

# Active Probes

## TAP2500 - TAP3500 - TAP4000 Datasheet



The TAP2500, TAP3500 and TAP4000 Single-ended Active FET probes provide excellent high-speed electrical and mechanical performance required for today's digital system designs.

### Key features

- Outstanding electrical performance
  - High probe bandwidth
  - Fast probe rise time
  - Excellent signal fidelity
  - $\leq 0.8$  pF input capacitance
  - 40 k $\Omega$  input resistance
  - -4 V to +4 V input dynamic range
  - -10 V to +10 V<sub>DC</sub> input offset range
  - $\pm 30$  V (DC + peak AC) Maximum input voltage (nondestructive)
- Versatile mechanical performance
  - Small compact probe head for probing small geometry circuit elements
  - DUT attachment accessories enable connection to SMDs as small as 0.5 mm pitch
  - Robust design for reliability

- Easy to use
  - Connects directly to oscilloscopes with the TekVPI™ probe interface
  - Provides automatic units scaling and readout on the oscilloscope display
  - Easy access to oscilloscope probe menu display for probe status/ diagnostic information and to control probe DC offset
  - Remote GPIB/USB probe control through the oscilloscope
- Applications
  - Verification, debug, and characterization of high-speed designs
  - Signal integrity, jitter, and timing analysis
  - Manufacturing engineering and test
  - Signals with voltage swings up to 8 V<sub>p-p</sub>



## TAP2500, TAP3500 and TAP4000 active probes for TekVPI™ probe interface

Selecting the right probe for your application is key to attaining the best signal fidelity in your measurements. Active probes provide truer signal reproduction and fidelity for high-frequency measurements. With our ultra-low input capacitance and unique interface, the TAP2500, TAP3500 and TAP4000 Single-ended Active FET probes provide excellent high-speed electrical and mechanical performance required for today's digital system designs.

Specifically designed for use and direct connection to oscilloscopes with the TekVPI™ probe interface, the TAP2500, TAP3500 and TAP4000 Active FET probes achieve high-speed signal acquisition and measurement fidelity by solving three traditional problems:

- Lower DUT loading effects with  $\leq 0.8$  pF input capacitance and 40 k $\Omega$  input resistance
- Versatile DUT connectivity for attaching to small SMDs
- Preserves instrument bandwidth at the probe tip for up to 3.5 GHz oscilloscopes

## Specifications

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

### Warranted electrical characteristics

Attenuation (probe only)	10X
Rise time (probe only)	<140 ps (TAP2500) <130 ps (TAP3500)

### Typical characteristics

Bandwidth (probe only)	$\geq 2.5$ GHz (TAP2500) $\geq 3.5$ GHz (TAP3500) $\geq 4$ GHz (TAP4000)
Rise time (probe only)	$\leq 115$ ps (TAP4000)
Input capacitance	$\leq 0.8$ pF
Input resistance	40 k $\Omega$
Input dynamic range	$\pm 4.0$ V
Input offset range	$\pm 10$ V
Maximum non-destructive input voltage	$\pm 30$ V (DC + peak AC)
Propagation delay	5.3 ns

## Physical characteristics

### Probe head size

Height	7.6 mm (0.30 in)
Width	7.6 mm (0.30 in)
Length	57.2 mm (2.25 in)

### Other dimensions

Cable length	1300 mm (51 in)
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### Weight

Unit	1.55 kg (3.44 lbs) (probes, accessories, and packaging)
Net	0.091 kg (0.2 lbs) (probe only, using ME lab scale)

## Power requirements

The probe is powered directly by oscilloscopes with the TekVPI probe interface.

## EMC, environment, and safety

### Temperature

Operating	0 °C to +50 ° (+32 °F to 122 °F)
Nonoperating	-40 °C to +71 °C (-40 °F to 160 °F)

### Humidity

Operating	5% to 95% Relative Humidity up to +30 °C (+86 °F) 5% to 85% Relative Humidity at 30 °C to +50 °C (+86 °F to +122 °F) noncondensing
Nonoperating	5% to 95% Relative Humidity up to +30 °C (+86 °F) 5% to 85% Relative Humidity at 30 °C to +75 °C (+86 °F to +167 °F) noncondensing

### Altitude

Operating	Up to 4,400 m (14,436 ft)
Nonoperating	Up to 12,192 m (40,000 ft)

Emissions compliance EN 55011, Class A

### Regulatory

Compliance labeling	C-Tick (Australia/New Zealand)
	CE (European Union)
	WEEE (European Union)

## Ordering information

### Models

TAP2500	2.5 GHz Active Probe
TAP3500	3.5 GHz Active Probe
TAP4000	4 GHz Active Probe

## Standard accessories

### Standard accessories

Description	Quantity with TAP2500, TAP3500 or TAP4000	Reorder part number	Reorder quantity
Y-lead adapter (2 each) and 3 in. ground lead (3 each)	1 set	196-3456-xx	1 set
Micro CKT test tip	2 each	206-0569-xx	1 each
Customizable ground lead (set of 5)	1 set	196-3482-xx	1 set
Color band kit (5 colored pairs)	1 set	016-1315-xx	1 set
Pogo pin ground (set of 10)	1 set	016-1772-10	1 set
Square pin socket (set of 10)	1 set	016-1773-10	1 set
Push-in probe tip (set of 10)	1 set	131-5638-11	1 set
Right-angle adapter (set of 10)	1 set	016-1774-xx	1 set
SureToe™ Adapter (set of 4)	1 set	131-6254-xx	1 set
Antistatic wrist strap	1 each	006-3415-xx	1 each
Nylon carrying case	1 each	016-1952-xx	1 each
Plastic accessory case	1 each	006-7164-xx	1 each
Instruction manual	1 each	071-1836-xx	1 each

### Recommended oscilloscopes

Oscilloscopes with the TekVPI™ probe interface.

### Warranty

One-year warranty covering all parts and labor.

## Options

### Manual 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. 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)
Opt. SILV600	Standard warranty extended to 5 years

## Recommended accessories

013-0309-xx	IC Micro Grabber, Qty 2
015-0678-xx	SMA-to-Probe tip adapter
067-1701-xx	TekVPI calibration fixture (for PV)

CE Marking Not Applicable.



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

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**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](http://www.tek.com).

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