

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
 - ≤ 0.8 pF input capacitance
 - 40 k Ω input resistance
 - -4 V to +4 V input dynamic range
 - -10 V to +10 V_{DC} input offset range
 - ± 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_{p-p}



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 ≤ 0.8 pF input capacitance and 40 k Ω 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
DC attenuation accuracy (probe only)	10:1 \pm 2% (excludes offset error)
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)
Bandwidth (probe only)	DC to \geq 2.5 GHz (TAP2500) DC to \geq 3.5 GHz (TAP3500) DC to \geq 4 GHz (TAP4000)
Rise time (probe only)	\leq 115 ps (TAP4000)
Input capacitance	\leq 0.8 pF
Input resistance	40 k Ω
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)
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Ordering information

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

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)

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

Table continued...

Description	Quantity with TAP2500, TAP3500 or TAP4000	Reorder part number	Reorder quantity
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. For best probe support, download and install the latest version of the oscilloscope software from www.tek.com.

Warranty

One-year warranty covering all parts and labor.

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. 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



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

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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.

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