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TPP0850  
800 MHz 50X High Voltage Probe

Instructions

Operating Information

The TPP0850 Probe is a high impedance probe with 50X attenuation that is designed for use with Tektronix DPO/MSO4000B & DPO/MSO5000 series ground-referenced oscilloscopes.

Connect the probe as shown in the illustrations below.

Compensating the Probe (Required for Initial Use)

You **must** compensate the probe after you attach it to an oscilloscope for the first time, or after you move it to another channel on the same oscilloscope.

- 1. Connect the probe to an oscilloscope channel.
- 2. On MSO/DPO5000 instruments:
  - a. Connect the probe to the probe compensation output terminals on the oscilloscope front panel.
  - b. Select Vertical > Probe Cal....
  - c. Select the channel number tab of the channel that you connected the probe to.
  - d. In the Calibration section, click Calibrate Probe.  
On MSO/DPO4000B instruments:
    - a. Press the Channel Menu front panel button for the channel that you connected the probe to.
    - b. Push the More button until Probe Setup is selected.
    - c. Push the Calibrate Probe button and follow the on-screen instructions.

If the probe compensation fails, verify that the signal and ground connections are secure at the Probe Comp connections on the oscilloscope, and secure at the probe head and tip.

Standard Accessories

**WARNING.** To avoid electric shock when using the probe or accessories, keep your fingers behind the finger guard of the probe body and away from the shaded area shown in the accessory illustrations below.

Item	Description
	<b>Small hook tip (TASH)</b> Use this tip to access test points in tight spaces. Screw the hook tip onto the probe tip and then clamp the hook onto the circuit. Rating: 2300 V CAT I 1000 V CAT II  Reorder Tektronix part number 013-0386-xx
	<b>Large hook tip (TALH)</b> Use this tip to connect to large components and terminals. Screw the hook tip onto the probe tip and then clamp the hook onto the circuit. Rating: 2300 V CAT I 1000 V CAT II  Reorder Tektronix part number 013-0384-xx
	<b>Ground lead (TAGL)</b> Slide the ground lead over the probe head and snap it into place. Connect the banana plug end directly to your circuit ground, or use the crocodile clip below. Reorder Tektronix part numbers: 6 inch: 196-3524-xx 18 inch: 196-3525-xx

Item	Description
	<b>Crocodile clip</b> Attach the clip to the banana end of the ground lead and then to your circuit ground.  Reorder Tektronix part number 344-0461-xx
	<b>Color bands</b> Use these bands to identify the oscilloscope channel at the probe head.  Reorder Tektronix part number 016-1886-xx (5 pairs)
	<b>Ground spring</b> To limit aberrations on high frequency signals caused by ground path inductance, bend the spring to reach nearby ground connections (~1 in).  Reorder Tektronix part number 214-5298-xx
	<b>Do not use on circuits that exceed 30 V<sub>rms</sub></b>  Reorder Tektronix part number 214-5298-xx

Optional Accessories

The accessories shown below are available for the probes and are rated ≤30 V unless indicated otherwise.

Accessory	Part number
BNC to Tip Adapter, Unterminated	013-0291-xx
Rubber Spring Tip	206-0060-xx

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071-2884-00

Specifications

Table 1: Electrical and mechanical specifications

Bandwidth (–3 dB)	800 MHz
System rise time (typical)	<525 ps
System input capacitance (typical)	1.8 pF
System attenuation accuracy	50:1 ±2.2%
System input resistance @DC	40 MΩ ±1%
Propagation delay	~6.1 ns
Cable length	1.3 m
Maximum input voltage (see Performance Graphs)	1000 V <sub>RMS</sub> CAT II (2500 V <sub>pk</sub> )

Performance Graphs

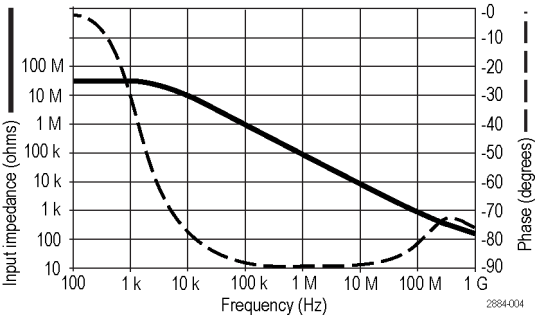
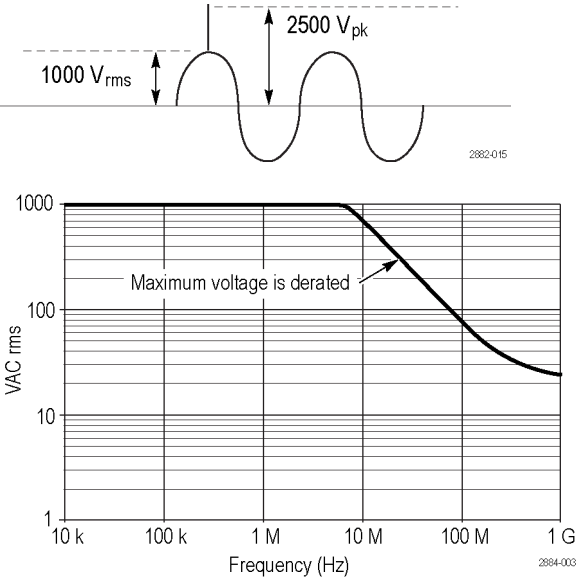



Table 2: Environmental specifications

Characteristics	Description
Temperature	
Operating	0 °C to +50 °C (+32 °F to +122 °F)
Nonoperating	–40 °C to +71 °C (–40 °F to +160 °F)
Humidity	
Operating	5% to 95% relative humidity (RH) up to +30 °C 5% to 75% RH above +30 °C to +65 °C. Noncondensing
Nonoperating	5% to 45% RH +65 °C to +85 °C. Noncondensing
Altitude	
Operating	3.0 km (9,842 ft) maximum
Nonoperating	15.4 km (50,000 ft) maximum

Table 3: Certifications and compliances

Characteristics	Description
EC Declaration of Conformity	Compliance was demonstrated to the following specification as listed in the Official Journal of the European Communities: Low Voltage Directive 2006/95/EC: EN61010-031/A1: 2008
Measurement Category	CAT III: Distribution-level mains, fixed installation
Product Examples	CAT II: Local-level mains, appliances, portable equipment CAT I: Circuits not directly connected to mains.

Characteristics	Description
Pollution Degree 2	Do not operate in environments where conductive pollutants may be present (as defined in IEC 61010-1). Rated for indoor use only.
Additional Safety Standards	IEC61010-031; IEC 61010-031/A1:2008
	 <b>Equipment Recycling.</b> This product complies with the European Union's requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). For more information about recycling options, check the Support/Service section of the Tektronix Web site ( <a href="http://www.tektronix.com">www.tektronix.com</a> ).

Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified. Using the probe or accessories in a manner not specified could result in a shock or fire hazard.

To Avoid Fire or Personal Injury

**Ground-Referenced Oscilloscope Use.** Do not float the reference lead of this probe when using with ground referenced oscilloscopes (for example, DPO, MSO, and TDS series oscilloscopes). The reference lead must be connected to earth potential (0 V).

**Connect and Disconnect Properly.** Connect the probe output to the measurement instrument before connecting the probe to the circuit under test. Disconnect the probe input and the probe reference lead from the circuit under test before disconnecting the probe from the measurement instrument.

**Avoid Electric Shock.** To avoid injury or loss of life, do not connect or disconnect probes or test leads while they are connected to a voltage source.

**Observe All Terminal Ratings.** To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

**Avoid Electric Shock.** When using probe accessories, never exceed the lowest rating of the probe or its accessory, whichever is less, including the measurement category and voltage rating.

**Avoid Electric Overload.** To avoid injury or fire hazard, do not apply potential to any input, including the reference inputs, that varies from ground by more than the maximum rating for that input.

**Avoid Exposed Circuitry and Do not Operate Without Covers.** Do not touch exposed connections and components when power is present.

**Inspect The Probe And Accessories.** Before each use, inspect probe and accessories for damage (cuts, tears, defects in the probe body, accessories, cable jacket, etc.). Do not use if damaged.



**Do Not Operate in Wet/Damp Conditions.**

**Do Not Operate in an Explosive Atmosphere.**


**Keep Product Surfaces Clean and Dry.**


**Safety Terms and Symbols Terms in This Manual.**

These terms may appear in this manual:

-  **WARNING.** Warning statements identify conditions or practices that could result in injury or loss of life.
-  **CAUTION.** Caution statements identify conditions or practices that could result in damage to this product or other property.

**Symbols on the Product.** These symbols may appear on the product:

  
Caution  
Refer to Manual

  
Earth Terminal

Contacting Tektronix

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Warranty Information

For warranty information, go to [www.tektronix.com/warranty](http://www.tektronix.com/warranty).