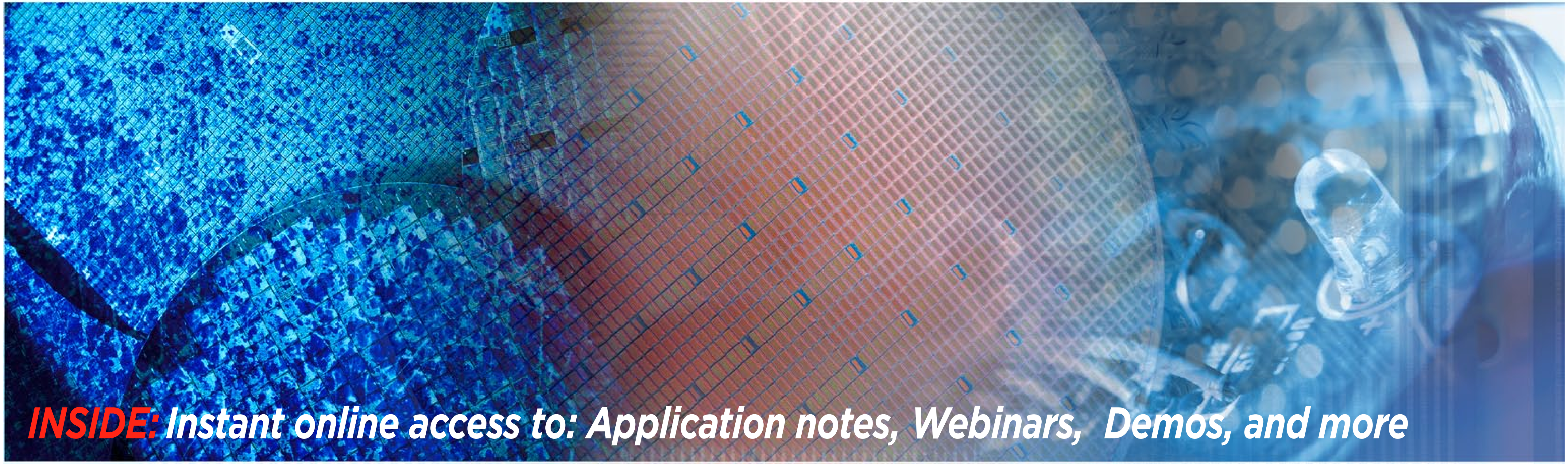
FAST PULSE MEASUREMENT | HIGH BRIGHTNESS LEDS | OLED DISPLAYS | MONITORING OXIDE BREAKDOWN | PCM DEVICES | BTI TESTING | C-V CHARACTERIZATIO

Looking for semi characterization solutions for applications from R&D to high throughput production?

Learn how to solve today's material and device characterization challenges.



INSIDE:* *Instant online access to: Application notes, Webinars, Demos, and more

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SOLUTION: Model 2651A High Power System SourceMeter® Instrument 3
APPLICATION: Testing High Brightness LEDs 4
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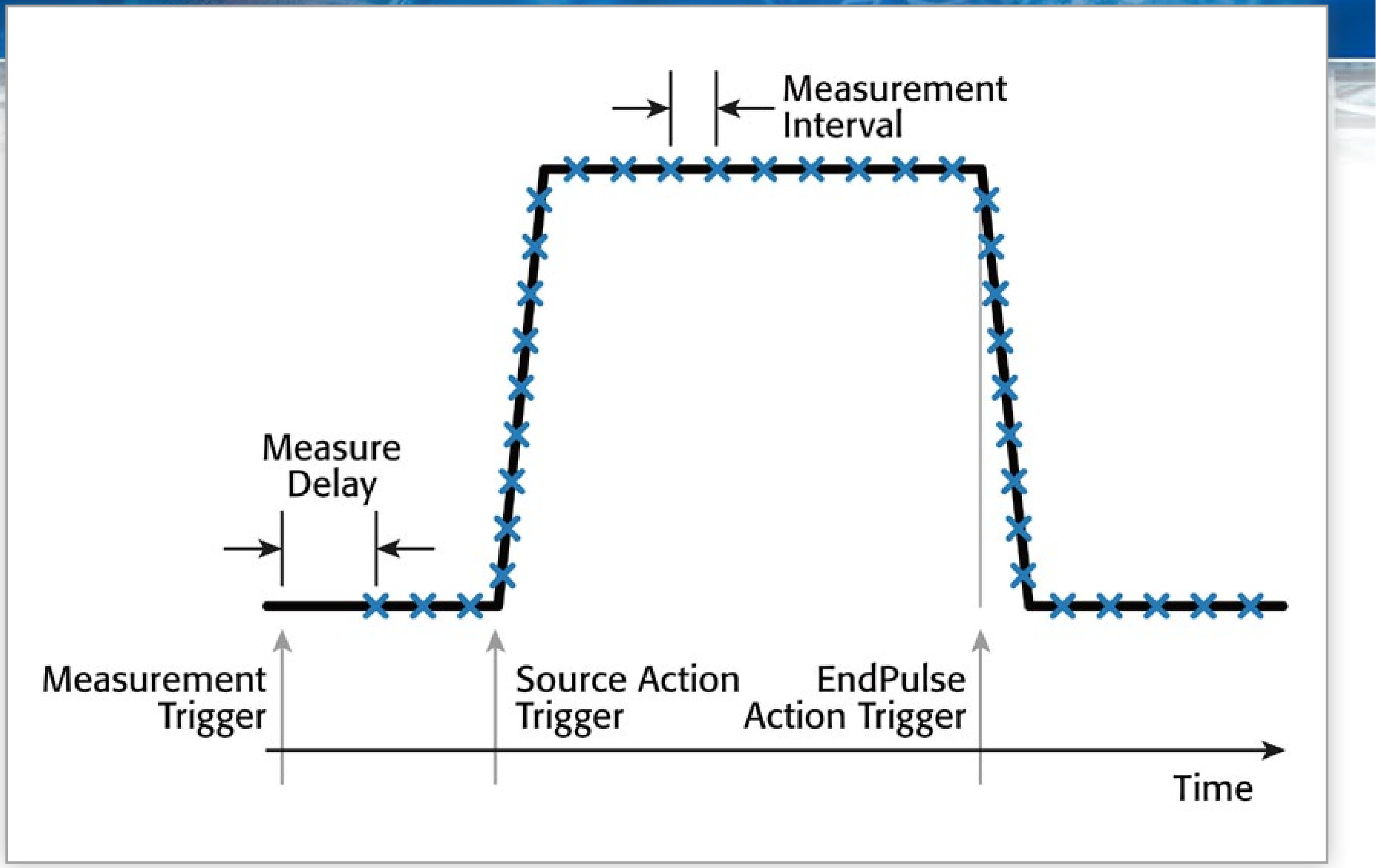
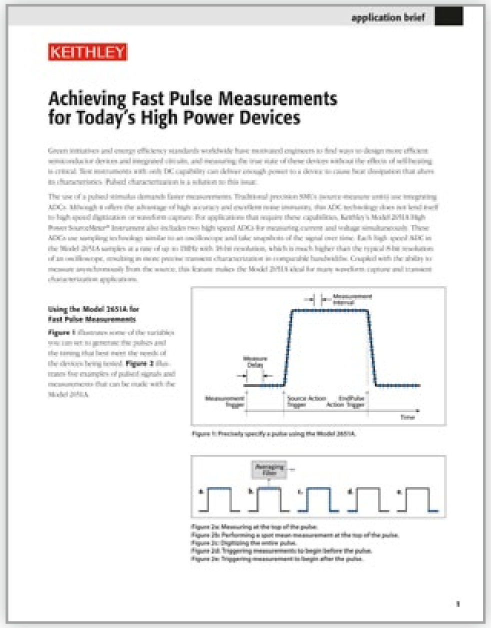
KEITHLEY

Make Fast Pulse Measurements on High Power Devices.

Green initiatives and energy efficiency standards worldwide have motivated engineers to find ways to design more efficient semiconductor devices and integrated circuits; measuring the characteristics of these devices without self-heating effects is critical. DC test instruments often stimulate a device with voltage or current that causes excessive heat dissipation. Pulsed stimulation is a solution, but the pulses and measurement instruments must be fast enough to provide accurate results, particularly when characterizing transient behavior. **Learn more.**



Variables that can be set to generate the pulses and timing that best meet the needs of the devices being tested.



application brief

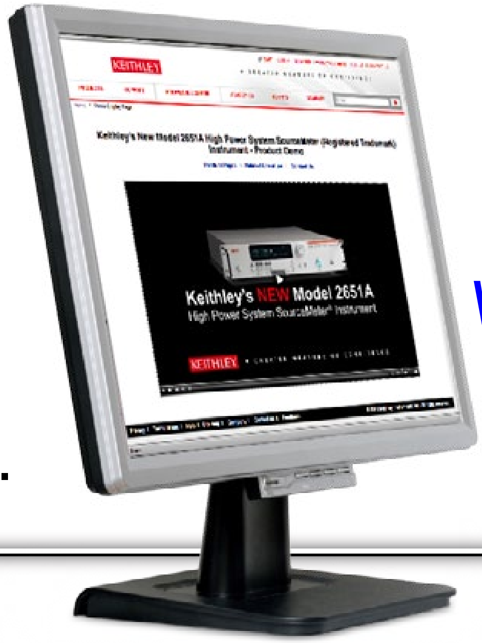
KEITHLEY

Achieving Fast Pulse Measurements for Today's High Power Devices

Want to learn more?

Learn how to achieve the fast, pulsed measurements needed for today's high power devices.

Download our free online application brief.



View our online demo.

Learn how two Model 2651A High Power SourceMeter instruments can be combined for 100A pulses.

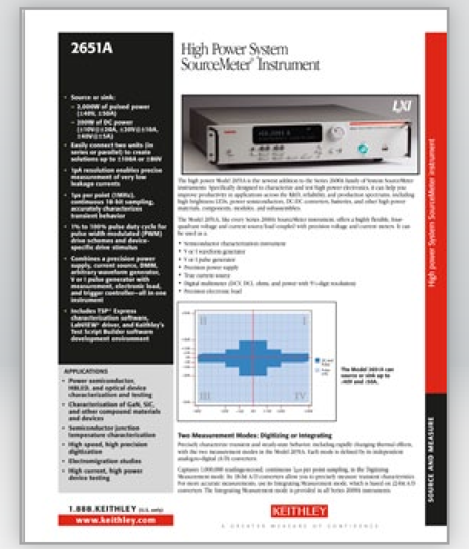
Let us offer advice on your application.

Send us your question or **join the discussion on our application forum**.

Discover the Model 2651A, where high power meets high performance test and measurement.

Our new ***Model 2651A High Power 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.

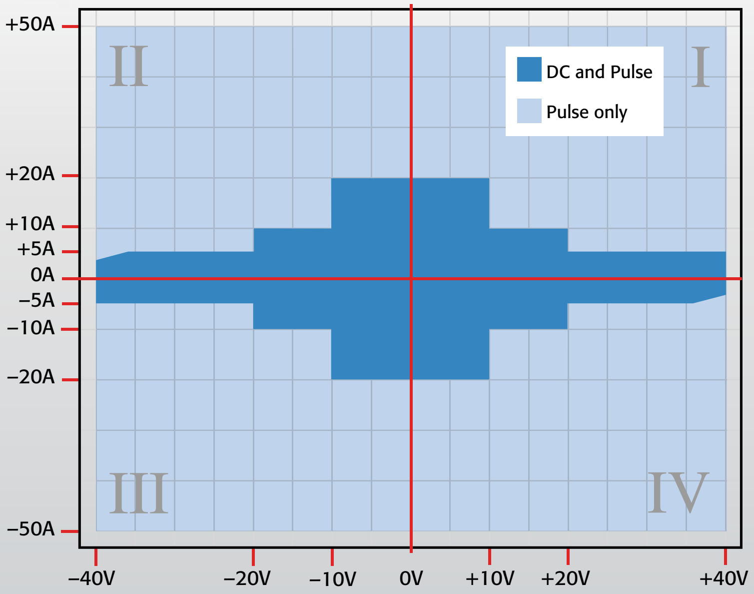
- Source or sink 2,000W of pulsed power (±40V, ±50A), 200W of DC power (±10V@±20A, ±20V@±10A, ±40V@±5A)
- Easily connect two units (in series or parallel) to create solutions up to ±100A or ±80V
- 1pA resolution enables precise measurement of very low leakage currents
- 1μs per point (1MHz), 18-bit sampling,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



With the Model 2651A, you can choose from either digitizing or integrating measurement modes. The digitizing measurement mode enables the capture of transient behavior such as changing thermal effects with 1μs per point (1MHz) sampling. The integrating measurement mode enables extremely accurate and repeatable measurements.

Need more detail?

Download the Model 2651A datasheet.



A single Model 2651A unit can source and sink up to ±40V and ±50A. Learn how two of these instruments can be combined to test to 100A for the testing of devices that operate at currents beyond that of a single Model 2651A instrument. **Download our application brief.**

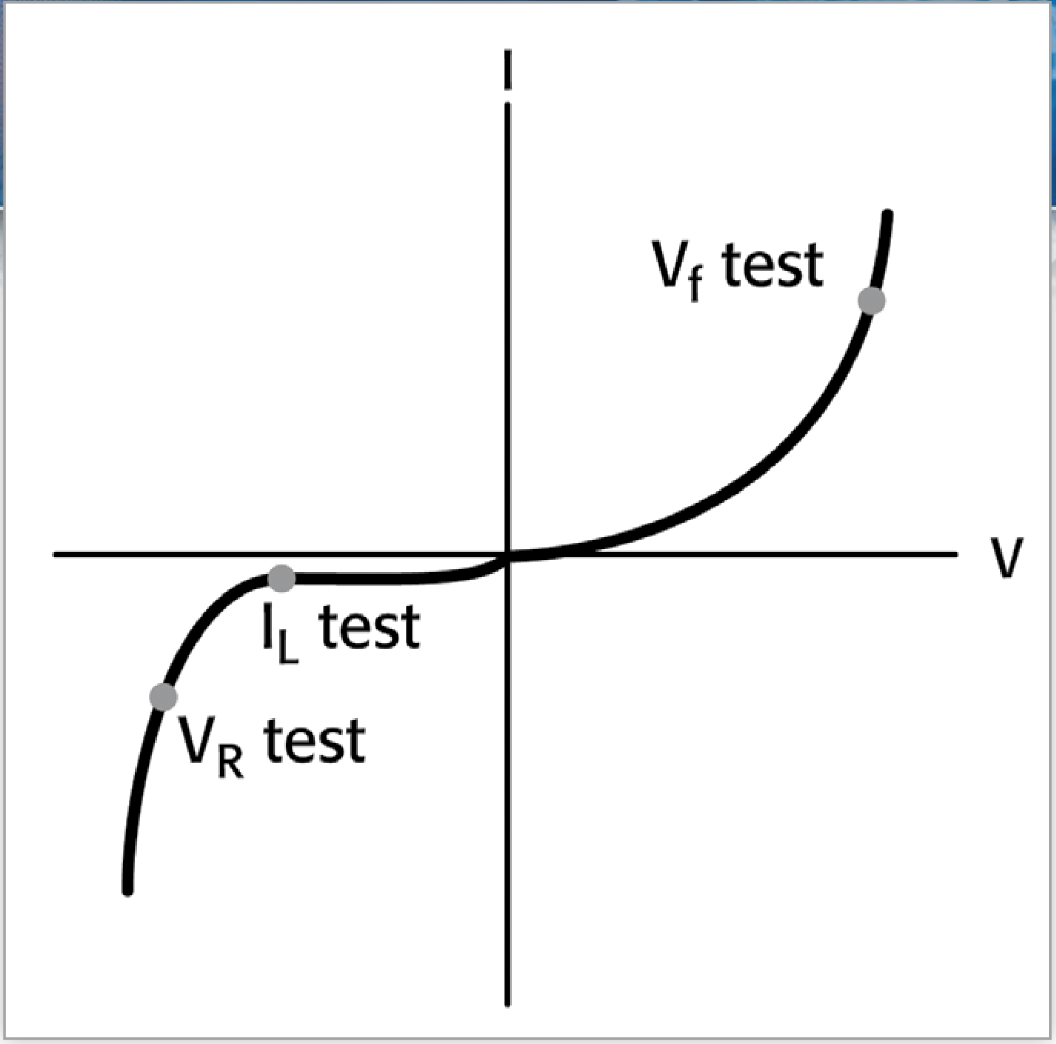
Want assistance, a quote, or to place an order?

Call **1-800-492-1955** and

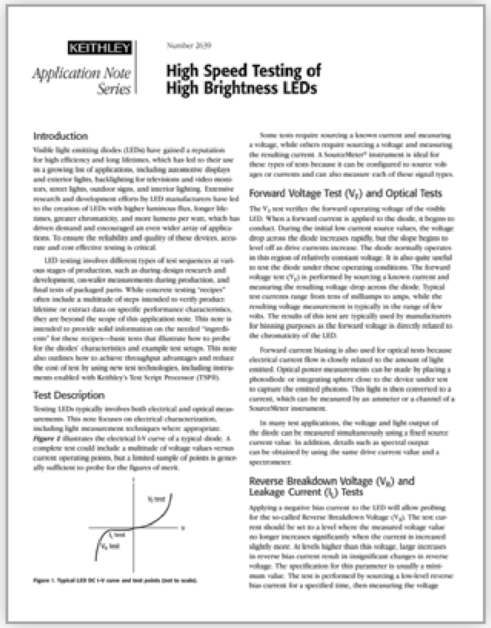
- **Press 1** to place an order, or email orders@keithley.com.
- **Press 2** to receive help in selecting a product, or email inside_sales@keithley.com.
- **Press 3** to receive product pricing or availability. **OR Contact us online.**

Test high brightness LEDs faster and more confidently.

The high efficiency and long lifetimes of visible light emitting diodes (LEDs) make them invaluable for a growing range of applications. Extensive R&D has led to the creation of High Brightness LEDs with higher luminous flux, longer lifetimes, greater chromaticity, and more lumens per watt. Testing HBLEDs typically involves both optical and electrical characterization, including verifying forward operating voltage (V_F), optical power measurements, reverse breakdown voltage (V_R) and leakage current (I_L) tests. **Learn more.**



Typical LED DC I-V curve and test points (not to scale)


KEITHLEY
Application Note Series
Number 2639
High Speed Testing of High Brightness LEDs

Want to learn more?

Learn how to achieve higher LED test throughput and reduce the cost of test using new technologies, including instruments enabled with Keithley's Test Script Processor (TSP®).

Read our online application note.


KEITHLEY ONLINE SEMINAR:
OVERCOMING THE ELECTRICAL MEASUREMENT CHALLENGES OF HIGH BRIGHTNESS LEDs

Overcoming the Electrical Measurement Challenges of High Brightness LEDs

Watch our HBLED testing online webinar.

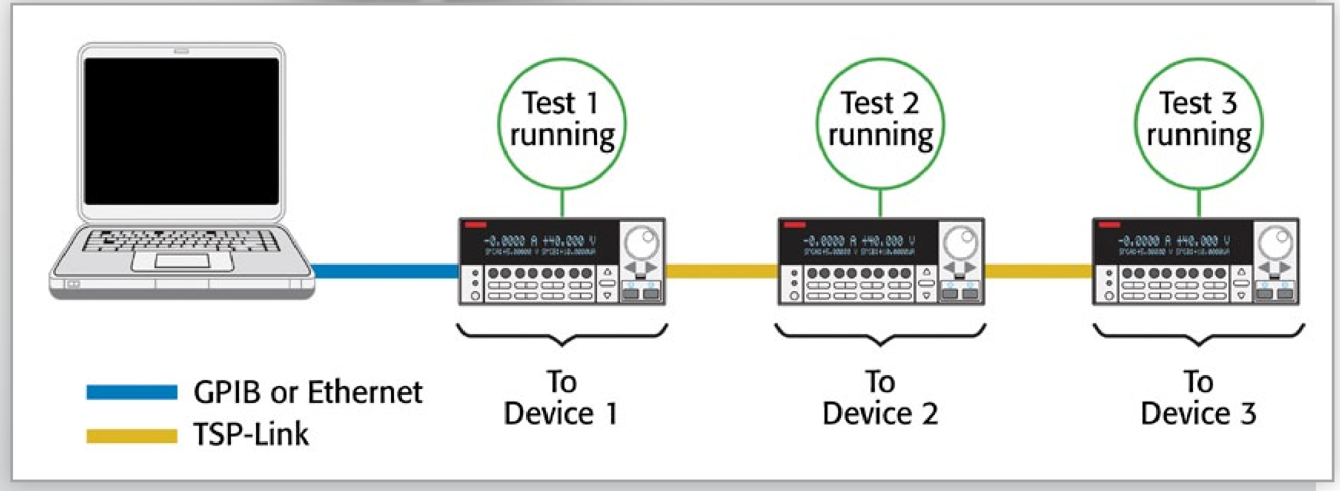
Let us offer advice on your application.

Send us your question or **join the discussion on our application forum**.

Get the tools you need for HBLED testing with Series 2600A System SourceMeter® instruments.

Series 2600A System SourceMeter instruments are our latest I-V source-measure instruments for use as either bench-top I-V characterization tools or as building block components of multi-channel I-V test systems. Bench-top instrument users can quickly and easily perform common I-V tests without programming or installing software. For system-level applications, Series 2600A's **Test Script Processor (TSP®)** architecture, along with other new capabilities such as parallel test execution and precision timing, provides the highest throughput in the industry, lowering the cost of test.

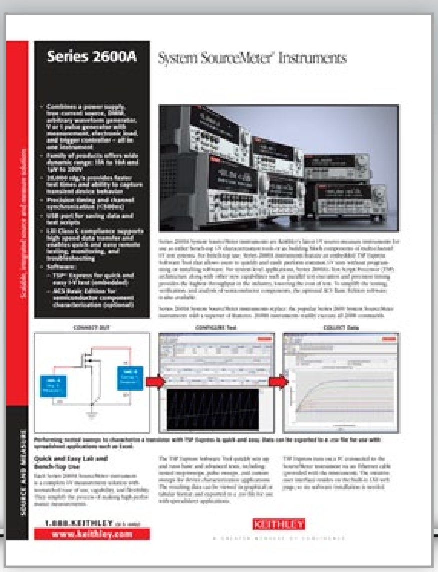
- Combines a power supply, true current source, DMM, arbitrary waveform generator, V or I pulse generator with measurement, electronic load, and trigger controller – all in one instrument
- Family of products offers wide dynamic range: 1fA to 10A and 1µV to 200V
- 20,000 rdgs/s provides faster test times and ability to capture transient device behavior
- Precision timing and channel synchronization (<500ns)



Series 2600A instruments offer the unique ability to increase the throughput of complicated test sequences for LEDs and other devices dramatically by having dedicated test script processors running in parallel on each instrument.

Need more detail?

Download the Series 2600A datasheet.



Series 2600A

System SourceMeter® Instruments

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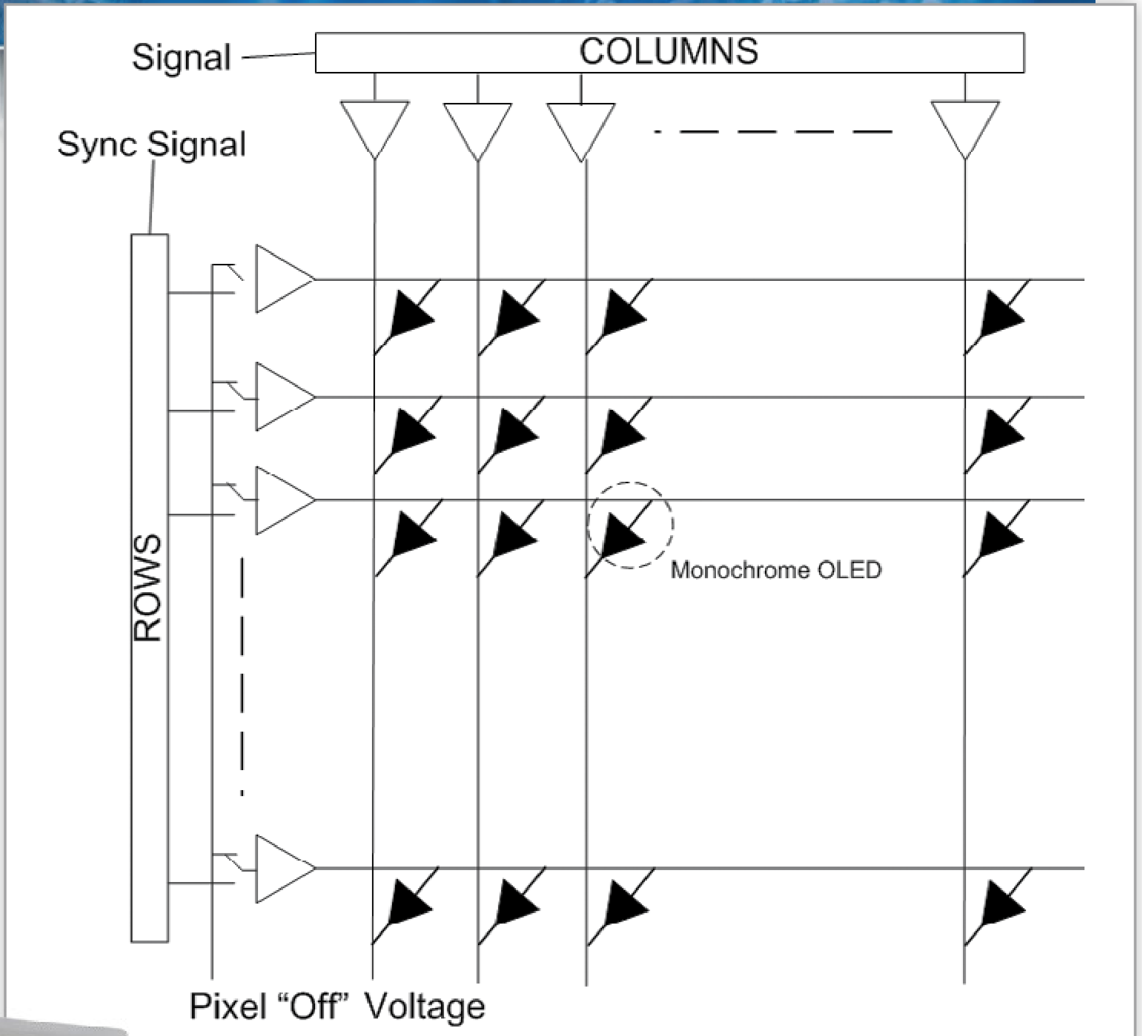
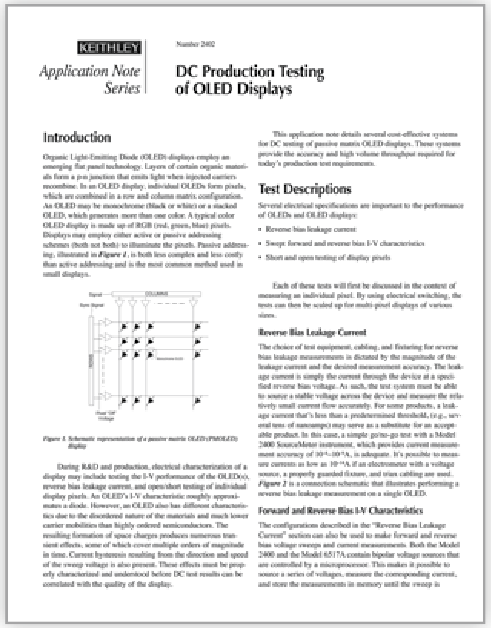
Test passive matrix OLED displays accurately and cost-effectively.

During R&D and production, characterizing an Organic Light Emitting Diode (OLED) display may include testing its I-V performance, reverse bias leakage current, and open/short testing of individual display pixels. An OLED's I-V characteristic roughly approximates a diode. However, it also has different characteristics due to the disordered nature of the materials and much lower carrier mobilities than highly ordered semiconductors. The resulting formation of space charges produces numerous transient effects. Current hysteresis resulting from the direction and speed of the sweep voltage is also present. These effects must be properly characterized and understood before DC test results can be correlated with the quality of the display. **Learn more.**



A passive matrix OLED (PMOLED) display schematic



KEITHLEY
Application Note Series
Number 2402
DC Production Testing of OLED Displays

Introduction

Test Descriptions

Reverse Bias Leakage Current

Forward and Reverse Bias I-V Characteristics

Learn how to test OLED displays faster and more accurately. Download our free online application note.

Let us offer advice on your application.

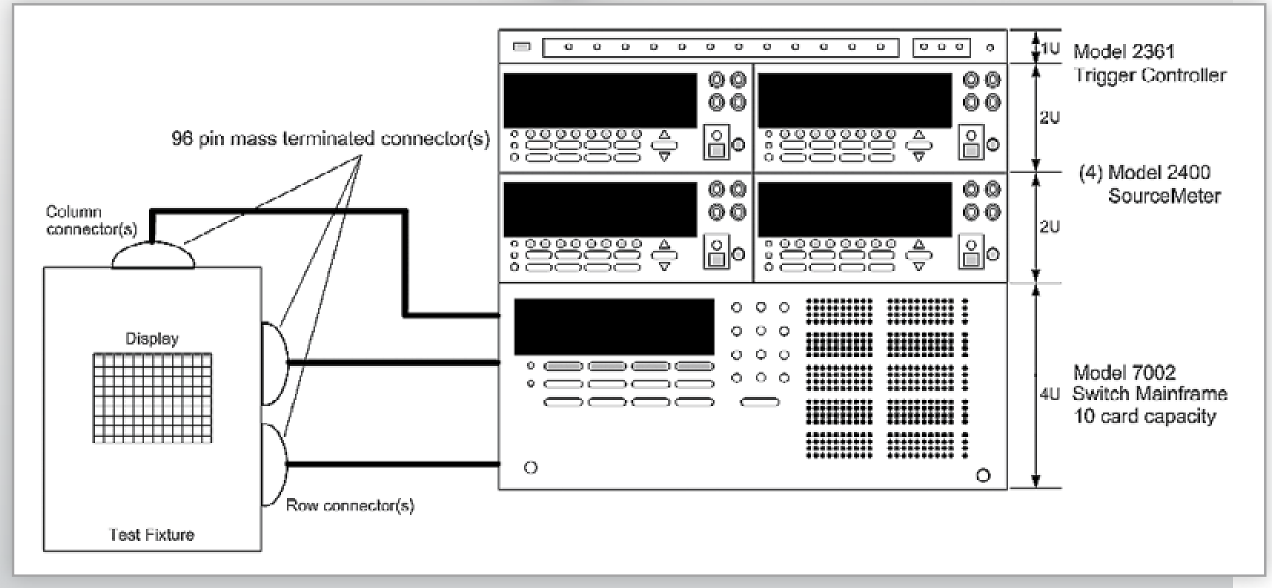
Send us your question or **join the discussion on our application forum**.

View our online demo.

Characterize the I-V performance of OLED displays faster with Series 2400 SourceMeter instruments.

Series 2400 SourceMeter instruments are designed specifically for testing devices like OLED displays, which demand tightly coupled precision voltage and current sourcing as well as measurement capabilities. Each is both a highly stable DC power source and a true instrument-grade 5½-digit multimeter. The power source characteristics include low noise, precision, and readback. The multimeter capabilities include high repeatability and low noise. The result is a compact, single-channel, DC parametric tester.

- Six models: 20–100W DC, 1000W pulsed, 1100V to 1µV, 10A to 10pA
- Source and sink (4-quadrant) operation
- 0.012% basic measure accuracy with 5½-digit resolution
- Optional high speed sense lead contact check function
- Programmable DIO port for automation/handler/prober control



This OLED characterization system is configured with a Model 7002 Switch Mainframe, Model 2361 Trigger Controller, and four Model 2400 SourceMeter instruments.

Need more details about Series 2400 SourceMeter instruments?

Download our white paper, New Test Realities for Evolving FPD Technologies.

KEITHLEY

WHITE PAPER

New Test Realities for Evolving FPD Technologies
Charles Cimino and David Rose
Keithley Instruments, Inc.

Characterizing the active elements in flat panel displays (FPDs) is similar to IC device testing on other types of semiconductors. However, to optimize throughput and accuracy in LCD, OLED, and LEP applications, significant modifications to parametric test systems, cabling, and methodologies are required.

Evolving FPD Trends

Flat Panel Display (FPD) manufacturers are placing heavy bets on new technologies to fill the needs of demanding applications. These applications include larger and lower cost laptop monitors, small area/low power panels for cell phones and other portable devices, HDTV and widescreen formats for home television, and high reliability daylight-readable displays for the "glass cockpits" of fighter aircraft, battle tanks, and warships. Display technologies range from amorphous and low temperature polysilicon (LTPS) LCD panels to emerging organic LEDs and others. These emerging technologies promise to deliver higher value-added products, but they significantly increase a display OEM's investment in new tools and methods in order to shorten their time to market, start up new production lines, and overcome lower than ideal yields. All of this requires more efficient testing with instruments and systems that provide higher throughput and accuracy, both in R&D and production areas.

Display device measurements use probers and parametric testers similar to those found in conventional CMOS and bipolar fabs, so this market is a natural one for Keithley. For years, we have supplied semiconductor characterization systems and parametric testers to CMOS and bipolar IC fabricators, as well as key manufacturers of Active Matrix Liquid Crystal Diode (AMLCD) displays. Many of these AMLCD manufacturer customers

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Cleveland, Ohio 44139
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Fax: (440) 248-6168
www.keithley.com

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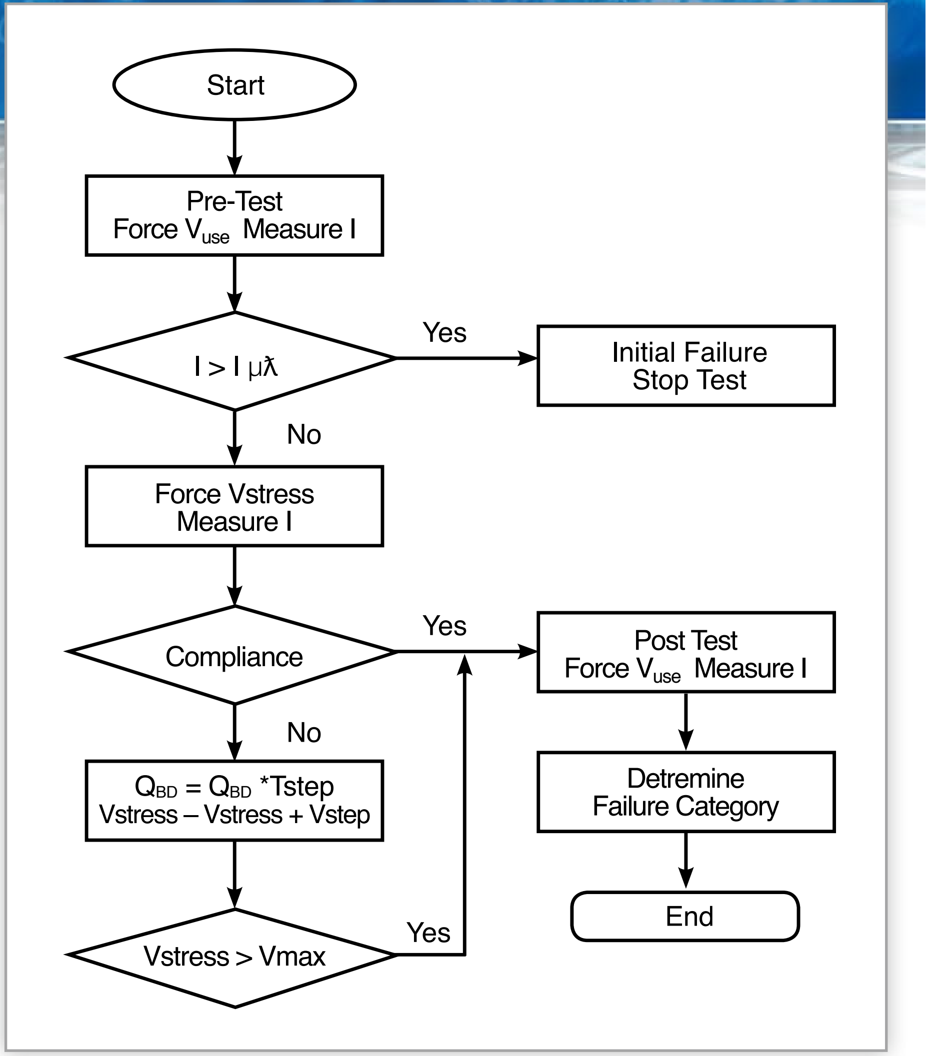
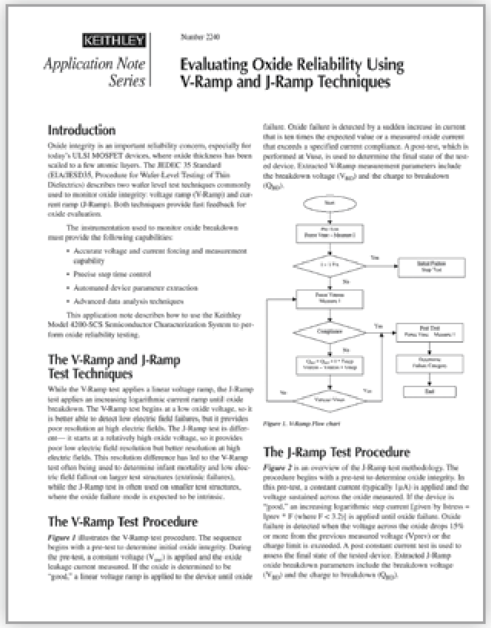
previous home next

Monitor oxide breakdown with confidence.

Oxide integrity is an important reliability concern, especially for modern ULSI MOSFET devices, where oxide thickness has been scaled to a few atomic layers. The JEDEC 35 Standard (EIA/JESD35, Procedure for Wafer-Level Testing of Thin Dielectrics) describes two wafer level test techniques commonly used to monitor oxide integrity: voltage ramp (V-Ramp) and current ramp (J-Ramp). Both techniques provide fast feedback for oxide evaluation. **Learn more.**

A V-Ramp test procedure begins with a pre-test to determine initial oxide integrity. During the pre-test, a constant voltage (V_{use}) is applied and the oxide leakage current measured. If the oxide is determined to be "good," a linear voltage ramp is applied to the device until oxide failure. Oxide failure is detected by a sudden increase in current that is ten times the expected value or a measured oxide current that exceeds a specified current compliance. A post-test, performed at V_{use}, is used to determine the final state of the tested device. Extracted V-Ramp measurement parameters include the breakdown voltage (V_{BD}) and the charge to breakdown (Q_{BD}).




KEITHLEY
Application Note Series
Evaluating Oxide Reliability Using V-Ramp and J-Ramp Techniques

Want to learn more?

Download our free online application note.

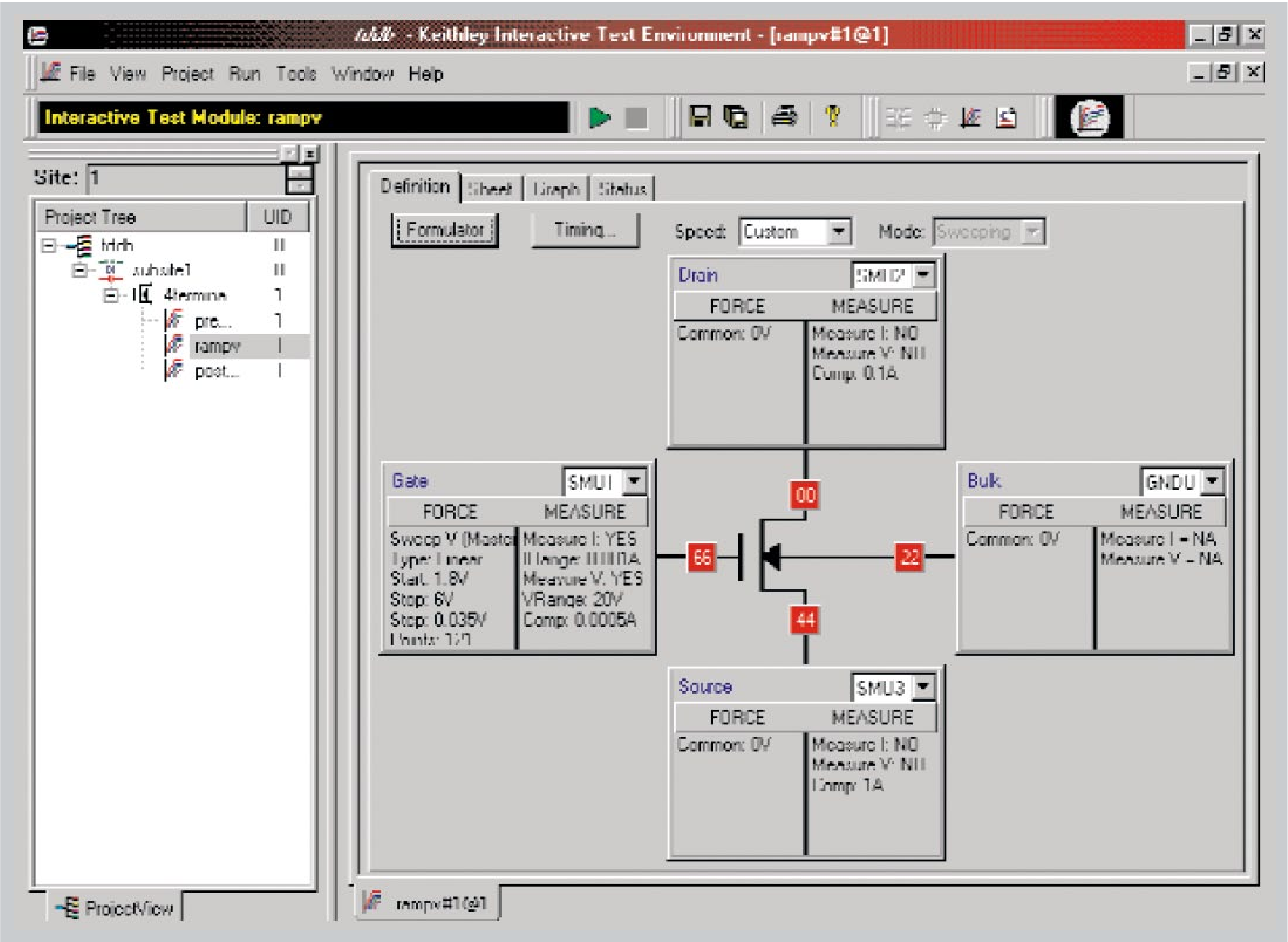
Let us offer advice on your application.

Send us your question or **join the discussion on our application forum.**

Keithley's Model 4200-SCS Semiconductor Characterization System offers a cost-effective solution for oxide reliability testing.

Learn more about the Model 4200-SCS.

Get the accurate oxide integrity data you need easily with the Model 4200-SCS Semiconductor Characterization System.



Interactive Test Module: rampv

Site: 1

Speed: Custom

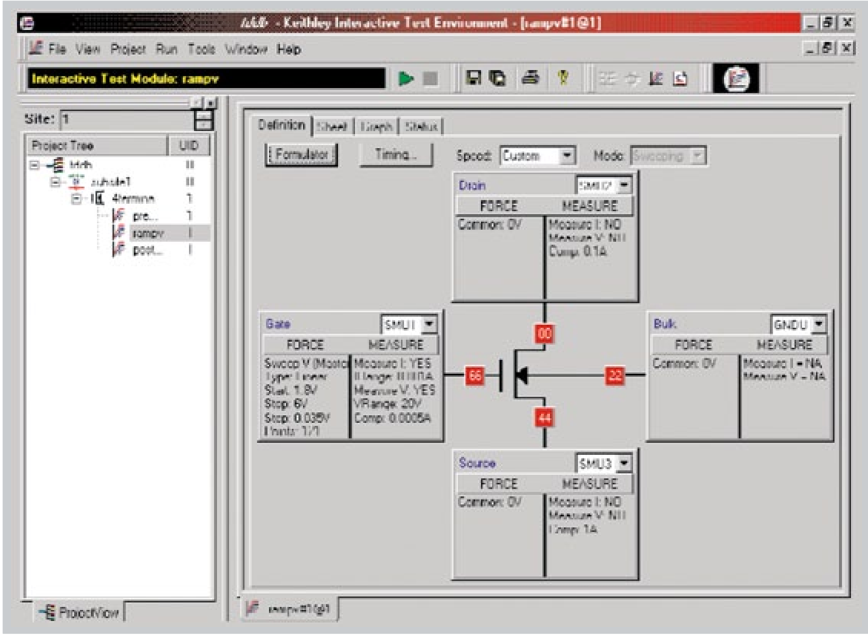
Mode: Sweeping

Drain SMU2
FORCE: Common: 0V
MEASURE: Measure I: NO; Measure V: NO; Comp: 0.1A

Gate SMU1
FORCE: Sweep V (Master); Type: Linear; Start: 1.8V; Stop: 6V; Step: 0.035V; Points: 121
MEASURE: Measure I: YES; I Range: [illegible]; Measure V: YES; VRange: 20V; Comp: 0.0005A

Bulk GNDU
FORCE: Common: 0V
MEASURE: Measure I - NA; Measure V - NA

Source SMU3
FORCE: Common: 0V
MEASURE: Measure I: NO; Measure V: NO; Comp: 1A



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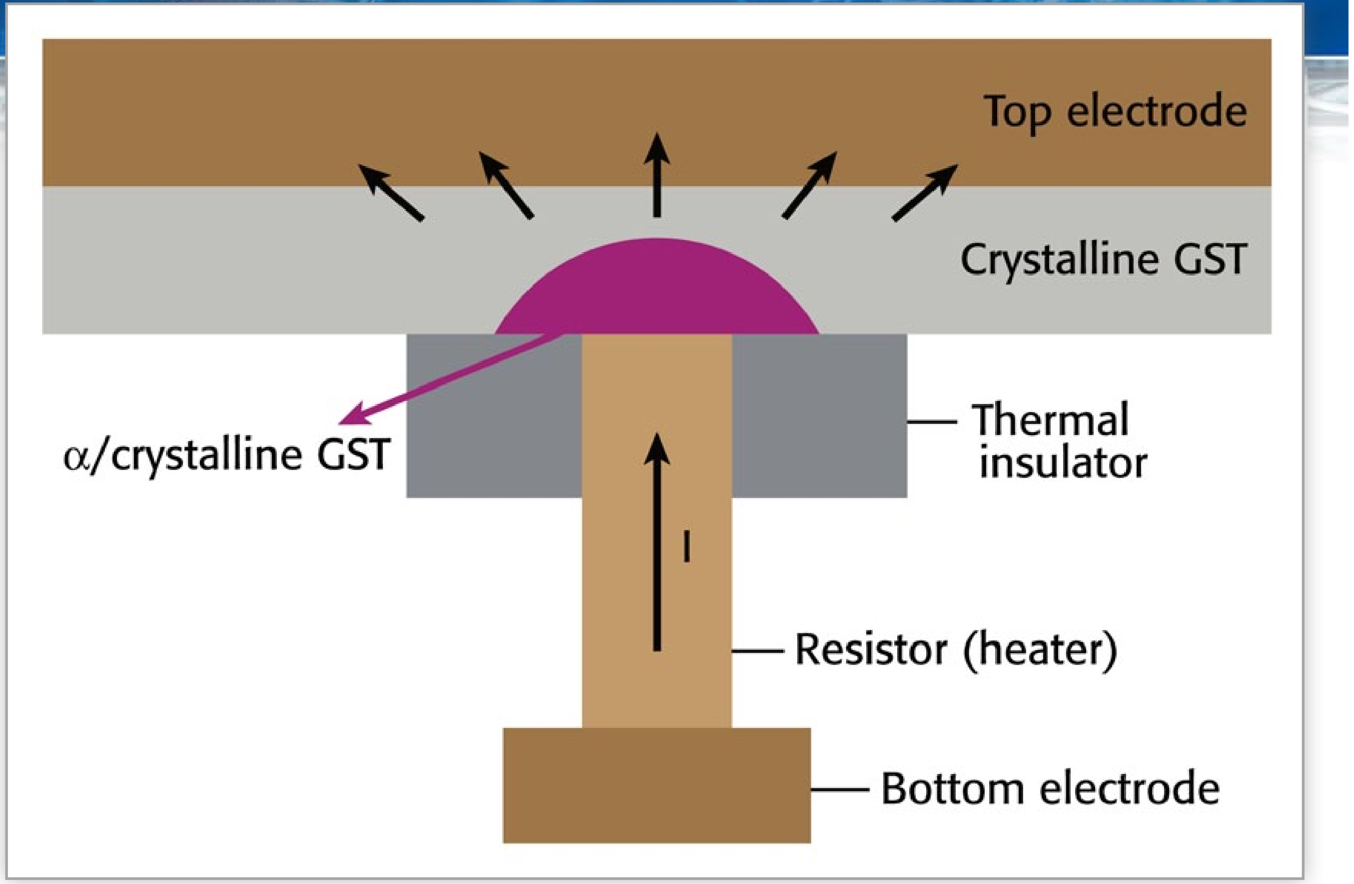
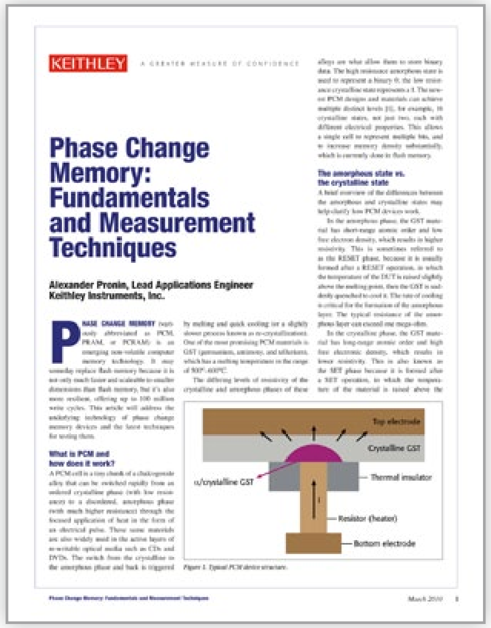
Characterize highly advanced phase change memory devices.

A phase change memory (PCM) cell is a tiny chunk of a chalcogenide alloy that can be switched rapidly from an ordered crystalline phase (with low resistance) to a disordered, amorphous phase (with much higher resistance) through the focused application of heat in the form of an electrical pulse. The differing levels of resistivity of the crystalline and amorphous phases are what allow them to store binary data. The ability to develop new PCM materials and refine device designs will depend largely on manufacturers' ability to characterize several parameters accurately, including recrystallization rate, data retention, cycling endurance, drift of the cell's resistance over time, impact of the "read" procedure on the stored state, and resistance-current (RI) and I-V curves. **Learn more.**



GST (germanium, antimony, and tellurium) is one of the most promising PCM materials: in its amorphous phase, its typical resistance can exceed 1MΩ; in the crystalline phase, it ranges from 1 to 10kΩ.



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Phase Change Memory: Fundamentals and Measurement Techniques

Alexander Pronin, Lead Applications Engineer
Keithley Instruments, Inc.

What is PCM and how does it work?

The amorphous state vs. the crystalline state

Figure 1. Typical PCM device structure.

March 2010 1

Want to learn more?

Download our free online article.

The Next Generation of Ultra-Fast I-V Testing: Simple, Reliable, Complete

Model 4225-PMU Ultra-Fast I-V Module

Model 4225-RPM Remote Amplifier/Switch

Model 4220-PGU Pulse Generator Unit

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Watch our online product tour.

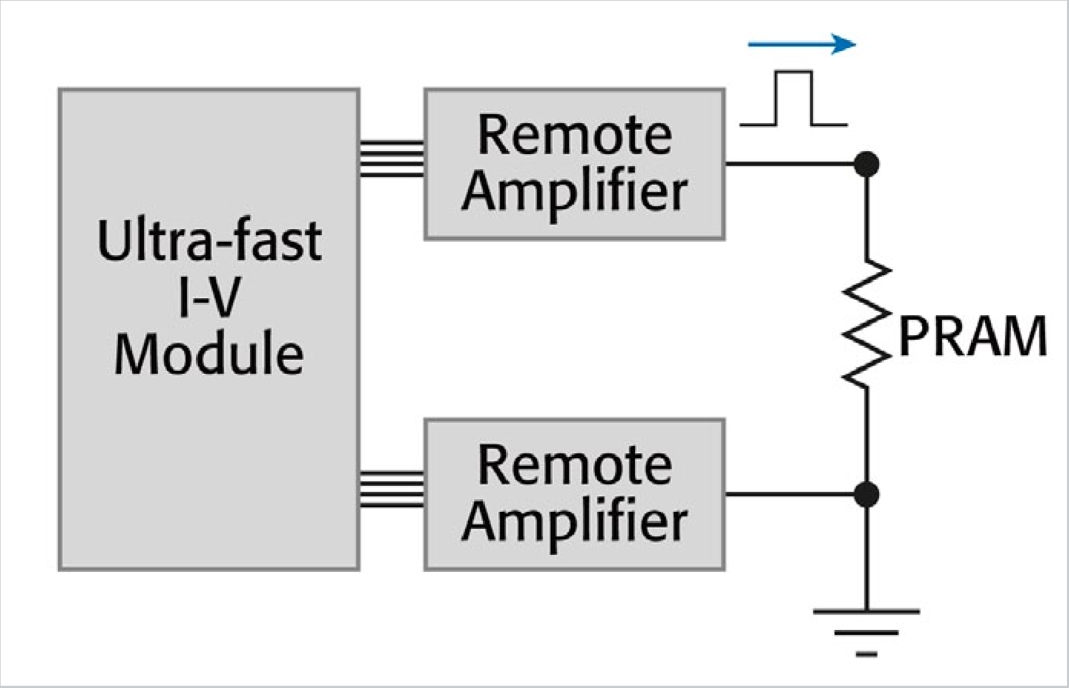
Let us offer advice on your application.

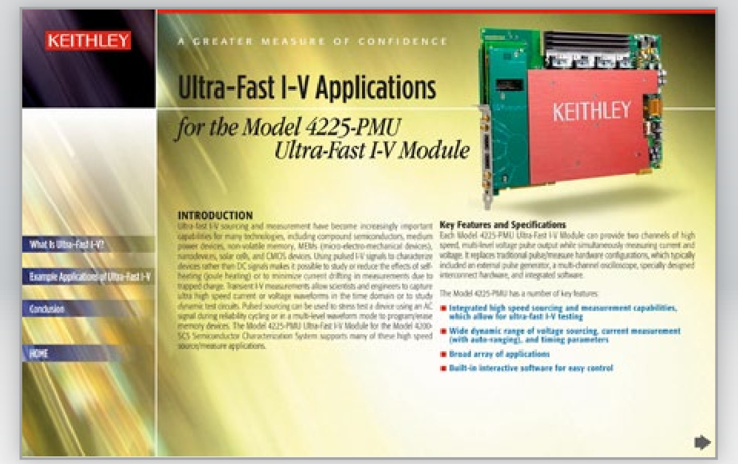
Send us your question or **join the discussion on our application forum**.

Shorten PCM test times with the Model 4225-PMU Ultra-Fast I-V Module.

The **Model 4225-PMU Ultra-Fast I-V Module** offers the ideal solution for testing single memory cells or a small array of cells, such as when isolated cells need to be tested in research and development or for process verification. Because the 4225-PMU can be used for both the pulsing and measurement, total test time is reduced. The **Model 4225-PMU** and the **Model 4225-RPM Remote Amplifier/Switches** that extend its sensitivity are designed to integrate with the Model 4200-SCS Semiconductor Characterization System, which not only provides a wide range of other measurement functions necessary to characterize a PCM device but offers the ability to automate the entire testing process.

The dynamic switch from a high- to a low-resistive state in the presence of a load resistor produces a characteristic RI curve with a snapback, an area of negative resistance. Snapback itself is not a feature of PCMs or of PCM testing but rather a side effect of the R-load technique long used to obtain both RI and I-V curves. The Model 4225-PMU eliminates the need for the load resistor, as well as the snapback side effect problem, and provides tight control over the level of current sourced for more accurate characterization of low currents in the RI curve. The Model 4225-PMU can source voltage and simultaneously measure both voltage and current responses with high accuracy, with rise and fall times as short as 20ns.





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Ultra-Fast I-V Applications

for the Model 4225-PMU Ultra-Fast I-V Module

What Is Ultra-Fast I-V?

Example Applications of Ultra-Fast I-V

Conclusion

HOME

INTRODUCTION

Ultra-fast I-V sourcing and measurement have become increasingly important capabilities for many technologies, including compound semiconductors, medium power devices, non-volatile memory, MEMs (micro-electro-mechanical devices), nanodevices, solar cells, and CMOS devices. Using pulsed I-V signals to characterize devices rather than DC signals makes it possible to study or reduce the effects of self-heating (joule heating) or to minimize current drifting in measurements due to trapped charge. Transient I-V measurements allow scientists and engineers to capture ultra high speed current or voltage waveforms in the time domain or to study dynamic test circuits. Pulsed sourcing can be used to stress test a device using an AC signal during reliability cycling or in a multi-level waveform mode to program/erase memory devices. The Model 4225-PMU Ultra-Fast I-V Module for the Model 4200-SCS Semiconductor Characterization System supports many of these high speed source/measure applications.

Key Features and Specifications

Each Model 4225-PMU Ultra-Fast I-V Module can provide two channels of high speed, multi-level voltage pulse output while simultaneously measuring current and voltage. It replaces traditional pulse/measure hardware configurations, which typically included an external pulse generator, a multi-channel oscilloscope, specially designed interconnect hardware, and integrated software.

The Model 4225-PMU has a number of key features:

- Integrated high speed sourcing and measurement capabilities, which allow for ultra-fast I-V testing
- Wide dynamic range of voltage sourcing, current measurement (with auto-ranging), and timing parameters
- Broad array of applications
- Built-in interactive software for easy control

Want to learn more about the Model 4225-PMU?

To learn more about ultra-fast I-V sourcing and measurement techniques, download our Ultra-Fast I-V applications e-book.

Want assistance, a quote, or to place an order?

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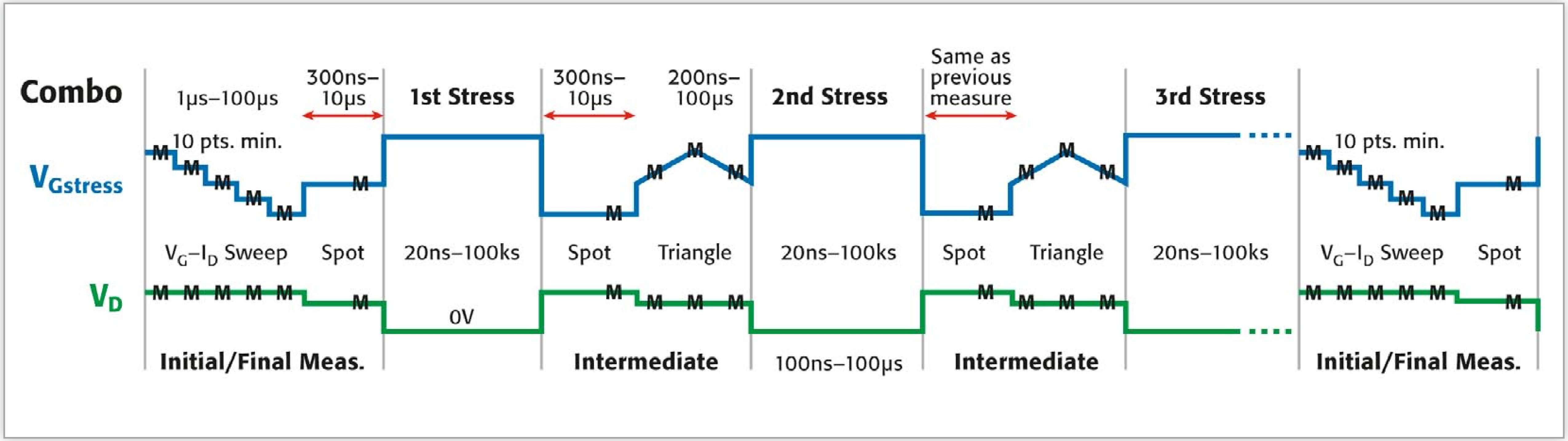
- **Press 3** to receive product pricing or availability. **OR Contact us online.**

Model and monitor Bias Temperature Instability (BTI) for CMOS transistors.

Modeling negative bias temperature instability (NBTI) is a challenge when developing deeply scaled silicon CMOS transistor designs. Over time, NBTI effects cause a transistor's threshold voltage (V_T) to shift and its sub-threshold drain current to increase significantly, severely limiting transistor lifetime and circuit performance. These effects must be accurately modeled during device development and monitored during process integration and production. During BTI characterization, the transistor is alternately stressed and characterized. However, the BTI mechanism is susceptible to relaxation effects, which means that the instant the stress is removed, the transistor starts to recover and the degradation fades. Characterizing the degradation prior to relaxation demands the use of ultra-fast I-V techniques. **Learn more.**

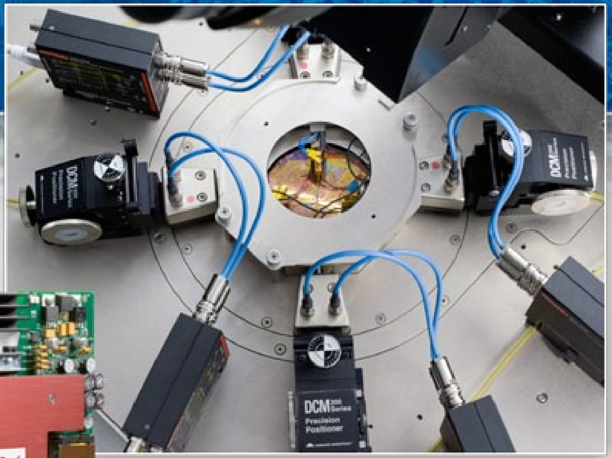


A typical stress/measure waveform that can be used to characterize BTI.

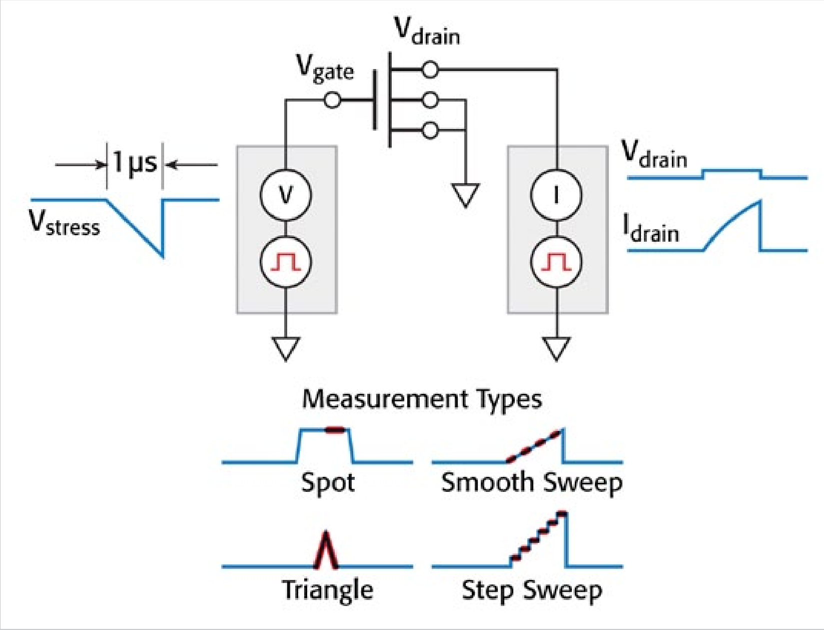
Let us offer advice on your application.

Send us your question or **join the discussion on our application forum**.

Discover everything you need for NBTI and PBTI measurements in the Model 4200-BTI-A Ultra-Fast BTI Package.



The **Model 4200-BTI-A Ultra-Fast BTI Package** is the industry's most advanced NBTI/PBTI test platform, with everything needed to make sophisticated NBTI and PBTI measurements on leading-edge silicon CMOS technology: a Model 4225-PMU Ultra-Fast I-V Module, two Model 4225-RPM Remote Amplifier/Switches, Automated Characterization Suite (ACS) software, an Ultra-Fast BTI Test Project Module, and cabling. The test software module makes it easy to define stress timing, stress conditions, and a wide range of measurement sequences from spot I_D, On-The-Fly (OTF), or I_D-V_G sweeps. It allows measuring recovery effects as well as degradation and offers prestress and poststress measurement options that incorporate the Model 4200-SCS's DC SMUs for precision low-level measurements.



The Ultra-Fast BTI test software module supports spot, step sweep, smooth sweep, and sample measurement types. Each type's timing is defined by the test sample rate and the individual measurement settings. The software module also provides control over the voltage conditions between each element in the test sequence, for maximum flexibility and ease of use, even when defining complex test sequences.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Ultra-Fast I-V Applications
for the Model 4225-PMU Ultra-Fast I-V Module
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Example Applications of Ultra-Fast I-V
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INTRODUCTION
Key Features and Specifications
- Integrated high speed sourcing and measurement capabilities, which allow for ultra-fast I-V testing
- Wide dynamic range of voltage sourcing, current measurement (with auto-ranging), and timing parameters
- Broad array of applications
- Built-in interactive software for easy control

Want to learn more about the Model 4200-BTI-A Package?

Discover ultra-fast I-V sourcing and measurement techniques being used for NBTI/PBTI measurements by downloading our Ultra-Fast I-V applications e-book.

Want assistance, a quote, or to place an order?

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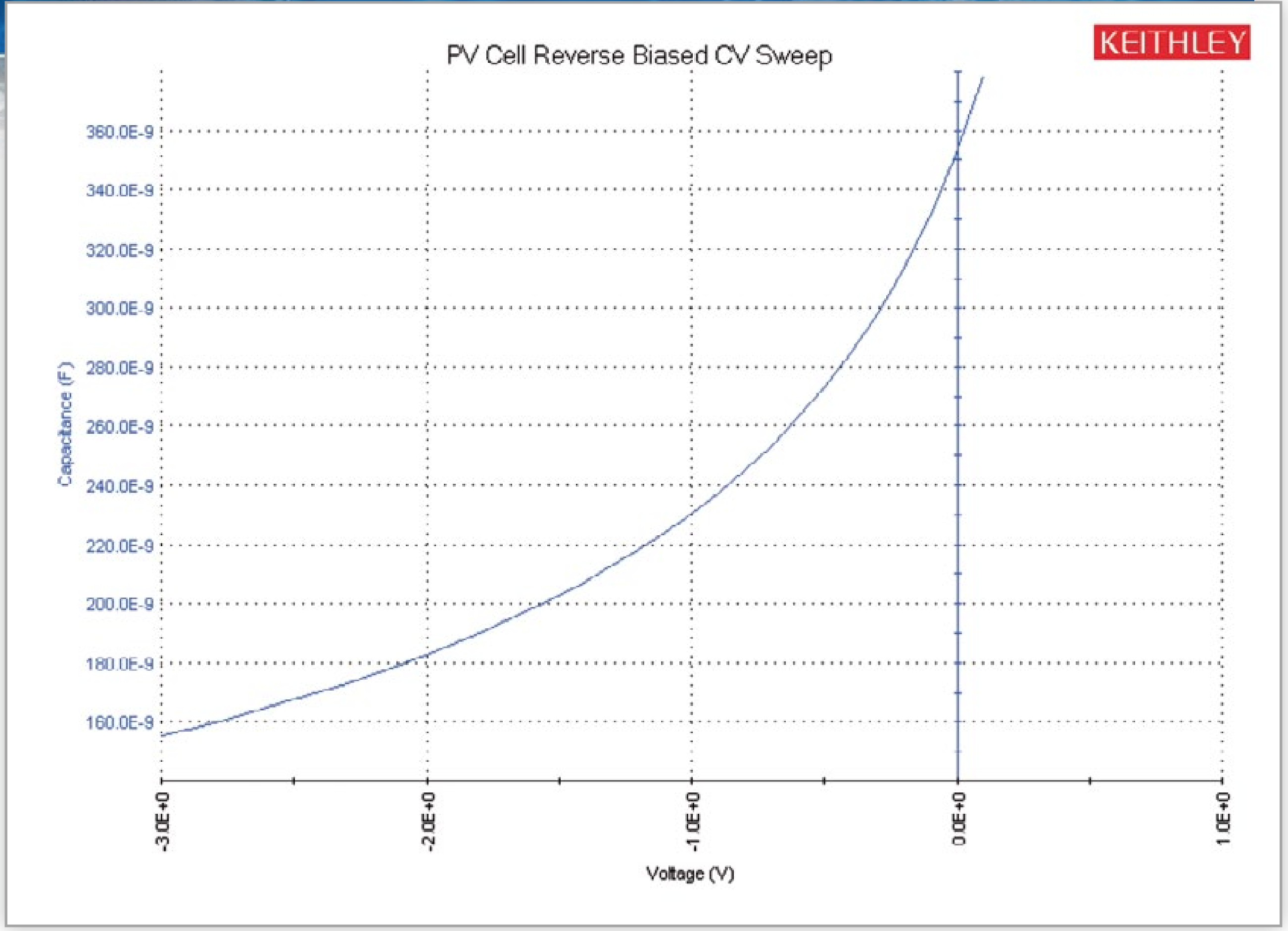
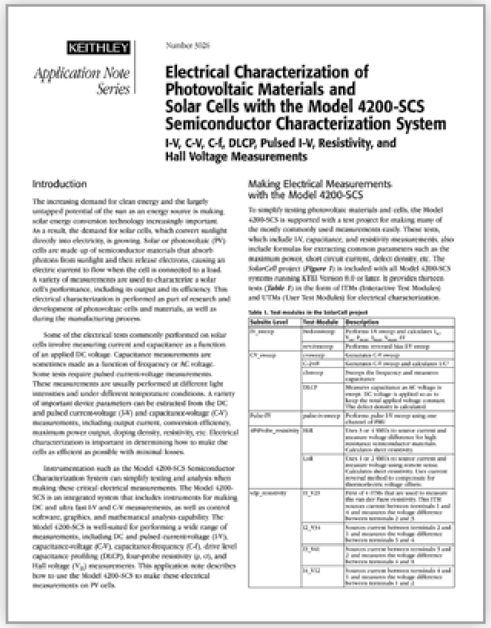
Characterize solar cells with C-V measurements.



A C-V sweep of a silicon solar cell

Capacitance-voltage (C-V) measurements are useful in deriving particular parameters about solar cells (also known as photovoltaic or PV devices). Depending on the type of solar cell or photovoltaic material being characterized, C-V measurements can be used to derive parameters such as the doping concentration and the built-in voltage of the junction. A capacitance-frequency (C-f) sweep can be used to provide information on the existence of traps in the depletion region. Some tests require pulsed current-voltage (I-V) measurements. These measurements are usually performed at different light intensities and under different temperature conditions. **Learn more.**


KEITHLEY

Application Note Series

Number 3026

Electrical Characterization of Photovoltaic Materials and Solar Cells with the Model 4200-SCS Semiconductor Characterization System

I-V, C-V, C-f, DLCP, Pulsed I-V, Resistivity, and Hall Voltage Measurements

Introduction

Making Electrical Measurements with the Model 4200-SCS

Want to learn more?

Download our free online application note.

View our webinar, Tips, Tricks, and Traps of Semiconductor Capacitance-Voltage (C-V) Testing.

Let us offer advice on your application.

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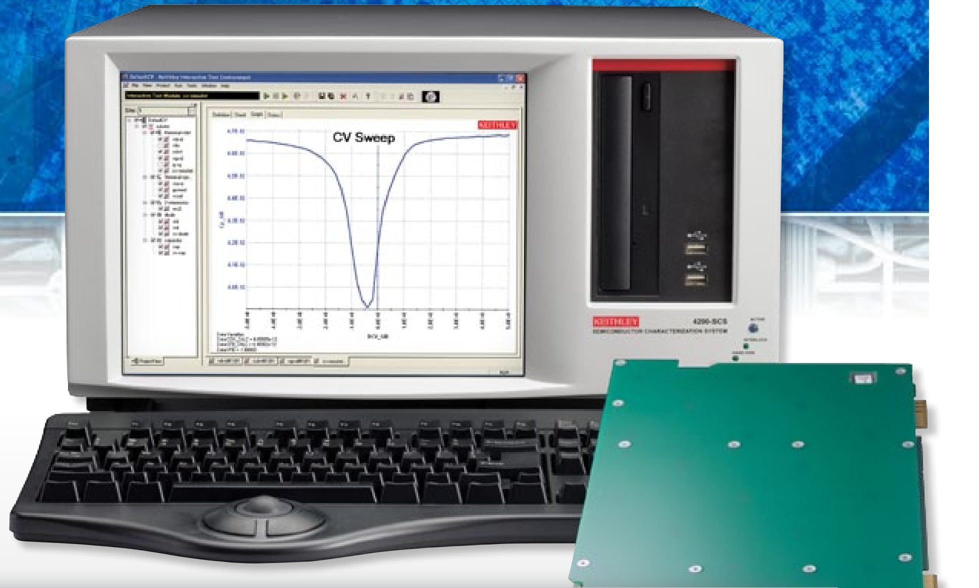
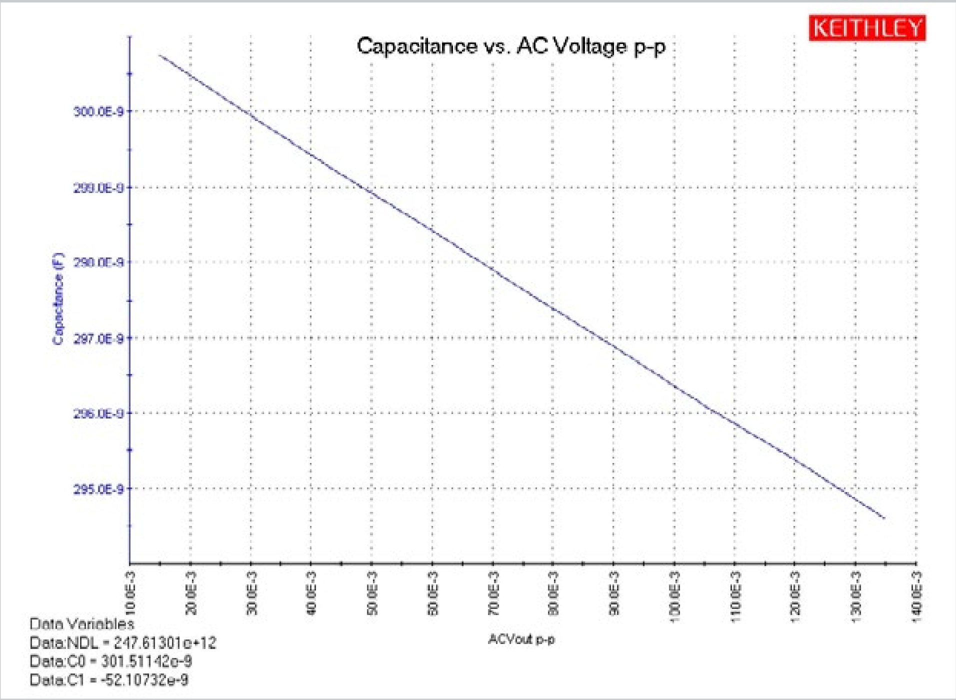
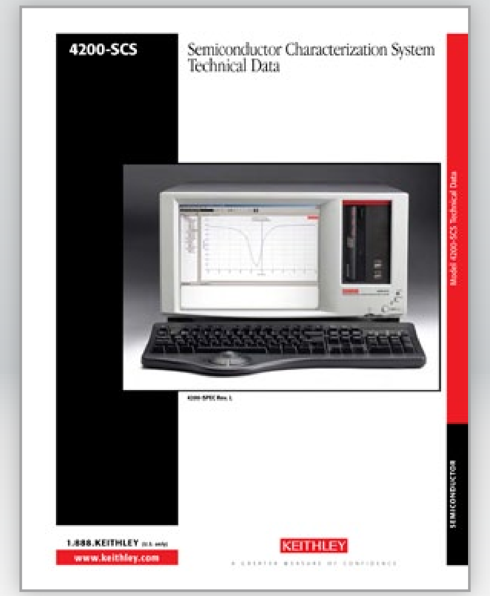
Make C-V measurements as easily as I-V with the Model 4210-CVU C-V option.



The **Model 4210-CVU** plugs directly into one of the nine slots in the Model 4200-SCS chassis. It simplifies measuring capacitances from femtofarads (fF) to nanofarads (nF) at frequencies from 1kHz to 10MHz. The system's user-friendly GUI makes it simple to configure linear or custom C-V, C-f, and C-t sweeps with up to 4096 data points. A special project optimized for I-V, C-V, and resistivity testing is provided for characterizing photovoltaic cells of all types, including crystalline, amorphous, and thin film. Diagnostic tools are included to ensure the validity of your C-V test results.

When equipped with a Model 4210-CVU meter, the Model 4200-SCS supports Drive Level Capacitance Profiling (DLCP) testing, a technique for determining the defect density (NDL) as a function of depth of a photovoltaic cell. During the DLCP measurement, the applied AC voltage (peak-to-peak) is swept and the DC voltage is varied while the capacitance is measured. This is in contrast to the conventional C-V profiling technique, in which the AC_{rms} voltage is fixed and the DC voltage is swept.





Need more detail?

Download the Model 4200-SCS Technical Data Book.

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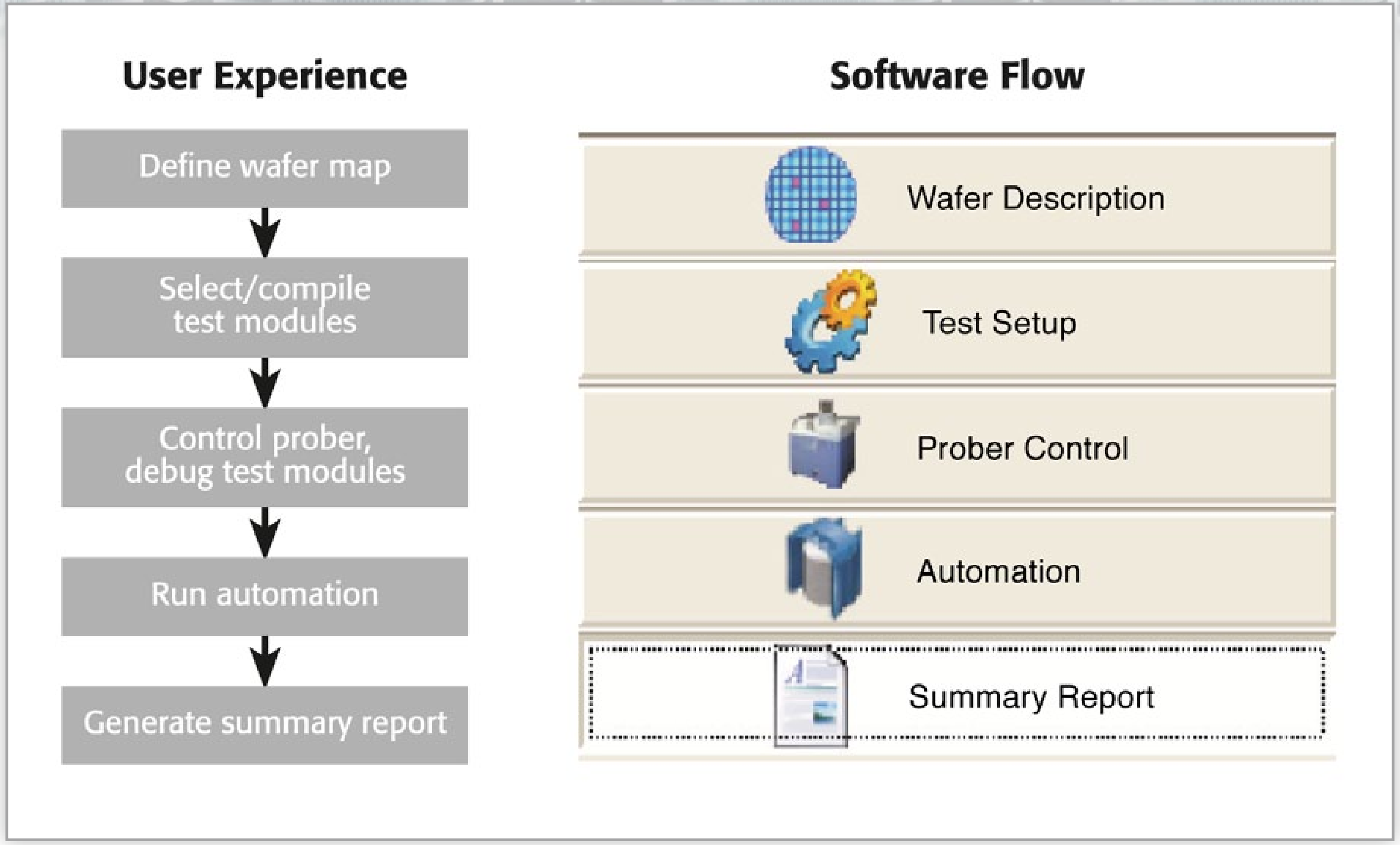
Take on fab applications with the same test solution you use in the lab.

As the pressure to reduce time to market and the cost of test mounts, IC makers look for new ways to maximize tool usage and test engineer productivity. Increased use of automation offers one way to leverage limited test resources. The progression from single die testing on manual probers to single wafer testing with semi-automatic probers naturally leads to full cassette probing on automatic probers. In the past, it's been difficult to combine the precision and flexibility of lab-based tools with the throughput of BEOL production testers at a cost-effective price. **Learn more.**



The Automated Characterization Suite software that controls all S530 systems is designed from the ground up for cassette-level automation, including control of most standard automatic probers. With an intuitive user flow, such as wafer map definition and a variety of test modules and test patterns, setting up and running fully automated tests for cassette-level throughput is a very straightforward task.


ACS Integrated Test Systems
Configurable systems for semiconductor characterization at the device, wafer, and cassette level

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Want to learn more?

Read our brochure, ACS Integrated Test Systems: Configurable systems for semiconductor characterization at the device, wafer, and cassette level.

Let us offer advice on your application.

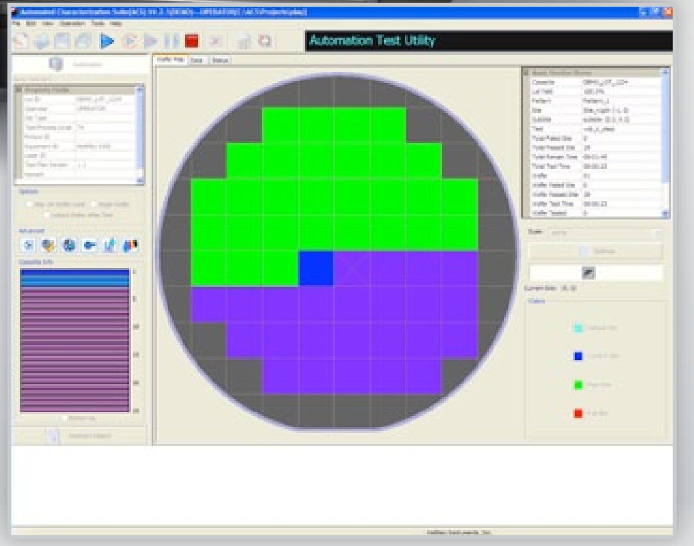
Send us your question or join the discussion on our application forum.

Explore applications from WLR to die sort with S530 Parametric Test Systems.

Keithley's **S530 Parametric Test Systems** are designed to address all the DC and C-V measurements required in process control monitoring, process reliability monitoring, and device characterization. These are equally adaptable to production and lab environments that must handle a broad range of devices and technologies, offering industry-leading test plan flexibility, automation, probe station integration, and test data management capabilities. S530 systems speed and simplify system startups and maximize reuse of your existing test resources. For example, the Automated Characterization Suite (ACS) software that controls these systems is compatible with many new and legacy automatic probe stations and existing probe card libraries. ACS provides users with:

- Flexible test and analysis capabilities
- A logical, easy-to-understand graphical user interface (GUI)
- User-centered test sequences that can be repurposed for use with other ACS family systems from Keithley

Learn more.



The wafer- and cassette-level automation tools provided in S530 systems offer real-time statistics on lot and wafer yields, overall test progress, and color-coded die binning information. In this Operator Mode screen, access to some tools is limited to prevent unauthorized or inadvertent modifications to test plans and reports.

S530

Parametric Test Systems

1.888.KEITHLEY

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Need more detail?

Download the S530 data sheet.

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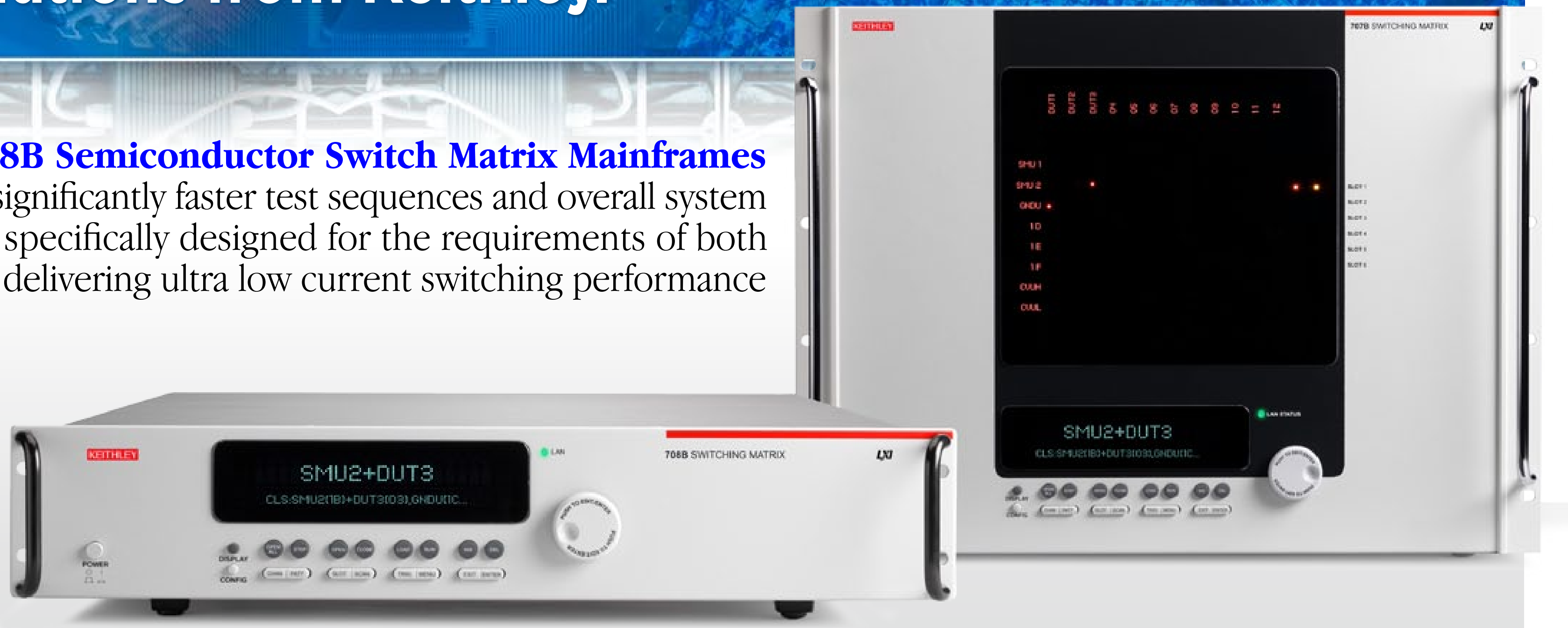
Tie it all together with your choice of high speed, high integrity switching solutions from Keithley.



The **six-slot Model 707B** and **single-slot Model 708B Semiconductor Switch Matrix Mainframes** slash the time from command to connection, offering significantly faster test sequences and overall system throughput than earlier mainframe designs. They are specifically designed for the requirements of both semiconductor lab and production test environments, delivering ultra low current switching performance using standard triax connectors and cables.

- Low-leakage matrix configurations with up to 576 crosspoints per mainframe
- Switch I-V and C-V instruments while maintaining maximum low-level performance
- Source and measure up to 1300V or 1A without reconfiguring cables between tests
- Compatible with all semiconductor parametric analyzers
- Compatible with the popular plug-in cards designed for the 707A/708A mainframes
- Support for both remote (via LXI, USB, and GPIB interfaces) and manual (via front panel) programming
- Embedded TSP® processor and TSP-Link® interface simplify integrating Series 2600A System SourceMeter instruments into a high speed, self-contained tester

Let us offer advice on your application.

Send us your question or **join the discussion on our application forum.**


707B
708B
Semiconductor Switch Matrix Mainframes
Six-slot and Single-slot Versions
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www.keithley.com

Model 707B/708B Switching Card Selector Guide

	No. of Channels	Card Config.	Contact Config.	Max. Voltage	Max. Current	Max. Power	Contact Potential	Offset Current	Max. Recomm. Freq.	Connection Type	CE	Comments
LOW CURRENT												
7072	8x12	Matrix	2 form A	200 V	1 A	10 VA	< 20 μV	<1 pA	15 MHz	3-lug triax	Yes	Optimized for semiconductor applications.
7072-HV	8x12	Matrix	2 form A	1300 V	1 A	10 VA	< 20 μV	<1 pA	4 MHz	3-lug triax		Optimized for semiconductor applications.
7174A	8x12	Matrix	2 form A	200 V	2 A			<100 fA	30 MHz	3-lug triax	Yes	Optimized for semiconductor applications.
HIGH FREQUENCY												
7173-50	4x12	Matrix	2 form C	30 V	0.5 A	10 VA	< 15 μV	<200 pA	200 MHz	BNC	Yes	

Need more details about the Model 707B or 708B Switch Matrix Mainframe? **Download the data sheet.**

Get switching and measurement in one economical enclosure.

Keithley's **Model 3706 System Switch/Multimeter** is a scalable, instrument-grade switching and multi-channel measurement solutions that's optimized for automated testing of electronic products and components. The Model 3706 provides six slots for plug-in cards in a compact 2U high (3.5 inches/89mm) enclosure that easily accommodates the needs of medium to high channel count applications. When fully loaded, a mainframe can support up to 576 two-wire multiplexer channels for unrivaled density and economical per channel costs. The high performance multimeter provides a tightly integrated switch and measurement system that meets the demanding application requirements in a functional test system or provides the flexibility needed in stand-alone data acquisition and measurement applications. An embedded TSP® processor and TSP-Link® interface simplify building larger systems by making it easy to integrate the Model 3706 with Series 2600A System SourceMeter® instruments.

Series 3700 Plug-In Card Selector Guide

	No. of Channels	Card Configuration	Type of Relay	Contact Configuration	Maximum Voltage	Maximum Current Switched
3720	60 (Dual 1x30)	Multiplexer	Latching electromechanical	2 Form A	300 V	1 A
3721	40 (dual 1x20)	Multiplexer	Latching electromechanical	2 Form A	300 V (ch 1–40), 60 V (ch 41–42)	2 A (ch 1–40), 3 A (ch 41–42)
3722	96 (dual 1x48)	Multiplexer	Latching electromechanical	2 Form A	300 V	1 A
3723	60 (dual 1x30) or 120 single pole (dual 1x60)	Multiplexer	Dry reed	1 Form A	200 V	1 A
3724	60 (dual 1x30)	Multiplexer	FET solid-state	2 Form A	200 V	0.1 A
3730	6x16	Matrix	Latching electromechanical	2 Form A	300 V	1 A
3731	6x16	Matrix	Dry reed	2 Form A	200 V	1 A
3732	448 crosspoints (Quad 4x28)	Matrix	Dry reed	1 Form A	200 V	0.75 A
3740	32	Independent	Latching electromechanical	28 Form C, 4 Form A	300 VDC/250 VAC (Form A)	2 A (Form C), 7 A (Form A)
3750	40 digital I/O, 4 counter/ totalizers, and 2 isolated analog outputs	Independent	N/A	N/A	N/A	N/A

Need more detail?

Download the Series 3700 datasheet.

Let us offer advice on your application.

Send us your question or **join the discussion on our application forum.**

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