers the industry's highest bandwidth probe (800 MHz) for high-voltage signals (up to 2500 V_{p-p}). This is ideal for testing power semiconductors and switch-mode power supplies, which continue to increase in switching speed to minimize power loss, creating a need for faster rise time, higher bandwidth, and higher voltage probes. The TPP0850 meets this need and can be used with switching transistor circuits operating at 1000 V_{RMS}, above the voltage operating range of standard general-purpose probes. It will also be able to accommodate emerging power applications that will require even faster rise time capabilities.

P5150 and P5122 IsolatedChannel™ Applications

In many applications, it is important to be able to isolate the measurement from earth ground and also to isolate the common voltage between channels. The P5150 or P5122, coupled with the TPS2000 and THS3000 Series digital storage oscilloscopes, deliver both the isolation for the measurement from earth ground and full isolation between the channels. The P5150 is the recommended probe for measuring ripple on high-voltage DC supplies. The P5122 probe should not be used on the TPS2000 Series oscilloscopes for AC-coupled measurements on signals with greater than 300 V DC offset.

P6015A High-Voltage Probe

For heavy-duty high-performance measurements of voltages over 2.5 kV, the P6015A is the industry standard. You can measure DC voltages up to 20 kV_{RMS} and pulses up to 40 kV (peak, 100 ms duration). The 75 MHz bandwidth enables you to capture fast, high-voltage signals.

The P6015A uses an environmentally safe silicone compound for a dielectric and never needs refilling. Other features include: A 7-49 pF compensation range, small compensation box that fits on adjacent amplifier inputs, and a readout option for use with most Tektronix digital scopes. With the readout option, displayed voltage amplitude values will be the actual signal value rather than understated by a factor of 1,000.

Note: Using the readout version with other than Tektronix digital oscilloscopes may result in an erroneous readout display.

Specifications

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

Model Overview

| | P5100A | TPP0850 | P5122 | P5150 | P6015A | P6015A Opt. 1R |
|----------------------------------|---|---|------------------------------|---|-------------------------|-------------------------|
| Nominal length | 2 m | 1.3 m | 1.2 m | 2 m | 3 m | 3 m |
| Attenuation | 100X | 50X | 100X | 50X | 1000X | 1000X |
| Bandwidth | 500 MHz | 800 MHz | 200 MHz | 500 MHz | 75 MHz | 75 MHz |
| Rise time (typ) | <700 ps | <525 ps | 2.2 ns | <700 ps | 4.0 ns | 4.0 ns |
| Loading | 40 M Ω / 2.5 pF | 40 M Ω / 1.8 pF | 100 M Ω / 4.0 pF | 40 M Ω / 3.8 pF | 100 M Ω / 3.0 pF | 100 M Ω / 3.0 pF |
| Maximum input voltage, DC or RMS | 2.5 kV _{Peak} 1000 V _{RMS} CAT II | 2.5 kV _{Peak} 1000 V _{RMS} CAT II | 1000 V _{RMS} CAT II | 2.5 kV _{Peak} 1000 V _{RMS} CAT II | 20 kV | 20 kV |
| Maximum float voltage | N/A | N/A | 600 V _{RMS} CAT II | 600 V _{RMS} CAT II 300 V _{RMS} CAT III | N/A | N/A |
| Compensation range (pf) | 7 to 30 | N/A | 10 to 22 | 10 to 25 | 7 to 49 | 7 to 49 |
| Readout | Yes | Yes | No | No | No | Yes |

EMC environment and safety

Compliance information

| | |
|---------|--|
| P5100A | UL61010-031, EN61010-031, IEC61010-031, CSA61010-031 |
| TPP0850 | UL61010-031, EN61010-031, IEC61010-031, CSA61010-031 |
| P5122 | UL61010-1, UL61010B-2-031, CSA61010-1 |
| P5150 | UL61010-031, EN61010-031, IEC61010-031, CSA61010-031 |

Ordering information

Models

| | |
|-----------------------|---|
| P5100A/TPP0850 | 100X, High Voltage Probes Includes: Large hook tip (013-0389-xx), small hook tip (013-0388-xx), 6 in. ground lead (196-3526-xx), 18 in. ground lead (196-3527-xx), ground spring (214-5299-xx), crocodile clip (344-0461-xx), adjustment tool (003-1433-xx), color bands (016-1886-xx), instruction manual. |
| P5122 | 100X, High-voltage Probe for TPS2000/B and THS3000 Series Oscilloscopes. Includes accessory kit (020-3046-xx) Contents: large retractable hook tip, lead with hook tip, lead with crocodile clip, adjustment tool, instruction manual, ground spring. |
| P5150 | 50X, High-voltage Probe for TPS2000/B and THS3000 Series Oscilloscopes. Includes: Large hook tip (013-0389-xx), small hook tip (013-0388-xx), 6 in. ground lead (196-3526-xx), 18 in. ground lead (196-3527-xx), common spring (214-5299-xx), crocodile clip (344-0461-xx), color bands (016-1886-xx), adjustment tool (003-1433-xx), instruction manual. |
| P6015A | 1000X, 3-meter High-voltage Probe. Includes: Hook probe tip (206-0463-xx), banana plug tip (134-0016-xx), crocodile clip - plugs onto ground lead (344-0461-xx), ground lead (196-3363-xx), carrying case (016-1147-xx), instruction manual (070-8223-xx), probe tip (206-0116-xx). |

Recommended accessories (for P5100A, TPP0850, P5150)

| | |
|-------------------------------|-------------|
| Probe Tip to BNC Adapter | 013-0291-xx |
| 0.080 in. diameter Spring Tip | 206-0060-xx |

Warranty

| | |
|----------|-----------------|
| One year | Parts and labor |
|----------|-----------------|

Options

P6015A only option

| | |
|-----------|-----------------------------|
| Option 1R | 3-meter length with readout |
|-----------|-----------------------------|

P6015A Service options

| | |
|---------|--|
| 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 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) |

TPP0850 Service options

| | |
|---------|--|
| 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 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) |



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

ASEAN / Australasia (65) 6356 3900
Belgium 00800 2255 4835*
Central East Europe and the Baltics +41 52 675 3777
Finland +41 52 675 3777
Hong Kong 400 820 5835
Japan 81 (120) 441 046
Middle East, Asia, and North Africa +41 52 675 3777
People's Republic of China 400 820 5835
Republic of Korea +82 2 565 1455
Spain 00800 2255 4835*
Taiwan 886 (2) 2656 6688

Austria 00800 2255 4835*
Brazil +55 (11) 3759 7627
Central Europe & Greece +41 52 675 3777
France 00800 2255 4835*
India 000 800 650 1835
Luxembourg +41 52 675 3777
The Netherlands 00800 2255 4835*
Poland +41 52 675 3777
Russia & CIS +7 (495) 6647564
Sweden 00800 2255 4835*
United Kingdom & Ireland 00800 2255 4835*

Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
Canada 1 800 833 9200
Denmark +45 80 88 1401
Germany 00800 2255 4835*
Italy 00800 2255 4835*
Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
Norway 800 16098
Portugal 80 08 12370
South Africa +41 52 675 3777
Switzerland 00800 2255 4835*
USA 1 800 833 9200

* 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.

Copyright © Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks, or registered trademarks of their respective companies.

25 Oct 2023 56W-10262-15

tek.com

Tektronix[®]