

# Tektronix

## Probe Selection Guide

Document maintained by the Probes Marketing Team



# Probe / Oscilloscope Compatibility

								
		BNC	TekProbe LEVEL1	TekProbe LEVEL2	TekVPI	TekVPI w/ HardKey	FlexChannel	TekConnect
 <p><b>Std BNC</b> TDS1000/2000 TBS1000 TPS2000 THS3000</p>	●	● <i>Readout not functional</i>	● <i>1103 POWER SUPPLY (50Ω termination may be required)</i>					
 <p><b>TekProbe LEVEL1</b></p>	●	●	● <i>1103 POWER SUPPLY (50Ω termination may be required)</i>					
 <p><b>TekProbe LEVEL2</b> TDS3000 TDS5000 TDS7054/7104</p>	●	●	● <sup>*1</sup>					
 <p><b>TekVPI</b> TBS2000 MSO/DPO2000 MSO/DPO3000 MSO/DPO4000 DPO7000C</p>	●	●	● <sup>*2</sup> <i>TPA-BNC</i>	● <sup>*2,*3,*5</sup>				
 <p><b>TekVPI w/ HardKey</b> 3 Series MDO MSO/DPO4000B MDO3000/4000C MSO/DPO5000</p>	●	●	● <i>TPA-BNC</i>	● <sup>*4,*5</sup>	●			
 <p><b>FlexChannel</b> 4 Series MSO 5 Series MSO 6 Series MSO</p>	●	●	● <i>TPA-BNC</i>	●	●	●		
 <p><b>TekConnect</b> MSO/DSA/DPO70000 TDS6000 TDS7154/B, 7254B, 7404B, 7704B, CSA7154, 7404/B</p>	● <i>TCA-BNC</i>	● <i>TCA-1MEG</i>	● <i>TCA-1MEG (ADA400A, P52xx) or TCA-BNC</i>	● <i>TCA-VPI50 (50Ω probe only)</i>			●	

\*1 Some probes require an external power supply (1103) when used with the TDS3000 series

\*2 When using with MSO / DPO2000 series, a dedicated AC adapter (119-8726-00) and a power cable (161-0342-00) are required.

\*3 When using with MSO / DPO3000 series, depending on the probe you may need a separate AC adapter (119-8726-00) and a power cable (161-0342-00).

\*4 When using with MSO / DPO5000 series, separate AC adapter (119-8726-00) and power cable (161-0342-00) may be required depending on the probe model and number.

\*5 when using with TBS2000 and MDO3000 series, the total power draw capacity can not exceed the maximum power supply capacity of the oscilloscope, see [here](#) for more information.

\*6 Readout does not function in the TBS2000 series.

# Passive Probes

Passive voltage probes ship standard with most [oscilloscopes](#) and provide a low cost, general purpose probing solution. Generally, these probes lack the performance of an active voltage probe but provide the ruggedness and wide dynamic range suitable for visualizing signals over a broad range of applications. Tektronix has released a new class of passive probes that redefine performance in the passive probe product category.

Tektronix new class of passive probe solutions offer:

- Best-in-class bandwidth up to 1 GHz
- Best-in-class input capacitance as low as 3.9 pF which minimizes probe loading effects
- Best-in-class input capacitance which minimizes performance loss when long ground leads are attached
- Automated probe compensation eliminating the need for the compensation screwdriver



TPP1000 / TPP0500B



TPP0200 / TPP0100



P6139B

## Performance Passive Probes

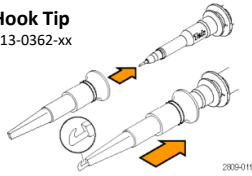
Model	Bandwidth	Attenuation	Input Impedance	Maximum Voltage	Interface	Compensation Range
TPP1000	1000 MHz	10X	10 MΩ    3.9 pF	300 $V_{rms}$ (CAT II)	TekVPI w/ Key	-
TPP0500B	500 MHz	10X	10 MΩ    3.9 pF	300 $V_{rms}$ (CAT II)	TekVPI w/ Key	-
TPP0502	500 MHz	2X	2 MΩ    12.7 pF	300 $V_{rms}$ (CAT II)	TekVPI w/ Key	-
TPP0250	250 MHz	10X	10 MΩ    4 pF	300 $V_{rms}$ (CAT II)	TekVPI w/ Key	-
TPP0051	50 MHz	10X	10 MΩ    12 pF	300 $V_{rms}$ (CAT II)	BNC	15 – 25 pF
TPP0100	100 MHz	10X	10 MΩ    12 pF	300 $V_{rms}$ (CAT II)	BNC	8 - 18 pF
TPP0101	100 MHz	10X	10 MΩ    12 pF	300 $V_{rms}$ (CAT II)	BNC	15 – 22 pF
TPP0200	200 MHz	10X	10 MΩ    12 pF	300 $V_{rms}$ (CAT II)	BNC	8 – 18 pF
TPP0201	200 MHz	10X	10 MΩ    12 pF	300 $V_{rms}$ (CAT II)	BNC	15 – 25 pF
P2220	6 MHz, 200 MHz	1X, 10X	1 MΩ    110 pF, 10 MΩ    17 pF	150 $V_{rms}$ (CAT II), 300 $V_{rms}$ (CAT II)	BNC	15 – 25 pF
P2221	6 MHz, 200 MHz	1X, 10X	1 MΩ    110 pF, 10 MΩ    17 pF	150 $V_{rms}$ (CAT II), 300 $V_{rms}$ (CAT II)	BNC	10 – 25 pF
P5050B	500 MHz	10X	10 MΩ    11 pF	300 $V_{rms}$ (CAT II)	TekProbe LEVEL1	15 – 22 pF
P6139B	500 MHz	10X	10 MΩ    8 pF	300 $V_{rms}$ (CAT II)	TekProbe LEVEL1	8 – 18 pF
P6101B	15 MHz	1X	1 MΩ    100 pF	300 $V_{rms}$ (CAT II)	BNC	-
P3010	100 MHz	10X	10 MΩ    12 pF	300 $V_{rms}$ (CAT II)	TekProbe LEVEL1	10 – 15 pF
THP0301	300 MHz	10X	10 MΩ    11 pF	300 $V_{rms}$ (CAT II)	BNC	-

# Passive Probes - Accessories

Standard Accessories

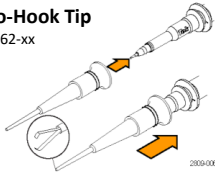
## Hook Tip

013-0362-xx



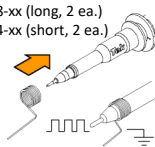
## Micro-Hook Tip

013-0362-xx



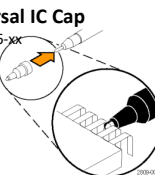
## Ground Springs

016-2028-xx (long, 2 ea.)  
016-2034-xx (short, 2 ea.)



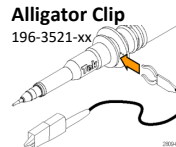
## Universal IC Cap

013-0366-xx



## Ground Lead, with Alligator Clip

196-3521-xx



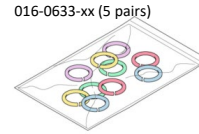
## Insulator Sleeve

342-1194-xx  
TPP1000, TPP0500, TPP0502



## Color Bands

016-0633-xx (5 pairs)



## Adjustment Tool

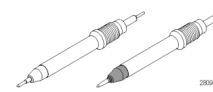
003-1433-xx



## Tip Cartridges

### TPP1000, TPP0600

206-0610-xx (rigid tip)  
206-0611-xx (pogo tip)



**TPP1000 only**  
206-0663-xx (MMCX gold)

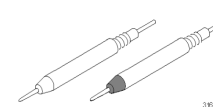


**TPP0502 only**  
206-0666-xx (MMCX gold)

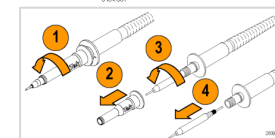


### TPP0500B, TPP0250

206-0649-xx (rigid tip)  
206-0650-xx (pogo tip)



**TPP0502**  
206-0641-xx (rigid tip)  
206-0642-xx (pogo tip)  
**P6139B**  
206-0635-xx (rigid tip)  
**P5050B**  
206-0636-xx (rigid tip)



## MMCX to Square Pin Adapters

131-9717-xx (0.1 inch - blue)  
131-9677-xx (0.062 inch - white)



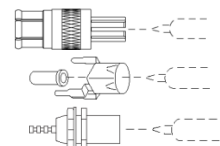
## Electrical Y-Lead

196-3434-xx (square pin)  
TBD (mmcx)



## Rigid/Pogo Probe Tip Adapters

013-0367-xx (tip to BNC)  
016-2016-xx (PCB Test Point)  
131-4210-xx (Chassis-Mount TP)



## MicroCKT Test Tip

206-0569-xx



## DUT Interface Pin Kit

0.018 inch round solder-in pins  
020-3169-xx (qty 20)



## Solder-Aide for Pin Kit

Holds 0.018 inch pins 0.062 inch apart for soldering on 0402 SMT parts



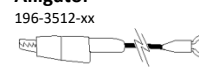
## Ground Lead, 6 inch Clip-On

196-3198-xx



## Ground Lead, 12 inch Alligator

196-3512-xx



## Probe Tip Tripod

352-1170-xx (qty. 2)



### Tip mates directly with MMCX connector



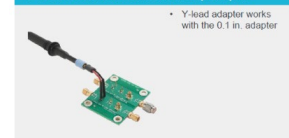
- Shielded, low inductance connection to test points
- Secure hands-free connectivity
- Uses low-cost, industry-standard MMCX connectors
- MMCX connectors may be "lacked on" and used as unplanned test points

### Adapters connect to standard-pitch pins



- Two adapters available for connecting to square pins
  - Spaced on 0.1 in. (2.54 mm) centers
  - Spaced on 0.062 in. (1.57 mm) centers
- Solder tool available for placing 0.062 in. pins

### "Y" leads connect to non-standard-pitch pins



- Y-lead adapter works with the 0.1 in. adapter

### Tripod mount for added stability



- Tripod mount adds stability to square-pin mounted probes
- Tripod may be glued down to the PCB

Optional Accessories

Passive

Active

Power Rail

Differential

Current

High Voltage

High Voltage Diff.

Isolated

Optical

# Active Probes – Low Voltage Single Ended



TAPX000



P6243/P6245



P7240

## Low Voltage Performance Probes – Single Ended

Model	Bandwidth	Attenuation	Input Impedance	Dynamic Range	Offset Range	Maximum Non-Destruct Voltage	Interface
P7240	4 GHz	5X	20 kΩ    ≤ 0.8 pF	±2 V	±5 V	±30 V	TekConnect
TAP4000	4 GHz	10X	40 kΩ    ≤ 0.8 pF	±4 V	±10 V	±30 V	TekVPI
TAP3500	3.5 GHz	10X	40 kΩ    ≤ 0.8 pF	±4 V	±10 V	±30 V	TekVPI
TAP2500	2.5 GHz	10X	40 kΩ    ≤ 0.8 pF	±4 V	±10 V	±30 V	TekVPI
TAP1500	1.5 GHz	10X	1 MΩ    ≤ 1 pF	±8 V	±10 V	±25 V(DC + PkAC)	TekVPI
P6243	1 GHz	10X	1 MΩ    ≤ 1 pF	±8 V	N/A	±15 V(DC + PkAC)	TekProbe LVL2
P6245	1.5 GHz	10X	1 MΩ    ≤ 1 pF	±8 V	±10 V	±15 V(DC + PkAC)	TekProbe LVL2

A low voltage single-ended probe is typically used for measuring high-speed, ground referenced signals up to 12 V. These low voltage probes are the best choice for making measurements on high impedance, high frequency circuit elements which require minimal probe loading. Users should select probes with a low input capacitance specification (~1 pF) to minimize the probe's loading effect on the circuit. A probe with lower input capacitance will offer higher input impedance at higher frequencies.

Tektronix Low Voltage Single-ended Probe solutions offer:

- Bandwidths up to 4 GHz.
- Very high input impedance with low input capacitance (<1 pF)
- Most extensive set of probe accessories for optimum measurement performance

# Power Rail Probes

## Power Rail Probes

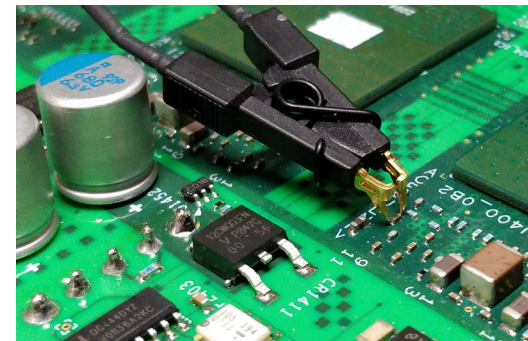
Model	Bandwidth	Attenuation	Input Impedance	Dynamic Range	Offset Range	Interface
TPR4000	4 GHz	1.25X	50 k $\Omega$ DC – 10 kHz, 50 $\Omega$ AC > 100 kHz	$\pm 1$ V	$\pm 60$ V	TekVPI
TPR1000	1 GHz	1.25X	50 k $\Omega$ DC – 10 kHz, 50 $\Omega$ AC > 100 kHz	$\pm 1$ V	$\pm 60$ V	TekVPI



The TPR1000 and TPR4000 probes provide a low noise, large offset range solution for measurement of ripple on DC power rails ranging from  $-60$  to  $+60$  VDC. Tektronix's power rail probes offer industry leading low noise and high offset range required to measure AC ripple between  $200$   $\mu$ V p-p and  $800$  mV p-p at up to  $4$  GHz.

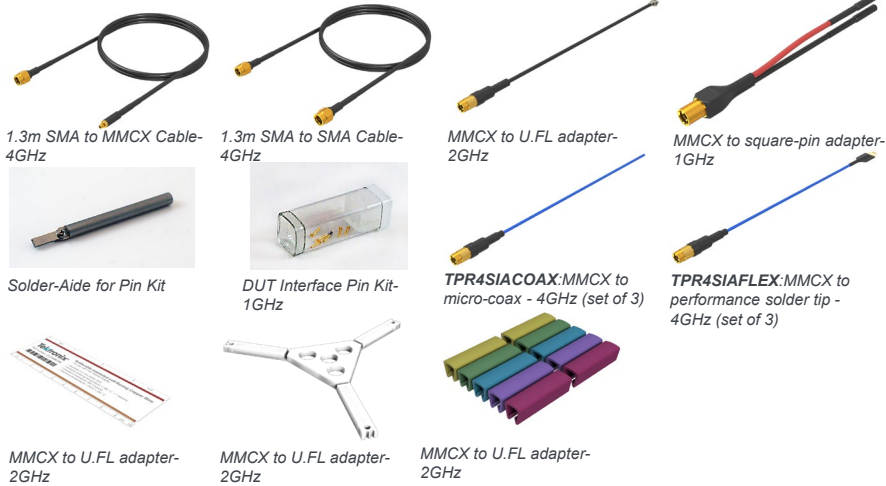
### Key Specs:

- $<300$   $\mu$ V p-p noise on 6 Series MSO (20 MHz BW Limit)
- $<1$  mV p-p noise on 6 Series MSO (Full Bandwidth)
- $\pm 60$  V offset range
- Offset setting error:  $\pm 2$  mV max,  $\pm 0.4$   $\mu$ V typical

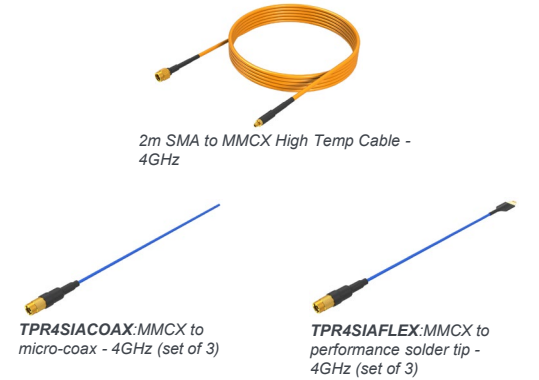


# Power Rail Probes Accessory Kits

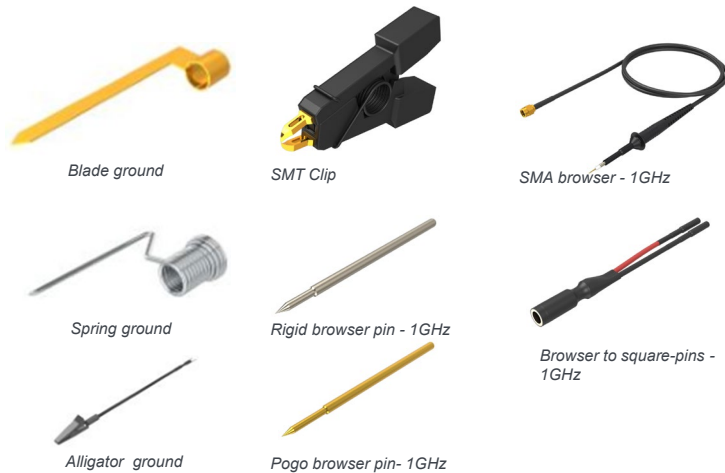
## Standard Accessories (TPR4KIT Kit)



## TPR4KITHT Kit



## TPRBRWSR1G Kit



## TPR4SIAFLEX Kit



## TPR4SIACOAX Kit



# Differential Probes- Low Voltage



P7600



P7700



P7500



TDP7700

## Low Voltage Performance Probes – Differential

Model	Bandwidth	Attenuation	Input Impedance	Differential Input Voltage	Operating Window	Offset Range	Interface
P7633	33 GHz	.25X - 20X	50 Ω / 225 Ω	2V , 10V	±4 , ±5	±4	TekConnect
P7625	25 GHz	.25X - 20X	50 Ω / 225 Ω	2V , 10V	±4 , ±5	±4	TekConnect
P7720	20 GHz	*****	See TekFlex Accessory Performance Table	*****	*****	*****	TekConnect
P7716	16 GHz	*****	See TekFlex Accessory Performance Table	*****	*****	*****	TekConnect
P7713	13 GHz	*****	See TekFlex Accessory Performance Table	*****	*****	*****	TekConnect
P7708	8 GHz	*****	See TekFlex Accessory Performance Table	*****	*****	*****	TekConnect
P7520A	>20 GHz	5X, 12X	100kΩ	5X: ±0.625V 12.5X: ±1.6 V	+3.7 to -2.0V	2.5 to -1.5V	TekConnect
P7516	16 GHz	5X, 12X	100kΩ	5X: ±0.625V 12.5X: ±1.6 V	+4.0 to -2.0V	2.5 to -1.5V	TekConnect
P7513A	>13 GHz	5X, 12X	100kΩ	5X: ±0.625V 12.5X: ±1.6 V	+4.0 to -2.0V	2.5 to -1.5V	TekConnect
P7508	8 GHz	5X, 12X	100kΩ	5X: ±0.625V 12.5X: ±1.6 V	+4.0 to -2.0V	2.5 to -1.5V	TekConnect
P7506	6 GHz	5X, 12X	100kΩ	5X: ±0.625V 12.5X: ±1.6 V	+4.0 to -2.0V	2.5 to -1.5V	TekConnect
P7504	4 GHz	5X, 12X	100kΩ	5X: ±0.625V 12.5X: ±1.6 V	+4.0 to -2.0V	2.5 to -1.5V	TekConnect
TDP7708	8 GHz	*****	See TekFlex Accessory Performance Table	*****	*****	*****	Flex Channel
TDP7706	6 GHz	*****	See TekFlex Accessory Performance Table	*****	*****	*****	Flex Channel
TDP7704	4 GHz	*****	See TekFlex Accessory Performance Table	*****	*****	*****	Flex Channel

Differential signaling used in high speed serial standards requires very accurate characterization. The industry-leading bandwidth and signal fidelity found in a Tektronix low voltage differential probe ensures that you see every possible detail. Tektronix offers TriMode™ architecture which streamlines measurement acquisition by enabling you to make differential, single-ended, and common mode measurements with a single connection!

## TekFlex Accessory Table

Tekflex Accessory	Attenuation	Input Impedance	Differential Input Voltage	Operating Window	Offset Range
P77STFLXA P77STFLXB P77STCABL	4X	100kΩ    0.4 pF	5V	±5.25V	±4V
P77BRWSR	10X	150kΩ    22 pF	12V	±10V	±10V
P77C292MM	Variable	50Ω (SMA)	2V	±4V	±4V



# Differential Probes- Low Voltage Continued



TDP3500/TDP4000



TDP1500



TDP1000



TDP0500



P6247/P6248



ADA400A

## Low Voltage Performance Probes – Differential

Model	Bandwidth	Attenuation	Input Impedance	Differential Input Voltage	Operating Window	Offset Range	Interface
TDP4000	≥4 GHz	5X	100 kΩ    ≤ 0.3 pF	±2 V	±15 V (DC + pk AC)	±1 V	TekVPI
TDP3500	≥3.5 GHz	5X	100 kΩ    ≤ 0.3 pF	±2 V	±15 V (DC + pk AC)	±1 V	TekVPI
TDP1500	≥1.5 GHz	1X, 10X	200 kΩ    ≤ 1 pF	1X: ±0.85 V 10X: ±8.5 V	±25 V (DC + pk AC)	±7.0 V	TekVPI
TDP1000	1 GHz	5X / 50X	1 MΩ    ≤ 1 pF	50X: ± 42 V 5X: ± 4.2 V	±42 V (DC + pk AC) 30 Vrms	±42 V	TekVPI
TDP0500	500 MHz	5X / 50X	1 MΩ    ≤ 1 pF	50X: ± 42 V 5X: ± 4.2 V	±42 V (DC + pk AC) 30 Vrms	±42 V	TekVPI
P6248	>1.5 GHz	1X, 10X	200 kΩ    <1 pF	1X: ±0.85 V 10X: ±8.5 V	±7.0 V	depends on scope	TekProbe LVL2
P6247	>1 GHz	1X, 10X	200 kΩ    <1 pF	1X: ±0.85 V 10X: ±8.5 V	±7.0 V	depends on scope	TekProbe LVL2
ADA400A	>1 MHz	.1X - 100X	1 MΩ    ~ 55 pF	.1-80V**	±10 to ±40 V**	±1 to ±40 V**	TekProbe LVL2

Differential signaling used in high speed serial standards requires very accurate characterization. The industry-leading bandwidth and signal fidelity found in a Tektronix low voltage differential probe ensures that you see every possible detail.

\*\* Based on Gain Setting

# Differential Probes- Low Voltage Accessories



P7500 Tips

**DC Calibration Fixture**  
Use this fixture to calibrate your probes DC accuracy when making critical measurements.

**G3PO/SMPM Bullet Removal Tool**

**G3PO/SMPM Bullet Replacement Kit**

**RF Connector Maintenance**  
High performance RF connectors can often be fragile. Use these accessories to perform regular maintenance checks on your high performance probe to make sure you are getting the best signal integrity.

## High Temp & High Density



**Damped Wire Tip**  
Order #: 020-2959-XX, Kit of 25 Low cost solder tip. Not TriMode™ capable. Used with the 020-2954-00 Socket Cable. Up to 8 GHz bandwidth.



**TriMode™ High Temperature Tip**  
Order #: 020-2958-XX, Kit of 10 High temperature tip with a -55°C to 150°C range. Used with the 020-2960-XX Socket Cable XL. Up to 6 GHz bandwidth.



**TriMode™ Micro-Coax Tip**  
Order #: 020-2955-XX, Kit of 10 Quick connect solder tip. Used with the 020-2954-XX Socket Cable. Up to 4 GHz bandwidth.

## Mid-bus Probing



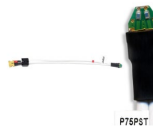
**TriMode™ Resistor Solder Tip**  
Order #: 020-2936-XX, Kit of 1 High performance solder tip. Easy to solder tip resistors. Up to 18 GHz bandwidth.



**TriMode™ Extended Resistor Solder Tip**  
Order #: 020-2944-XX, Kit of 1 Medium performance solder tip. Easy to solder extra long tip resistors. Up to 7 GHz bandwidth.



**TriMode™ Long Reach Solder Tip**  
Order #: P75TLRST, Kit of 1 High performance solder tip. Up to 20 GHz bandwidth.



**TriMode™ Performance Solder Tip**  
Tip Order #: P75PST, Kit of 1 High performance solder tip. Up to 25 GHz bandwidth.

## Memory Testing



**TriMode™ Long Reach Solder Tip (75 Ω tip resistor)**  
Order #: 020-3131-XX, Kit of 1 High performance solder tip for use with memory chip interposers with embedded 100 Ω resistors. Up to 20 GHz bandwidth



**TriMode™ Long Reach Solder Tip (0 Ω tip resistor)**  
Order #: 020-3135-XX, Kit of 1 High performance solder tip for use with memory chip interposers with embedded 175 Ω resistors. Up to 20 GHz bandwidth.

## Precision Browsing

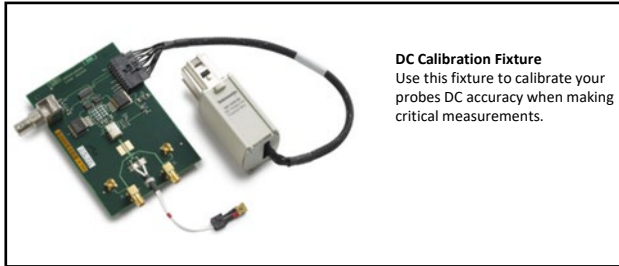


**Precision Differential Probing Module**  
Order #: P75PDPM High performance handheld probing module. Up to 18 GHz bandwidth.

# Differential Probes- Low Voltage Accessories



P7600 Tips



**DC Calibration Fixture**  
Use this fixture to calibrate your probes DC accuracy when making critical measurements.



G3PO/SMPM Bullet Removal Tool

G3PO/SMPM Bullet Replacement Kit

**RF Connector Maintenance**  
High performance RF connectors can often be fragile. Use these accessories to perform regular maintenance checks on your high performance probe to make sure you are getting the best signal integrity.



**P76CA-292C**  
33 GHz Bandwidth Coaxial Adapter with 2.92 mm (Male) connectors and 6" of high performance cable. This adapter is calibrated at the input connectors and is ideal for directly connecting to devices with 2.92 mm or SMA output connectors.



**P76CA-SMP**  
33 GHz Bandwidth Coaxial Adapter with SMP (Female) connectors and 6" of high performance cable. This adapter is calibrated at the input connectors and is ideal for directly connecting to devices with SMP output connectors.

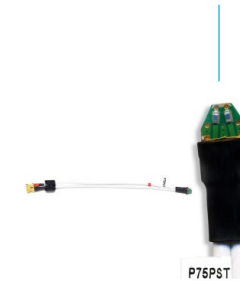


**P76TA**  
30 GHz Bandwidth P7500 Tip Adapter. The probe and oscilloscope system will support up to 30 GHz of bandwidth when this adapter is used with the P75PST Performance Solder Tip.



**P76CA-292**  
33 GHz Bandwidth Coaxial Adapter with 2.92 mm (Female) connectors. This adapter is calibrated at the input connectors and is ideal for use with off the shelf or custom cables. Low skew cable pairs should be used to preserve full bandwidth performance.

**Unique probe filters**  
The P7600 Series probes contain probe specific S-parameter data. Attaching a P7600 probe to a MSO/DPO7000DX or DPO7000SX oscilloscope transfers this data to the instrument to create unique system DSP filters based on the specific S-parameter data of the oscilloscope and the probe. Creating unique filters based on the specific response of the system is critical as bandwidths increase. At bandwidths of 33 GHz, small variations in the signal path can lead to significant variation in frequency response. These variations are corrected using DSP filtering.



**P75PST**  
High performance solder tip

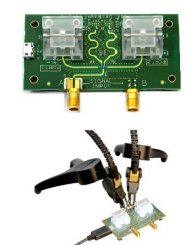
# Differential Probes- Low Voltage Accessories



P7700 & TDP7700 TekFlex™ Accessories



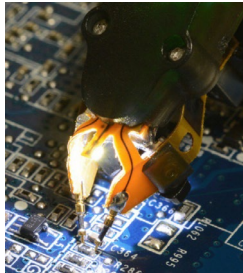
**DC Calibration Fixture**  
Order #: 067-4889-xx  
Use this fixture to calibrate your probes DC accuracy when making critical measurements. For P7700 probes.



**Probe Deskw Fixture**  
Order #: P77DESKEW  
Use this fixture to time align your TekFlex probes for the best timing accuracy to make critical timing measurements.



**P77BRWSR**  
16 GHz handheld browser accessory enables hand or fixtured probing with adjustable tip spacing. The browser's tips are adjustable in spacing using a convenient thumb wheel. A headlight on the tip enhances visibility of the probe point and can be switched on and off as needed.



The browser tips are constructed of high strength BeCu and super-ceramic resistors. Each pin has integrated pogo springs and a crown cut tip to help make solid mechanical connections to components and traces.



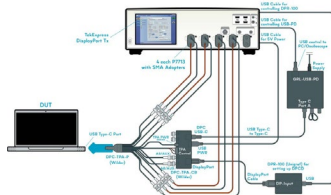
Probe Stand and wand accessories for both hands free and hands on browsing give you flexibility when you are debugging your circuit.

**TekFlex connector technology**  
The P7700 & TDP7700 Series TriMode probes use the TekFlex connector technology that combines a high-speed signal path with power and communication support for an active buffer tip in a single, easy to attach accessory connector. The TekFlex connector has a pinch-to-open design that when open requires minimal force to attach an accessory tip. When the TekFlex connector is closed, it provides a secure connection to the accessory to avoid accidental disconnections.

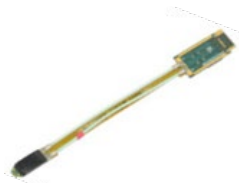


**P77C292MM**  
SMA/2.92mm adapter for connecting to coaxial connectors RF/coaxial connectors, such as SMA, are often found on test fixtures or on prototype board designs. Attaching a P7700 or TDP7700 series probe to these onboard connectors is easy with the SMA adapter.

**DISPLAYPORT TYPE-C TRANSMITTER TESTING SETUP**



The P77C292MM adapter includes TriMode functionality enabling differential, single ended, and common mode measurements. Include variable termination voltage that can be set manually or automatically using voltage sense circuitry in the P7700 or TDP7700 probes over a range of  $\pm 4$  V for testing display technologies like HDMI and Display Port.



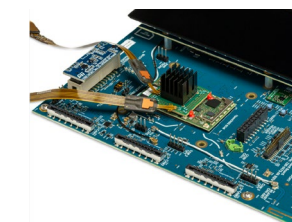
**P77STCABL**  
20GHz solder down accessory with a long reach, flexible cable combined with an active buffer amplifier on the tip. The long tip reach make it great for escaping tight board geometries while maintaining electrical performance.



**P77STFLXA**  
20GHz solder down, flex-circuit accessory with an active buffer amplifier on its tip. Each tip has a stored factory AC calibration which is de-embedded automatically on the instrument



**P77STFLXB**  
16GHz solder down, flex-circuit accessory provides a probing solution for DDR4 and LPDDR4 electrical validation when used with Nexus XH Series Interposers. Each tip has a stored factory AC calibration and a nominal XH series interposer response which is de-embedded automatically on the instrument



**P77STFLRB**  
16GHz solder down, Long-Reach, flex-circuit accessory provides a probing solution for DDR and LPDDR electrical validation when used with Nexus XH Series Interposers. The FLR tips' increased flexibility and long reach helps access inaccessible test points. Each tip has a stored factory AC calibration and a nominal XH series interposer response which is de-embedded automatically on the instrument.



**P77STFLRA**  
20GHz solder down, Long Reach, flex-circuit accessory with an active buffer amplifier on its tip. The FLR tips' increased flexibility and long reach helps access inaccessible test points Each tip has a stored factory AC calibration which is de-embedded automatically on the instrument.

# Differential Probes- Low Voltage Accessories



TDP0500, TDP1000, & TDP1500 Accessories

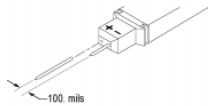
## Straight [Pins]

Reorder: 016-1891-XX

**Usable bandwidth**  
<1.5 GHz

**Typical rise time**  
<350 ps

**Connection type**  
.PCB, Vias, & ICs



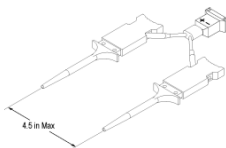
## MicroCKT Test Tip

Reorder: 206-0569-XX

**Usable bandwidth**  
<100 MHz

**Typical rise time**  
<3.5 ns

**Connection type**  
Leaded components



Use the MicroCKT test tips to access dense circuitry and IC leads spaced down to 10 mil-centers.

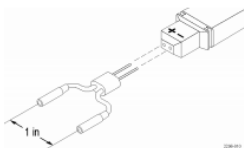
## Y-Lead Adapter

Reorder: 196-3434-XX

**Usable bandwidth**  
<100 MHz

**Typical rise time**  
<3.5 ns

**Connection type**  
0.025" Square Pin



Use the Y-lead adapter to extend the reach of the probe and to connect to 0.025 inch square pins spaced as far as 1.5 inches apart. Use with Square pin adapter

## Longhorn Adapter

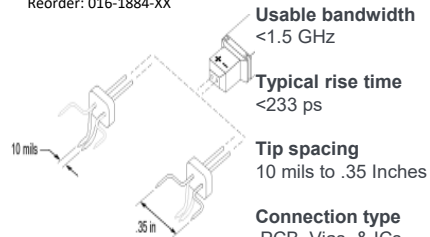
Reorder: 016-1884-XX

**Usable bandwidth**  
<1.5 GHz

**Typical rise time**  
<233 ps

**Tip spacing**  
10 mils to .35 Inches

**Connection type**  
.PCB, Vias, & ICs



## 1" Solder Down Adapter

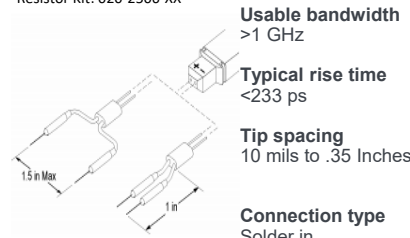
Resistor Kit: 020-2506-XX

**Usable bandwidth**  
>1 GHz

**Typical rise time**  
<233 ps

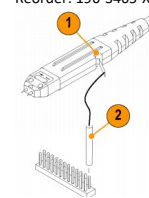
**Tip spacing**  
10 mils to .35 Inches

**Connection type**  
Solder in



## 3" Ground Lead

Reorder: 196-3465-XX



## Color Bands

Reorder: 196-3465-XX



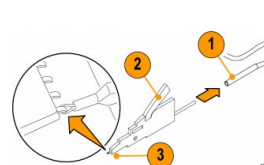
## IC Micro-Grabber

Reorder: SMK4

**Usable bandwidth**  
<100 MHz

**Typical rise time**  
<3.5 ns

**Connection type**  
Leaded components



IC Micro-Grabber Use the IC Micro-Grabber to probe the leads on integrated circuits that are surface-mounted.

## 3" Solder Down Adapter

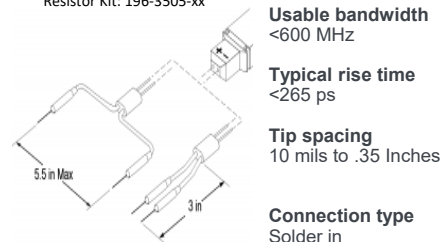
Resistor Kit: 196-3505-xx

**Usable bandwidth**  
<600 MHz

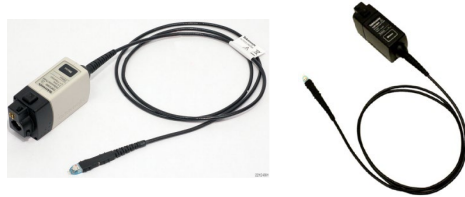
**Typical rise time**  
<265 ps

**Tip spacing**  
10 mils to .35 Inches

**Connection type**  
Solder in



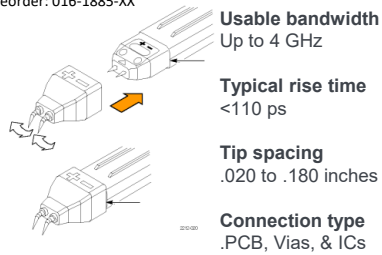
# Differential Probes- Low Voltage Accessories



TDP3500, & TDP4000 Accessories

## Variable Spacing Adapter

Reorder: 016-1885-XX



**Usable bandwidth**  
Up to 4 GHz

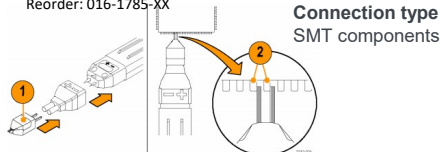
**Typical rise time**  
<110 ps

**Tip spacing**  
.020 to .180 inches

**Connection type**  
.PCB, Vias, & ICs

## TwinFoot™ Adapter

Reorder: 016-1785-XX

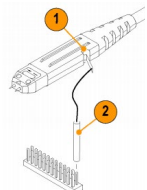


**Connection type**  
SMT components

Use the TwinFoot adapter to probe two adjacent leads on a surface-mount integrated circuit. Use with Solder-in Adapter

## 3" Ground Lead

Reorder: 196-3465-XX



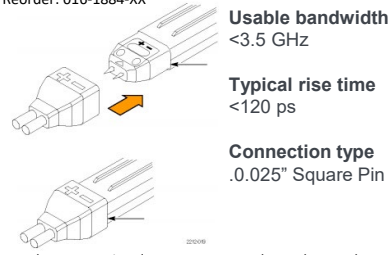
## Color Bands

Reorder: 196-3465-XX



## Square Pin Adapter

Reorder: 016-1884-XX



**Usable bandwidth**  
<3.5 GHz

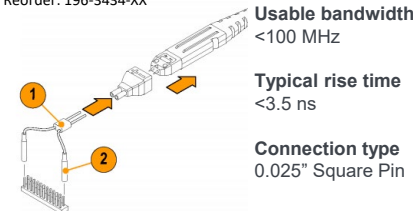
**Typical rise time**  
<120 ps

**Connection type**  
.0.025" Square Pin

Use the square pin adapter to connect the probe to other accessories, such as the Y-lead adapter. The inputs on the adapter are spaced 0.100 inches apart.

## Y-Lead Adapter

Reorder: 196-3434-XX



**Usable bandwidth**  
<100 MHz

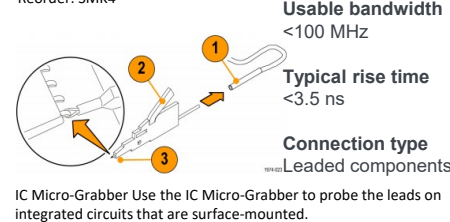
**Typical rise time**  
<3.5 ns

**Connection type**  
0.025" Square Pin

Use the Y-lead adapter to extend the reach of the probe and to connect to 0.025 inch square pins spaced as far as 1.5 inches apart. Use with Square pin adapter

## IC Micro-Grabber

Reorder: SMK4



**Usable bandwidth**  
<100 MHz

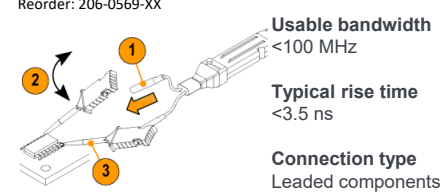
**Typical rise time**  
<3.5 ns

**Connection type**  
Leaded components

IC Micro-Grabber Use the IC Micro-Grabber to probe the leads on integrated circuits that are surface-mounted.

## MicroCKT Test Tip

Reorder: 206-0569-XX



**Usable bandwidth**  
<100 MHz

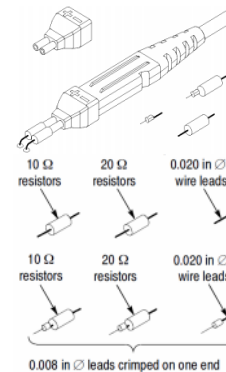
**Typical rise time**  
<3.5 ns

**Connection type**  
Leaded components

Use the MicroCKT test tips to access dense circuitry and IC leads spaced down to 10 mil-centers.

## Solder in Adapter + Resistor Kit

Solder in Kit: 020-2505-XX  
Solder in adapter: 016-1296-XX  
Resistor Kit: 020-2506-XX



**Usable bandwidth**  
Up to 4.3 GHz

**Typical rise time**  
Down to 124 ps

**Connection type**  
Solder in

Use the solder-in adapter with the resistors and wires in the kit to create soldered test points to your circuit.

0.008 in Ø leads crimped on one end

# Current Probes

Tektronix current probe solutions offer:

- The broadest range of AC/DC and AC-only current probes
- Measurement accuracy from  $\mu$ As to 2000 A
- Best-in-class bandwidth up to 120 MHz
- Best-in-class current clamp sensitivity down to 1 mA
- The only products with 3rd Party Safety Certification (UL, CSA, ETL)
- The only products with bare wire voltage ratings
- Automatic readout and scaling when used with Tektronix oscilloscopes so you don't have to convert volts to amps or manually set the scaling

## Current Probes – DC/AC

Model	Maximum Current	Minimum Current*	Bandwidth	Rise Time	Interface
TCPA300		Current Probe Amplifier			TekProbe LVL 2
TCP312A	30 A DC; 21.2 $A_{RMS}$ ; 50 A peak	1 mA	DC - 100 MHz	$\leq 3.5$ ns	Amplifier
TCP305A	50 A DC; 35.4 $A_{RMS}$ ; 50 A peak	5 mA	DC - 50 MHz	$\leq 7$ ns	Amplifier
TCP303	150 A DC; 150 $A_{RMS}$ ; 500 A peak	5 mA	DC - 15 MHz	$\leq 23$ ns	Amplifier
TCPA400		Current Probe Amplifier			TekProbe LVL 2
TCP404XL	500 A DC; 500 $A_{RMS}$ ; 750 A peak	1 A	DC - 2 MHz	$\leq 175$ ns	Amplifier
TCP0030A	30 A DC; 30 $A_{RMS}$ ; 50 A peak	1 mA	DC - 120 MHz	$\leq 2.92$ ns	TekVPI
TCP0020	20 A DC; 20 $A_{RMS}$ ; 100 A peak	10 mA	DC - 50 MHz	$\leq 7$ ns	TekVPI
TCP2020	20 A DC; 20 $A_{RMS}$ ; 100 A peak	10 mA	DC - 50 MHz	$\leq 7$ ns	BNC
TCP202A	15 A DC; 15 $A_{RMS}$ ; 50 A peak	10 mA	DC - 50 MHz	$\leq 7$ ns	TekProbe LVL 2
TCP0150	150 A DC; 150 $A_{RMS}$ ; 500 A peak	5 mA	DC - 20 MHz	$\leq 17.5$ ns	TekVPI
A622	100 A DC; 70.7 $A_{RMS}$ ; 100 A peak		DC - 100 kHz	$\leq 3.5$ $\mu$ s	BNC

\* winding the conductor multiple times through the current probe jaws increases the sensitivity



TCP0030A



TCPA300



TCP312A

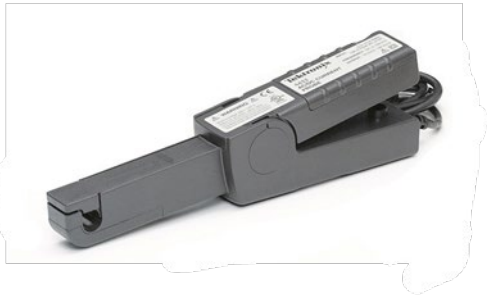


TCP303

# Current Probes



P6021A



A622



TRCP3000



CT1



CT6



A621

## Current Probes – AC only

Model	Maximum Current	Minimum Current	Sensitivity*	Bandwidth	Interface
P6021A	10.6 $A_{RMS}$ ; 250 A peak		2 mA/mV, 10 mA/mV	120 Hz - 60 MHz	TekProbe
P6022	4 $A_{RMS}$ ; 100 A peak		1 mA/mV, 10 mA/mV	935 Hz - 120 MHz	BNC
TRCP3000	3000 A peak	500 mA	2 mV/A	1 Hz - 16 MHz	BNC
TRCP0600	600 A peak	500 mA	10 mV/A	12 Hz - 30 MHz	BNC
TRCP0300	300 A peak	250 mA	20 mV/A	9 Hz - 30 MHz	BNC
CT1	450 mA $A_{RMS}$ ; 12 A peak		5 mV/mA	25 kHz – 1 GHz	BNC
CT2	2.5 $A_{RMS}$ ; 36 A peak		1 mV/mA	1.2 kHz – 200 MHz	BNC
CT6	120 mA $A_{RMS}$ ; 6 A peak		5 mV/mA	250 kHz – 2 GHz	BNC

\* winding the conductor multiple times through the current probe increases the sensitivity



# High Voltage Probes - Single Ended



## High Voltage Probes – Single Ended

Model	Bandwidth	Max Voltage	Attenuation	Input Impedance	Compensation Range	Interface
P5100A	500 MHz	1000 $V_{RMS}$ (CAT II) 2.5 kV peak	100X	40 M $\Omega$    2.5 pF	7 pF – 30 pF	TekProbe LEVEL 1
P6015A	75 MHz	20 $kV_{RMS}$ 40 kV peak	1000X	100 M $\Omega$    $\leq$ 3 pF	7 pF – 49 pF	TekProbe L1 or BNC
P5122	200 MHz	1000 $V_{RMS}$ (CAT II)	100X	100 M $\Omega$    4.6 pF	10 pF – 25 pF	BNC
P5150	500 MHz	1000 $V_{RMS}$ (CAT II) 2.5 kV peak	50X	40 M $\Omega$    3.8 pF	10 pF – 25 pF	BNC
TPP0850	800 MHz	1000 $V_{RMS}$ (CAT II) 2.5 kV peak	50X	40 M $\Omega$    1.8 pF	Auto compensated by scope	TekVPI

A high voltage single-ended probe is typically used for measuring ground referenced signals up to 40 kV. However, some single-ended probes are designed for instruments with isolated or floating inputs for measurements that are not ground referenced. Users should select probes with a low input capacitance specification ( $< 4$  pF) to minimize the probe's loading effect on the circuit because a probe with lower input capacitance will offer higher input impedance at higher frequencies.

Tektronix High Voltage Probe solutions offer:

- Best-in-class bandwidth up to 800 MHz
- Best-in-class probe loading with input capacitance as low as 1.8 pF
- The only products with 3rd Party Safety Certification (UL, CSA, ETL)
- Most extensive set of probe accessories

# Differential Probes – High Voltage

## High Voltage Differential Probes

A high voltage differential probe is used for measuring the voltage difference between two test points where neither test point is at ground. High voltage differential probes from Tektronix can be used for signals up to 6000 V. These probes are the best choice for making non-ground referenced, floating or isolated measurements in large part due to their common mode rejection capability. These products are designed, manufactured, and serviced by Tektronix.

Tektronix High Voltage Differential Probe solutions offer:

- Best-in-class bandwidth and probe loading
- The only products with 3rd Party Safety Certification (UL, CSA, ETL)
- High and medium voltage products to support varying dynamic range and measurement resolution requirements
- Most extensive set of probe accessories



THDP0200/TMDP0200



THDP0100



P5202A/P5205A






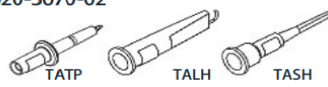
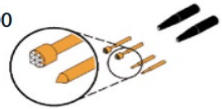




P5210A



P5200A

Model	Bandwidth	Rise Time	Attenuation	Maximum Differential Voltage	Maximum Voltage to Earth Ground	Differential Input Capacitance	Single Ended Input capacitance	Differential Input Resistance	Single Ended Input Resistance	Cable Length (T <sub>propagation</sub> )	Interface
P5200A	50MHz	7.8ns	50:1 / 500:1	±1300V	1000Vrms (CAT II)	2pF	4pF	10MΩ	5MΩ	1.5m (21ns)	BNC (1MΩ)
P5202A	100MHz	3.8ns	20:1 / 200:1	±640V	300Vrms (CAT II)	2pF	4pF	5MΩ	2.5MΩ	1.5m (21ns)	TekProbe LVL 2 (1MΩ)
P5205A	100MHz	3.8ns	50:1 / 500:1	±1300V	1000Vrms (CAT II)	2pF	4pF	10MΩ	5MΩ	1.5m (21ns)	TekProbe LVL 2 (1MΩ)
P5210A	50MHz	7.8ns	100:1 / 1000:1	±5600V	2300Vrms (CAT I)	2.5pF	5pF	40MΩ	20MΩ	1.5m (21ns)	TekProbe LVL 2 (1MΩ)
TMDP0200	200MHz	1.8ns	25:1 / 250:1	±750V	550Vrms (CAT I)	2pF	4pF	5MΩ	2.5MΩ	1.5m (21ns)	VPI (1MΩ)
THDP0200	200MHz	1.8ns	50:1 / 500:1	±1500V	1000Vrms (CAT II)	2pF	4pF	10MΩ	5MΩ	1.5m (21ns)	VPI (1MΩ)
THDP0100	100MHz	3.5ns	100:1 / 1000:1	±6000V	2300Vrms (CAT I)	2.5pF	5pF	40MΩ	20MΩ	1.5m (21ns)	VPI (1MΩ)

Accessory	Description	P5205A	P5200A/ P5205A	THDP0100/ P5210A	TMDP020 0	THDP0200
196-3523-00	 Extension lead(1.5m) x2	450Vrms CAT I 300Vrms CAT II  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>	2300Vrms CAT I 1000Vrms CAT III  <b>STANDARD</b>	550Vrms CAT I 300Vrms CAT III  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>
AC280-FL	 Hook Clip x2	450Vrms CAT I 300Vrms CAT II  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>	1000Vrms CAT I 1000Vrms CAT III  <b>OPTIONAL</b>	550Vrms CAT I 300Vrms CAT III  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>
AC283-FL	 Micro Grabber Tip x2	450Vrms CAT I 300Vrms CAT II  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>	1000Vrms CAT I 1000Vrms CAT III  <b>OPTIONAL</b>	550Vrms CAT I 300Vrms CAT III  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>
AC285-FL	 Alligator clip(large) x2	450Vrms CAT I 300Vrms CAT II  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>	1000Vrms CAT I 1000Vrms CAT III  <b>OPTIONAL</b>	550Vrms CAT I 300Vrms CAT II  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>
TP175-FL	 Probe leads x2	450Vrms CAT I 300Vrms CAT II  <b>OPTIONAL</b>	1000Vrms CAT II 600Vrms CAT III  <b>OPTIONAL</b>	1000Vrms CAT I 1000Vrms CAT III  <b>OPTIONAL</b>	550Vrms CAT I 300Vrms CAT III  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>
020-3070-02	 Hook Clip Kit	450Vrms CAT I 300Vrms CAT II  <b>OPTIONAL</b>	1000Vrms CAT II 600Vrms CAT III  <b>OPTIONAL</b>	2300Vrms CAT I* 1000Vrms CAT III  <b>STANDARD</b>	550Vrms CAT I 300Vrms CAT II  <b>STANDARD</b>	1000Vrms CAT II 600Vrms CAT III  <b>STANDARD</b>
020-3107-00	 Pogo pi adapter kit x2	150Vrms CAT II  <b>OPTIONAL</b>	150Vrms CAT II  <b>OPTIONAL</b>	150Vrms CAT II  <b>OPTIONAL</b>	150Vrms CAT II  <b>STANDARD</b>	150Vrms CAT II  <b>STANDARD</b>
012-1724-00	 Test probe extension (fine point) adapter x2	300Vrms CAT I 300Vrms CAT II  <b>OPTIONAL</b>	300Vrms CAT II  <b>OPTIONAL</b>	300Vrms CAT I 300Vrms CAT II  <b>OPTIONAL</b>	300Vrms CAT I 300Vrms CAT II  <b>STANDARD</b>	300Vrms CAT II  <b>STANDARD</b>
344-0670-00	 Alligator clip(small) x2	450Vrms CAT I 300Vrms CAT II  <b>OPTIONAL</b>	1000Vrms CAT II 600Vrms CAT III  <b>OPTIONAL</b>	THDP010: 300Vrms CAT I P5210A: 1000Vrms CAT I 1000Vrms CAT III  <b>OPTIONAL</b>	300Vrms CAT I  <b>STANDARD</b>	300Vrms CAT I  <b>STANDARD</b>

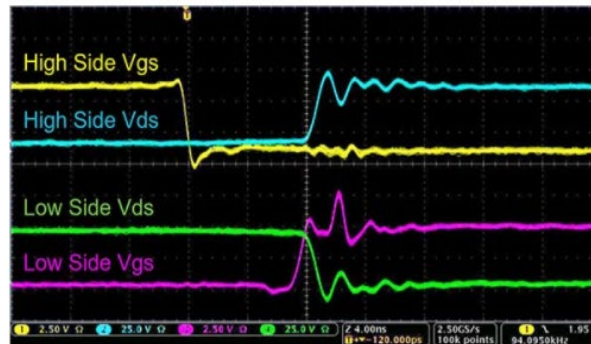
# IsoVu® Differential Isolated Measurement System



Model	Bandwidth	Rise Time	Cable Length	Maximum Differential Input Voltage	Maximum Offset range	Maximum Common Mode Voltage to Earth	Interface
TIVP02	200MHz	2ns	2m	3300V**	±2500V**	60kV	VPI (4/5/6 Series)
TIV02L	200MHz	2ns	10m	3300V**	±2500V**	60kV	VPI (4/5/6 Series)
TIVP05	500MHz	850ps	2m	3300V**	±2500V**	60kV	VPI (4/5/6 Series)
TIVH05L	500MHz	850ps	10m	3300V**	±2500V**	60kV	VPI (4/5/6 Series)
TIVP1	1GHz	450ps	2m	3300V**	±2500V**	60kV	VPI (4/5/6 Series)
TIVP1L	1GHz	450ps	10m	3300V**	±2500V**	60kV	VPI (4/5/6 Series)

\*\* TIVPWS500X

IsoVu® probes are the right tool for today's demanding power measurement challenges given their industry leading 1 GHz bandwidth, 160 dB or 100 Million to 1 common mode rejection, 60 kV common mode voltage, large  $\pm 3300$  V differential range and superior probe loading.



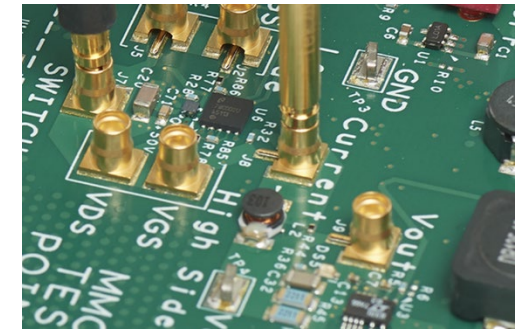
## Optimize for Performance and Efficiency

The benefits of a power design can only be realized when the switching circuit, the gate drive circuit, and the layout, are all properly designed and optimized. IsoVu can be used to:

- Characterize the gate drivers, Vgs, Vds, and Is
- Characterize the time alignment of high and low side events
- Optimize and tune the switching characteristics

# IsoVu® Differential Isolated Measurement System

TIVM Tip Model	Attenuation	Differential Voltage	Offset Range	Input Impedance	Max Non-Destruct Voltage Vpk (DC + peak AC) 1	CMRR						Standard Attachment
						DC - 1MHz	1 MHz	100MHz	200MHz	500MHz	1GHz	
SMA Input (50 Ω Mode)	1:1	±5 V	±25 V	50 Ω    N.A.	5V RMS	160 dB	145 dB	100 dB	100 dB	100 dB	90 dB	
SMA Input (1 MΩ Mode)	1:1	±5 V	±25 V	1 MΩ    11 pF	100 Vpk	160 dB	145 dB	100 dB	100 dB	100 dB	90 dB	
TIVPMX10X	10:1	±50 V	±200 V	10 MΩ    2.8 pF	250 Vpk	160 dB	115 dB	92 dB	90 dB	85 dB	80 dB	Sensor Tip
TIVPMX50X	50:1	±250 V	±250 V	10 MΩ    < 5 pF	300 Vpk	160 dB	104 dB	85 dB	80 dB	73 dB	70 dB	Sensor Tip
TIVPSQ100X	100:1	±500 V	±500 V	10 MΩ    < 5 pF	600 Vpk	160 dB	100 dB	70 dB	57 dB	39 dB	30 dB	0.1" Square Pin
TIVPWS500X	500:1	±2.5 kV	±2.5 kV	40 MΩ    < 4 pF	3300 Vpk	160 dB	100 dB	60 dB	48 dB	33 dB	25 dB	0.1" Wide Square Pin
TIVPMX1X	1:1	±5 V	±25 V	50 Ω or 1 MΩ    11 pF	5V RMS (50 Ω) 100 Vpk (1 MΩ)	160 dB	145 dB	100 dB	100 dB	100 dB	90 dB	Sensor Tip



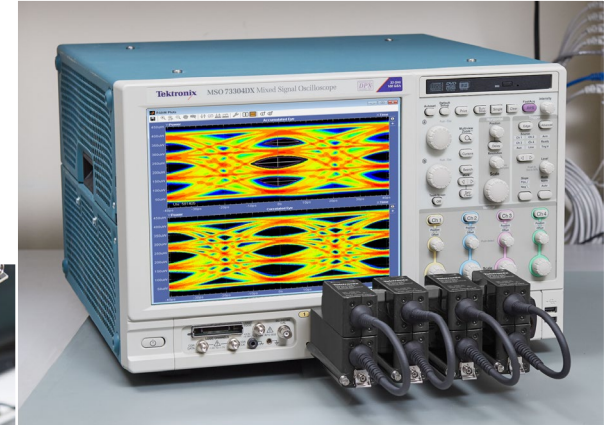
# Optical Probes

The [DPO70E Series Optical Probes](#) paired with a DPO70000 real time oscilloscope delivers high performance and advanced debug capabilities that are necessary for designers to fully troubleshoot 400G PAM4 signals (up to 56 Gb/s) and reduce time to market needs. These probes can also be used as a conventional O/E with a flat frequency response for general signal acquisition up to their respective bandwidth; 33 GHz using the DPO70E1 or 59 GHz using the DPO70E2.

- Versatile and modular design for use with multiple high-performance real time oscilloscope models
- Broad wavelength range with FC/PC and FC/APC connector options
- Deep optical PAM4 and PAM2 (NRZ) signal analysis and error detection
- User selectable Optical Reference Receivers (ORR)



DPO70E Series Optical probes using the TekConnect channel on a MSO73304DX Oscilloscope



DPO70E Series Optical probes utilizing the ATI channel on the 70 GHz DPO70000SX Series Oscilloscope

## High Bandwidth Optical Probes

Model	Electrical Bandwidth (-3 dB)	Wavelength Range Opt. FC/PC	Input Fiber	Oscilloscope Interface	Rise Time (10% to 90%)	Optical Noise	Maximum Input Power (Linear Response)
DPO70E1	33 GHz	750 nm to 1650 nm	FC/PC: 50 $\mu$ m SMF and MMF compatible	ATI (1.85 mm RF connector) and TekConnect	10.2 ps, typical	6.6 $\mu$ W rms (TekConnect / ATI)	4 mW, typical
		Calibrated at 850 nm, 1310 nm, 1550 nm	FC/APC: 9 $\mu$ m SMF compatible				
DPO70E2	59 GHz	1200 nm to 1650 nm	FC/PC: 9 $\mu$ m SMF compatible	ATI (1.85 mm RF connector) and TekConnect	7.5 ps, typical	10 $\mu$ W rms (ATI)	2 mW, typical
		Calibrated at 1310 nm, 1550 nm	FC/APC: 9 $\mu$ m SMF compatible				

Find more valuable resources at [TEK.COM](http://TEK.COM)

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