Re-Inventing **High Power Semiconductor Device Characterization**

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Reinventing High Power Semiconductor Device Characterization

Green initiatives and energy efficiency standards worldwide have motivated engineers to find ways to design more efficient semiconductor devices and integrated circuits. High power semiconductor end applications are becoming increasingly demanding, requiring test instrumentation capable of characterizing significantly higher voltages, higher power levels, faster switching times, higher peak currents, and lower leakage currents than ever before. Tektronix and Keithley offer a broad spectrum of tools, both hardware and software, for power device characterization.

Demand for Higher Power Semi Devices Will Require Pushing Instrumentation to New Extremes

Many segments of the electronics industry, including the semiconductor industry, are focused on increasing energy efficiency, including boosting the efficiency of energy generation, transmission, and consumption. Power semiconductor devices are used as switches or blocking devices in such applications as motor control, voltage regulation and power conversion. New “greener” devices can offer higher breakdown voltages, lower leakage currents, lower ON-resistances, higher power levels, and/or faster switching times and create new requirements for test and measurement. More ...

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Testing for Today’s and Tomorrow’s Power Semiconductor Devices

Due to more demanding end applications and the use of advanced materials such as Silicon Carbide (SiC) and Gallium Nitride (GaN) in today’s power devices, test instrumentation must be capable of characterizing significantly higher voltages, higher power levels, faster switching times, higher peak currents, and lower leakage currents than ever before.

Even more significant, breakdown and leakage test are typically performed at 2–3 times the level of the rated or operating voltage. When the devices are in the ON state, they have to pass through tens or hundreds of amps with minimal loss; when they are OFF, they have to block thousands of volts with minimal leakage currents.

At the same time, semiconductor technology is being advanced so that it can operate at much higher frequencies to further drive efficiencies.
Keithley’s Configurable DC High Power Solutions

Model 2636B SourceMeter® SMU Instrument
- Two independent SMU channels
- Up to 200V, up to 10A pulsed
- 0.1nA measurement resolution

Model 2657A High Power Source Measurement Unit (SMU) Instrument
- Up to 3000V, Up to 180W of power
- 1nA measurement resolution
- Digitizing and integrating ADCs

Model 2651A High Power System
SourceMeter Instrument
- Up to 50A pulsed (up to 100A with 2 units)
- Up to 2000W pulse / 200W DC power
- Pulse widths from 100µs to DC
- Digitizing and integrating ADCs

Model 8010 Test Fixture: Provides safe environment for testing at 3kV and at 100A

TSP® Express Software: Web-based plug & play I-V characterization and test software with simple spreadsheet and graphing functionality

Wafer-level software: ACS

Parametric Curve Tracer software: ACS Basic Edition

Parametric Test Mode

Trace Mode
For fast and simple single device testing!
Tektronix AC High Power Solutions

**Mixed Signal Oscilloscopes**

Key Features
- High sample rates to capture transitions
- Deep record lengths for long acquisition
- Power analysis application software available
- Supports full range of high voltage, high current, and differential probes

Typical Tests
- Comprehensive switching loss analysis
- Turn-on/Turn-off timing & characterization
- Recovery time
- Dynamic On Resistance

**Probes**

Our probes and accessories are perfectly matched to our industry-leading oscilloscopes. With over 100 choices available, you’re certain to find the probe that best fits your needs, including:
- High voltage probes to 40kV
- Current probes to 2000A
- High voltage differential probes to 6kV

**AFG3000C Arbitrary / Function Generator**

Key Features
- Function, arbitrary waveform, and pulse capabilities allow complete control loop characterization
- 12 standard waveforms and up to 20V p-p provide unmatched performance and versatility
- Pulse generation with variable duty cycle, slope times, noise add, and pulse width modulation capability
- Floating output with the capability to add external offset of up to 42V
- Expand the number of channels by synchronizing multiple units

Typical Tests
Switching-time-related-tests:
- Stimulus for switching loss analysis
- Turn-on/Turn-off timing & characterization
- Recovery time

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High Power Device Characterization with Parametric Curve Tracers

Characterizing and testing today’s high power semiconductor devices and components is placing a high demand on test equipment. Device design engineers need equipment that can support them throughout the complete lifecycle of a power device. Today, high power characterization systems are available in two main forms — complete turnkey systems and building blocks that must be configured by the user and completed with good software. Turnkey systems can be set up and running quickly, but they can be quite expensive and limited in the breadth of testing that can be performed.

Keithley’s Parametric Curve Tracer configurations are complete solutions configured with a variety of high quality instruments, cables, test fixtures, and software. This building block approach offers the advantages of easy upgrading or modification to meet changing test needs. Additionally, these instruments and accessories can be used across different test system platforms, such as for reliability or device qualification testing.

Keithley’s Parametric Curve Tracer configurations include everything necessary for the characterization engineer to develop a complete test system quickly. The configurations support both parametric and trace test modes, thus including the best of a curve tracer and a parameter analyzer.

Download the Parametric Curve Tracer Configurations datasheet.

Key Facts
- Configurable power levels
  - From 200V to 3kV
  - From 1A to 100A
- Wide dynamic range
  - From μV to 3kV
  - From fA to 100A
- Capacitance-voltage measurement
- DC or pulsed I-V to 50μs
- Test management software includes both trace mode for real-time control and parametric mode for parameter extraction

Applications
- Power semiconductor device characterization and testing
- Characterization of GaN and SiC, LDMOS, and other devices
- Reliability studies on power devices
- Incoming inspection and device qualification

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Characterize and Test High Voltage Electronics and Power Semiconductors

The **Model 2657A High Power/High Voltage System SourceMeter®** instrument adds high voltage to Keithley’s SourceMeter SMU instruments family of high speed, precision source measurement units. Suitable for R&D, production, and QA/PA, it:

- Sources or sinks up to 3000V @ 20mA or 1500V @ 120mA – able to capture important parametric data that other equipment can’t
- Provides 1fA (femtoamp) current measurement resolution for measuring the low-leakage requirements of next-generation devices
- Eliminates the hassle of integrating power supplies and instruments by combining a precision power supply, current source, DMM, arbitrary waveform generator, V or I pulse generator, electronic 18-bit load, and trigger controller.

Like the Model 2651A, the 2657A comes with dual 22-bit precision ADGs and dual 18-bit 1μs per point digitizers for high accuracy and high speed transient capture. Like other Series 2600A SMU instruments, it includes TSP® Express characterization software, LabVIEW® driver, and Keithley’s Test Script Builder software development environment.

The Model 2657A can source or sink up to 3000V @ 20mA or 1500V @ 120mA.

**Model 2657A Applications**

- Power semiconductor device characterization and testing
- Characterization of GaN, SiC, and other compound materials and devices
- Breakdown and leakage testing to 3kV
- Characterization of sub-millisecond transients

Keithley offers a broad spectrum of tools, both hardware and software, for power device characterization. A typical device test system could include the high voltage Model 2657A, one or two high current Model 2651A instruments, and up to three low power SMU instruments (other Series 2600A instruments or the Model 4200-SCS semiconductor characterization system). System configuration is made safer and simpler with the optional new Model 8010 High Power Device Test Fixture or individual protection modules. TSP-Link® technology links Series 2600A instruments to form powerful multi-channel systems that rival the system speed of large ATE systems that cost tens of thousands of dollars more.
The recent push for higher power, more efficient semiconductor devices has spurred the development of devices based on advanced materials that surpass the limitations of devices built on silicon. DC characterization of power semiconductor devices requires test systems that incorporate high voltage and high current source measurement units (SMUs). The steps required to properly build these test systems are detailed in this new application note. More...
Get Unmatched Performance for Characterizing and Testing High Power, High Current Electronics

Our new Model 2651A High Power/High Current System SourceMeter® Instrument simplifies characterizing today’s challenging high power electronics with unprecedented power, precision, speed, flexibility, and ease of use. It combines a highly flexible, four-quadrant voltage and current source/load with precision voltage and current meters.

- Source or sink 2,000W of pulsed power (±40V, ±50A), 200W of DC power (±10V@±20A, ±20V@±10A, ±40V@±5A)
- Easily connect two units (in series or parallel) to create solutions up to ±100A or ±80V
- 1pA resolution enables precise measurement of very low leakage currents
- 1μs per point (1MHz), continuous 18-bit sampling, accurately characterizes transient behavior

Choice of digitizing or integrating measurement modes

With the Model 2651A, you can choose from either digitizing or integrating measurement modes for precise characterization of both transient and steady-state behavior. Two independent ADCs define each mode—one for current and the other for voltage—which run simultaneously for accurate source readback without sacrificing test throughput. The digitizing measurement mode’s 18-bit ADCs can support continuous one-microsecond-per-point sampling, making it ideal for waveform capture and measuring transient characteristics with high precision. The integrating measurement mode, based on 22-bit ADCs, supports applications that demand the highest possible measurement accuracy and resolution. This ensures precise measurements of the very low currents and voltages common in next-generation devices.

A single Model 2651A unit can source and sink up to ±40V and ±50A. Connect two units in parallel via the built-in TSP-Link expansion bus to extend the system’s current range to 100A or connect them in series to expand the voltage range to 80V. The embedded Test Script Processor (TSP®) included simplifies testing by allowing you to address multiple units as a single instrument so that they act in concert. The built-in trigger controller can synchronize the operation of all linked channels to within 500 nanoseconds.

Model 2651A Applications

- Power semiconductor, high brightness LED (HBLED), and optical device characterization and testing
- Characterization of GaN, SiC, and other compound materials and devices
- Semiconductor junction temperature characterization
- Reliability testing
- High speed, high precision digitization
- Electromigration studies

Built for building systems. The embedded TSP controller and TSP-Link interface in each Series 2600A instrument make it easy to link multiple Model 2651As and other Series 2600A instruments to create an integrated test system with up to 64 channels. Precision timing and tight channel synchronization are guaranteed with built-in 500ns trigger controllers. The fully isolated, independent channels of Series 2600A instruments allow true SMU-per-pin testing without the power and/or channel limitations of mainframe-based systems.
Ready to learn more?

- Download the Model 2651A datasheet.

- Read these Application Briefs:
  - **Achieving Fast Pulse Measurements for Today’s High Power Devices.** Learn how to achieve the fast, pulsed measurements needed for today’s high power devices.
  - **Testing to 100A by Combining Model 2651A High Power SourceMeter® Instruments.** Learn how two of these instruments can be combined to test semiconductor devices for power management, even when those devices operate at currents beyond that of a single 2651A instrument.

Click on the video above to view our demo of how you can combine two Model 2651As to source currents as high as 100A!

Want assistance, a quote, or to place an order? Contact us online.

- Join the discussion on our application forum.
Software for High Power Device Characterization

Keithley’s Automated Characterization Suite (ACS) Software combines with the high power, precision, speed, and flexibility of Keithley’s Series 2600 High Power System SourceMeter® SMU instruments and Parametric Curve Tracer configurations to create a complete environment for high power semiconductor component characterization. Depending on your application, choose from ACS Basic Edition for single device testing or ACS Standard Edition for wafer-level, multi-DUT test automation or reliability analysis.

ACS Basic Edition for Semiconductor Component and Discrete Devices
- Designed for discrete devices such as mosfets, BJTs, IGBTs, diodes, resistors, etc.
- Rich set of test libraries for fast and easy test setup without programming
- Built-in analysis tools for extracting parametric data
- Includes both interactive, real-time trace mode and parametric mode

Download the ACS Basic Edition data sheet.

ACS Standard Edition for Characterization, Parametric Testing, Reliability Test, and Die Sort
- Supports a wide array of instruments and probers
- Develop and execute tests at the device, site, wafer, and cassette level
- Supports multiple SourceMeter® source measure unit (SMU) instruments for parallel test

Download the ACS Standard Edition data sheet.

Interactive probe station control speeds and simplifies test development and debugging by combining interactive testing with manual probe station control.

Wafer and binning map tools allow you to browse through the test results on either a wafer-by-wafer or site-by-site basis. You can also overlay traces from multiple sites to make quick comparisons.

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MSO/DPO5000 Mixed Signal Oscilloscopes

Offering up to 2GHz bandwidth and 10GS/s sample rate, the MSO/DPO5000 Mixed Signal Oscilloscope Series features affordable, yet powerful Windows®-based models. With over 25 different application software packages available, you can test many different applications with a single instrument. Exclusive Tektronix features such as FastAcq with DPX® technology and a superior suite of triggers enable you to quickly find intermittent events that other oscilloscopes miss. Combine that with comprehensive analysis tools and innovative Wave Inspector® controls, the MSO/DPO5000 Series provides the feature-rich tools you need to simplify and speed debug of your complex design.

Key Performance Specifications
- 2GHz, 1GHz, 500MHz, and 350MHz bandwidth models
- Up to 10GS/s real-time sample rate on one or two channels and up to 5GS/s on all four channels
- Up to 250 megapoint record length with MultiView zoom™
- >250,000wfms/s maximum waveform capture rate with FastAcq™
- FastFrame™ segmented memory acquisition mode with >310,000 waveforms per second capture rate
- Standard 10MΩ passive voltage probes with less than 4pF capacitive loading and 500MHz or 1GHz analog bandwidth
- User-selectable bandwidth limit filters for better low-frequency measurement accuracy
- Suite of advanced triggers, with optional Visual Trigger
- Optional power analysis module enables quick and accurate analysis of switching loss, harmonics, safe operating area (SOA), modulation, ripple, and slew rate (di/dt, dv/dt)
- TekVPI® probe interface supports active, differential, and current probes for automatic scaling and units
- Wave inspector® controls provide easy navigation and automated search of waveform data
- 53 automated measurements, waveform histograms, and FFT analysis for simplified waveform analysis
- 10.4 in. (264 mm) bright XGA display with touch screen
- Small footprint and lightweight – only 8.12 in. (206 mm) deep and less than 15 lb. (6.7 kg)

Want assistance, a quote, or to place an order?
Contact us online.

Join the discussion on our application forum.
MSO/DPO4000B Mixed Signal Oscilloscopes

With the MSO/DPO4000B Mixed Signal Oscilloscope Series, you can analyze up to 20 analog and digital signals with a single instrument to quickly find and diagnose problems in complex designs. Bandwidths up to 1 GHz and up to 5X oversampling on all channels ensure you have the performance you need to see fast-changing signal details. To capture long windows of signal activity while maintaining fine timing resolution, the MSO/DPO4000B Series offers deep record length of up to 20M points standard on all channels. And with Wave Inspector® controls for rapid waveform navigation, limit and mask testing, and automated power analysis — your Tektronix oscilloscope provides the feature-rich tools you need to simplify and speed debug of your complex design.

**Key Performance Specifications**
- 1-GHz, 500-MHz, 350-MHz, and 100-MHz bandwidth models
- 2 and 4 analog channel models
- Up to 5 GS/s sample rate on all channels
- Up to 20 mega-point record length on all channels
- >50,000 wfm/s maximum waveform capture rate
- Suite of advanced triggers

**Key Features**
- Optional power analysis module enables quick and accurate analysis of switching loss, harmonics, safe operating area (SOA) modulation, ripple, and slew rate (di/dt, dv/dt.)
- TekVPI® probe interface supports active, differential, and current probes for automatic scaling and units
- Wave Inspector® controls provide easy navigation and automated search of waveform data
- 41 automated measurements, and FFT analysis for simplified waveform analysis
- 10.4 in. (264 mm) bright XGA color display

Ships with one passive probe per analog channel, with up to 1GHz bandwidth and an industry-best 3.9pF of capacitive loading.

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MSO/DPO3000 Mixed Signal Oscilloscopes

With the MSO/DPO3000 mixed signal oscilloscope series, you can analyze up to 20 analog and digital signals with a single instrument to quickly find and diagnose problems in complex designs. Bandwidths up to 500MHz and a minimum of 5x oversampling on all channels ensure you have the performance you need for many of today’s mainstream applications. To capture long windows of signal activity while maintaining fine timing resolution, the MSO/DPO3000 offers a deep record length of 5M points standard on all channels.

Key Performance Specifications
- 500, 300, and 100 MHz bandwidth models
- Bandwidth is upgradable (up to 500MHz)
- Two and four analog channel models
- 2.5GS/s sample rate on all channels
- 5 mega-point record length on all channels
- >50,000wfm/s maximum waveform capture rate
- Suite of advanced triggers

Key Features
- Optional power analysis module enables quick and accurate analysis of switching loss, harmonics, safe operating area (SOA), modulation, ripple, and slew rate (di/dt, dv/dt.)
- TekVPI® probe interface supports active, differential, and current probes for automatic scaling and units
- Wave Inspector® Controls provide easy navigation and automated search of waveform data
- 29 automated measurements, and FFT analysis for simplified waveform analysis
- 9in. (229mm) WVGA widescreen color display
- Small footprint and lightweight – Only 5.8in (147 mm) deep and 9lb (4 kg)

Want assistance, a quote, or to place an order? Contact us online.

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Read the MSO/DPO3000 Mixed Signal Oscilloscope Data Sheet

Watch the on-line demo.

Watch the on-line demo.
Power Measurement and Analysis Software

DPOPWR | DPO4PWR | DPO3PWR
DPOPWR Power Measurement and Analysis Software transforms Tektronix Windows oscilloscopes into sophisticated analysis tools that quickly perform switching component analysis on power semiconductor devices and then generate detailed test reports in customizable formats to document results. DPOPWR, DPO4PWR, and DPO3PWR software is used with Tektronix MSO/DPO5000, MSO/DPO4000, and MSO/DPO3000 Series Mixed Signal Oscilloscopes.

Key Features
- Performs switching loss measurements on power semiconductor devices using Tektronix Windows-based oscilloscopes
- Customizable safe operating area mask testing with linear and log scale for reliability testing
- Sophisticated report generation saves time

Switching Component Analysis
The accurate calculation and evaluation of energy loss in power supplies has become even more critical with the drive to higher power conversion efficiency and greater reliability. Although almost all components of a power supply contribute to energy losses, the majority of energy losses in a switch-mode power supply (SMPS) occur when the switching transistor transitions from an OFF to an ON state and vice versa. DPOPWR measures the switching losses by measuring the voltage drop across the switching device and the current flowing through the switching device.

Safe Operating Area
The Safe Operating Area (SOA) plot is a graphical technique for evaluating a switching device to ensure that it is not being stressed beyond its maximum specifications. SOA testing can be used to validate performance over a range of operating conditions, including load variations, temperature changes, and variations in input voltages. Limit testing can also be used with SOA plots to automate the validation.

Read the Power Measurement and

Power Probes

High Voltage Probes
- Wide range of voltage measurements – Up to 40kV peak (100ms pulse)
- Single-ended or differential

Learn more.

Current Probes
- Easy to use and accurate AC/DC current measurements
- Amplitude measurements from 1mA to 2,000A
- DC up to 2GHz
- Split core and solid core construction

Learn more.

Differential Probes
- Bandwidth up to 30GHz
- Easily measure differential signals
- Low input capacitance: down to <0.3pF
- High common mode rejection ratio (CMRR)
- Wide range of probe tips for easier circuit access

Learn more.

Need help finding the right probe for your application? Visit the online, interactive Probe Selector Tool at www.tektronix.com/probes to match your need with the correct probe. Click Here.
AFG3000C Arbitrary/Function Generator

Unmatched performance, versatility, intuitive operation, and affordability make the AFG3000C Series of Function, Arbitrary Waveform, and Pulse Generators the most useful instruments in the industry.

Switching-time-related-tests:
- Stimulus for switching loss analysis
- Turn-on/turn-off timing & characterization
- Recovery time

Key Features
- 14 bits, 250 MS/s, 1 GS/s, or 2 GS/s Arbitrary Waveforms
- Amplitude up to 20 Vp-p
- 5.6 in. Color TFT LCD Display for Full Confidence in Settings and Waveform Shape
- Multilanguage and Intuitive Operation Saves Setup Time
- Pulse Waveform with Variable Edge Times
- Sweep and Burst
- Dual-channel Models Save Cost and Bench Space
- USB, GPIB, and LAN
- LabVIEW and LabWindows/IVI-C Drivers

Large color display shows your settings and waveforms at a single glance.

Create and modify waveforms with ease with the included ArbExpress® software.

Read the AFG3000C Arbitrary/Function Generator Data Sheet

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## SourceMeter® SMU Instruments for Power Device Characterization and Test

### Feature 2651A / 2657A
- High Current / High Voltage
- 10.5A pulse / 100pA
- 200v / 1uv
- 3,850 readings/sec
- GPIB, LAN (LXI), RS-232
- Banana (front / rear)

### Feature 2634B / 2636B
- Low Current
- 10A pulse / 10A
- 200v / 1uv
- 20,000 readings/sec
- GPIB, LAN (LXI), RS-232, USB
- Banana (front / rear)

### Feature 2602B / 2612B
- Dual Channel
- 10A pulse / 10A
- 200v / 1uv
- 20,000 readings/sec
- GPIB, LAN (LXI), RS-232, USB
- Banana (front / rear)

### Feature 2601B / 2611B
- Single Channel
- 10A pulse / 10A
- 200v / 1uv
- 20,000 readings/sec
- GPIB, LAN (LXI), RS-232, USB
- Banana (front / rear)

### Feature 2604B / 2614B
- Dual Channel Benchtop
- 10A pulse / 10A
- 200v / 1uv
- 20,000 readings/sec
- GPIB, LAN (LXI), RS-232, USB
- Banana (front / rear)
# Keithley Parametric Curve Tracer Configurations

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<th>Model</th>
<th>2600-PCT-1</th>
<th>2600-PCT-2</th>
<th>2600-PCT-3</th>
<th>2600-PCT-4</th>
<th>4200-PCT-2</th>
<th>4200-PCT-3</th>
<th>4200-PCT-4</th>
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<tr>
<td><strong>Type</strong></td>
<td>Entry Level</td>
<td>High Current</td>
<td>High Voltage</td>
<td>High Current and Voltage</td>
<td>High Current and Voltage</td>
<td>High Voltage + C-V</td>
<td>High Current and Voltage + C-V</td>
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<tr>
<td><strong>Collector/Drain Supply</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>High Voltage Mode</strong></td>
<td>200V/10A</td>
<td>200V/10A</td>
<td>3KV/120mA</td>
<td>3KV/120mA</td>
<td>200V/1A</td>
<td>3KV/120mA</td>
<td>3KV/120mA</td>
</tr>
<tr>
<td><strong>High Current Mode</strong></td>
<td>200V/10A</td>
<td>40V/50A</td>
<td>200V/10A</td>
<td>40V/50A</td>
<td>40V/50A</td>
<td>200V/1A</td>
<td>200V/1A</td>
</tr>
<tr>
<td><strong>Step Generator (Base/Gate supply)</strong></td>
<td>200V/10A</td>
<td>200V/10A</td>
<td>200V/10A</td>
<td>200V/10A</td>
<td>200V/1A</td>
<td>200V/1A</td>
<td>200V/1A</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td>ACS Basic Edition with Trace Mode and Parametric Mode, single and sequenced tests, sample power device libraries</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Test Fixture</strong></td>
<td>Model 8010 High Power Device Test Fixture supports 3KV/100A, Includes TO-220, TO-247, Axial, Custom sockets, and sample demo parts (BJT, MOSFET, diode, etc.)</td>
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</tr>
</tbody>
</table>

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# Oscilloscopes Selector Guide

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<th>MSO/DPO4000B</th>
<th>MSO/DPO5000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Channels</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>2, 4 analog channels; 16 digital channels (MSO3000)</td>
<td>2, 4 analog channels; 16 digital channels (MSO4000B)</td>
<td>2, 4 analog channels; 16 digital channels (MSO4000B)</td>
</tr>
<tr>
<td><strong>Bandwidth</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>100 MHz to 500 MHz</td>
<td>100 MHz to 1 GHz</td>
<td>350 MHz to 2 GHz</td>
</tr>
<tr>
<td><strong>Sample Rate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Rate</td>
<td>2.5 Gs/s to 5 Gs/s (analog); 60.6 ps (6.25 Gs/s) Magnivu™ (digital)</td>
<td>5 Gs/s to 10 Gs/s (analog); 60.6 ps (16.5 Gs/s) Magnivu™ (digital)</td>
<td>5 Gs/s to 10 Gs/s (analog); 60.6 ps (16.5 Gs/s) Magnivu™ (digital)</td>
</tr>
<tr>
<td><strong>Max Record Length</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max Record Length</td>
<td>5 Mpoints up to 20 Mpoints</td>
<td>Up to 250 Mpoints</td>
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</tr>
<tr>
<td><strong>Trigger Types</strong></td>
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<tr>
<td><strong>Connectivity</strong></td>
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<tr>
<td>Connectivity</td>
<td>USB Host (x2), USB Device, LAN (10/100 mBase-T Ethernet), Video Out, GPIB*</td>
<td>USB Host (x4), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), Video Out, GPIB*</td>
<td>USB Host (x6), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), Video Out, GPIB*</td>
</tr>
<tr>
<td><strong>Waveform Math and Analysis</strong></td>
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<tr>
<td><strong>Software</strong></td>
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</tbody>
</table>

*Optional
Want to learn more about how Keithley is Re-Inventing High Power Semiconductor Device Characterization?

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