

Active Probes

TAP2500 - TAP3500 - TAP4000 Datasheet



Key features



Note: The TAP3500 has been discontinued. The TAP4000 is the recommended replacement for the TAP3500.

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.

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)	≥ 2.5 GHz (TAP2500) ≥ 3.5 GHz (TAP3500) ≥ 4 GHz (TAP4000)
Bandwidth (probe only)	DC to ≥ 2.5 GHz (TAP2500) DC to ≥ 3.5 GHz (TAP3500) DC to ≥ 4 GHz (TAP4000)
Rise time (probe only)	≤ 115 ps (TAP4000)
Input capacitance	≤ 0.8 pF
Input resistance	40 k Ω
Input dynamic range	± 4.0 V
Input offset range	± 10 V
Maximum non-destructive input voltage	± 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)
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

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
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

Table continued...

Description	Quantity with TAP2500, TAP3500 or TAP4000	Reorder part number	Reorder quantity
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.

Tektronix 4, 5 and 6-series TekVPI™ Oscilloscopes (TAP1500L only)

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.



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.

2 Apr 2025 51W-19044-13
tek.com

Tektronix®