

# 1 GHz and 500 MHz High Voltage Differential Probes

## TDP1000, TDP0500, P6251 Datasheet



The TDP1000, TDP0500, and P6251 High-voltage Differential Probes provide excellent high-speed electrical and mechanical performance required for today's Switch Mode Power Supply (SMPS), CAN/LIN Bus, and high-speed digital system designs.

### Key performance specifications

- 1 GHz and 500 MHz probe bandwidth
- <1 pF differential input capacitance
- 1 M $\Omega$  differential input resistance
- $\pm 42$  v (DC + pk AC) differential input voltage
- >18 dB CMRR (at 250 MHz 50X attenuation)

### Key features

- Outstanding electrical performance
  - Selectable bandwidth-limiting filters
  - DC reject
- Versatile DUT connectivity
  - Small compact probe head for probing small geometry circuit elements
  - Straight pin, square pin, solder down, variable pitch standard accessories
  - Robust design for reliability

- Easy to use
  - Provides automatic units scaling and readout on the oscilloscope display
  - TDP1000, TDP0500
    - Connect directly to oscilloscopes with the TekVPI™ probe interface
    - Easy access to scope-displayed probe menu for probe setup control and operating status information
    - Remote GPIB/USB probe control through the oscilloscope
    - AutoZero – zeros out output offset
  - P6251
    - Connect directly to the TekProbe™ interface oscilloscopes, or to TekConnect® oscilloscopes using TCA-BNC adapter

### Applications

- High-speed switch mode power supply design
- CAN/LIN bus design
- Digital design and characterization
- Manufacturing engineering test
- Research and development

### High-voltage differential probes

The TDP1000, TDP0500, and P6251 High-voltage Differential Probes are specifically designed for use with and direct connection to Tektronix oscilloscopes with either the TekVPI™ probe interface, or TekProbe BNC Interface. These probes achieve high-speed signal acquisition and measurement fidelity by solving three traditional measurement challenges:

- Outstanding Electrical Performance
- Versatile Device-Under-Test Connectivity
- Ease of Use

## 日图简介

深圳市日图科技有限公司（简称“日图科技”）创始于2004年，核心业务是为国内企业提供测试设备及相关器材的供应服务，公司客户涵盖制造、科研、教育、电力、能源、通信等众多领域。创业至今，日图科技已经成为国内仪器仪表行业中最大的综合服务供应商之一，日图科技作为行内的领先者，有着高效的供应服务体系，并拥有一支专业的、高素质的服务团队。

目前，日图科技已在深圳、上海、广州、苏州、重庆、杭州、西安、香港等国内电子工业发达地区设立了办事与服务机构，并通过日图科技在全国各地的经销网络，为广大客户提供优质的本地化服务。

日图科技一贯秉承“专业、规范、诚信立业，日日图新”的宗旨，并在实践中不断提升公司的服务能力，为客户提供专业、高效、全面、经济的优质供应服务，顾客满意是日图科技永远追求的目标。

## 合作伙伴



## 优势服务

- (1) 产品选型
- (2) 测试解决方案
- (3) 免费测试服务
- (4) 代办计量校准
- (5) 维修维护
- (6) 技术培训
- (7) 物流配送
- (8) 常备应急库存



## Specifications

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

### Warranted characteristics

|  |   |
|--|---|
| <b>Bandwidth (probe only)</b>          |   |
| TDP1000, P6251                         | 1 GHz   |
| TDP0500                                | 500 MHz   |
| <b>Attenuation</b>                     |   |
|  | 5X, 50X   |
| <b>Differential mode input voltage</b> |   |
|  | $\pm 42$ v (DC + pk AC); $30 V_{rms}$               |
| <b>Rise time (probe only)</b>          |   |
| TDP1000, P6251                         | $\leq 350$ ps                                       |
| TDP0500                                | $< 700$ ps  |
| <b>CMRR</b>                            |   |
|  | $> 55$ dB at 30 kHz                                 |
|  | $> 50$ dB at 1 MHz                                  |
|  | $> 18$ dB at 250 MHz (warranted at 50X attenuation) |
| <b>Max input voltage (nondestruct)</b> |   |
|  | $\pm 100$ V (DC + pk AC)                            |
| <b>Gain accuracy at DC</b>             |   |
|  | $\pm 2\%$   |

### Typical characteristics

|  |   |
|--|---|
| <b>Differential input capacitance</b>  |   |
|  | $\leq 1$ pF   |
| <b>Differential input resistance</b>   |   |
|  | 1 M $\Omega$  |
| <b>Sensitivity/noise level</b>         |   |
| <b>5X attenuation</b>                  | 2 mV <sub>rms</sub>                                 |
|  | 10 mV <sub>rms</sub> (referred to the probe output) |
| <b>50X attenuation</b>                 | 1 mV <sub>rms</sub>                                 |
|  | 50 mV <sub>rms</sub> (referred to the probe output) |
| <b>Propogation delay</b>               |   |
|  | 6.5 ns  |
| <b>Common mode input voltage</b>       |   |
|  | $\pm 35$ v (DC + pk AC); $25 V_{rms}$               |
| <b>Differential input offset range</b> |   |
| TDP1000, TDP0500                       | $\pm 42$ V (5X or 50X attenuation)                  |
| P6251                                  | $\pm 4.25$ V (5X attenuation)                       |
|  | $\pm 42$ V (50X attenuation)                        |
| <b>DC reject</b>                       |   |
| <b>5X attenuation</b>                  | 0.4 Hz  |
| <b>50X attenuation</b>                 | 4 Hz  |

## Nominal characteristics

### Selectable bandwidth filter limits

|                  |                             |
|------------------|-----------------------------|
| TDP1000, TDP0500 | 100 Hz, 10 kHz, 1 MHz, Full |
| P6251            | 5 MHz, Full                 |

### Oscilloscope interface recommendations

|                  |                                |
|------------------|--------------------------------|
| TDP1000, TDP0500 | TekVPI™ Probe <sup>1</sup>     |
| P6251            | TekProbe BNC Level II          |
|                  | TekConnect® (TCA-BNC required) |

## Power requirements

|                  |   |
|------------------|---|
| TDP1000, TDP0500 | Powered directly by oscilloscopes with the TekVPI interface   |
| P6251            | Powered directly by the TekProbe-BNC interface, eliminating the need for additional power supplies and cables when used with TekProbe-BNC oscilloscopes.<br>May also be powered through the 1103 TEKPROBE power supply for use with non-TekProbe interface instrumentation. |

## Physical characteristics

### Compensation box dimensions

| Dimension    | TDP1000, TDP0500            |      | P6251 |      |
|--------------|-----------------------------|------|-------|------|
|              | in                          | cm   | in    | cm   |
| Height       | 1.6                         | 4.1  | 1.0   | 2.6  |
| Width        | 1.2                         | 3.05 | 1.6   | 4.1  |
| Length       | 4.2                         | 10.7 | 3.2   | 8.13 |
| Cable length | 47.2 (inches), 1.2 (meters) |      |       |      |

### Weight

| TDP1000, TDP0500 |       | P6251 |       |
|------------------|-------|-------|-------|
| lb               | kg    | lb    | kg    |
| 0.320            | 0.146 | 0.360 | 0.163 |

<sup>1</sup> When using MSO/DPO2000/B series, the TekVPI Power supply (Tektronix part number, 119-7465-xx) and power cable is needed.

## Ordering information

### Models

|         |   |
|---------|---|
| TDP1000 | 1 GHz high-voltage differential probe with TekVPI interface.                |
| TDP0500 | 500 MHz high-voltage differential probe with TekVPI interface.              |
| P6251   | 1 GHz High-voltage Differential Probe with TekProbe-BNC Level II Interface. |

### Options

#### Language options

|         |                           |
|---------|---------------------------|
| Opt. L5 | Japanese manual           |
| Opt. L7 | Simplified Chinese manual |

#### Service options

|              |   |
|--------------|---|
| Opt. C3      | Calibration Service 3 Years                 |
| Opt. C5      | Calibration Service 5 Years                 |
| Opt. R3      | Repair Service 3 Years (including warranty) |
| Opt. R5      | Repair Service 5 Years (including warranty) |
| Opt. SILV600 | Standard warranty extended to 5 years       |
| Opt. SILV900 | Standard warranty extended to 5 years       |

#### Additional service products for the TDP0500 or TDP1000

|                             |   |
|-----------------------------|---|
| TDP0500-R3DW / TDP1000-R3DW | Repair service coverage 3 years (includes product warranty period) 3-year period starts at time of customer instrument purchase |
| TDP0500-R5DW / TDP1000-R5DW | Repair service coverage 5 years (includes product warranty period) 5-year period starts at time of customer instrument purchase |

### Accessories

#### Standard accessories

| Description                  | Quantity included with product | Reorder part number (qty in reorder) |
|------------------------------|--------------------------------|--------------------------------------|
| Y-lead set                   | 2 each                         | 196-3434-xx (1)                      |
| Solder-down lead set, 1 inch | 1 each                         | 196-3504-xx (1)                      |
| Solder-down lead set, 3 inch | 1 each                         | 196-3505-xx (1)                      |
| Micro CKT test tip           | 3 each                         | 206-0569-xx (1)                      |
| Tip savers                   | 2 each                         | 016-1781-xx (2)                      |
| Longhorn adapters            | 2 each                         | 016-1780-xx (5)                      |
| Straight-pin probe tips      | 8 each                         | 016-1891-xx (8)                      |
| 3-inch ground leads          | 2 each                         | 196-3437-10 (2)                      |
| Color-coding bands           | 2 each of 5 colors             | 016-1315-xx (2 each of 5 colors)     |
| Nylon carrying case          | 1 each                         | 016-1952-xx (1)                      |

**Standard warranty**

1 year parts and labor.

**Recommended accessories**

| Description                 | Part number | Quantity       |
|-----------------------------|-------------|----------------|
| BNC to probe tip adapter    | 067-1734-xx | 1 each         |
| Spring loaded grounds       | 016-1782-xx | 1 package of 6 |
| Twin foot adapter           | 016-1785-xx | 1 package of 4 |
| Twin tip adapter            | 016-1786-xx | 1 package of 4 |
| IC micro grabber            | SMK4        | 1 package of 4 |
| TEKPROBE probe power supply | 1103        | 1 each         |



Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.



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



日图抖音号



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