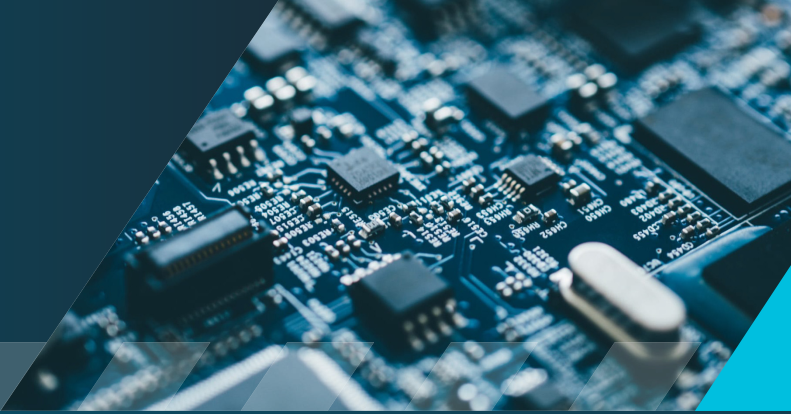
Tektronix

POWER SEMICON SEMINAR



Wednesday, September 13, 2023
9.00am - 5.00pm
Amari SPICE Penang

The future of power semiconductor electronics holds tremendous potential for innovation and growth. Several key trends and developments are already shaping the future:

1. **Wide Bandgap Semiconductors:** Wide bandgap semiconductors, such as Silicon Carbide (SiC) and Gallium Nitride (GaN), are gaining significant traction and are expected to play a crucial role in the future of power electronics. These materials offer superior electrical properties, enabling higher voltage, temperature, and switching frequency capabilities. As their manufacturing processes improve and costs decrease, they will become more prevalent in various applications.

2. **Increased Efficiency:** One of the primary goals in power electronics is to achieve higher efficiency across various applications. Power semiconductor devices with lower on-resistance, reduced switching losses, and improved thermal management will become increasingly important. This will lead to more energy-efficient systems and reduced power consumption in various industries.

The future of power semiconductor electronics will be characterized by higher efficiency, increased integration, and broader adoption of wide bandgap materials. These advancements will lead to more sustainable, reliable, and intelligent power systems, shaping various industries and contributing to a greener and more connected world.

To realize the full potential of SiC and GaN devices, accurate measurements during switching operations are needed to optimize efficiency and reliability. Testing procedures for SiC and GaN semiconductor devices must account for the higher operating frequencies and voltage levels of these devices.

Join the Tektronix Power Semicon Seminar to learn:

- Characterizing the performance of SiC and GaN Devices
- Key Tests essential for SiC and GaN Devices
- Validating Wide Bandgap Semiconductor Power Conversion Systems
- Automated Double Pulse Testing of Wide Bandgap Semiconductor Devices
- Analysing Power Integrity on a Power Distribution Network.

Learn and bring back the latest techniques and solution back to your power semiconductor projects and start engineering the future.

SPEAKERS

Sharon Lau

Stephen Tang

Andrew Teh

Eric Teh

LEARN MORE!

https://go2.tek.com/as-tektronix-power-semicon-seminar/

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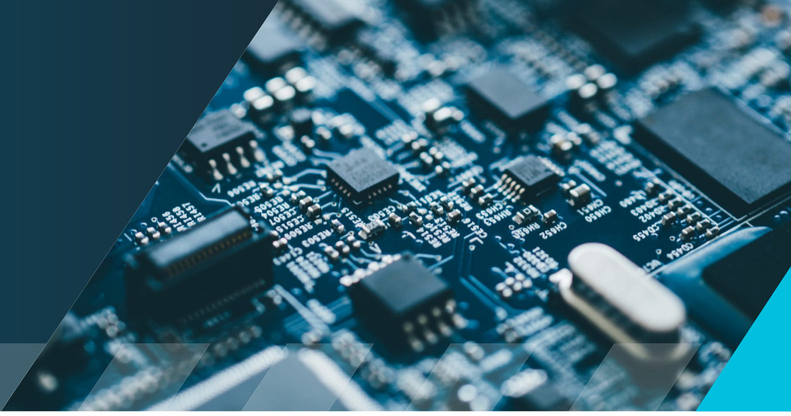

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Time	Session Title
0830 - 0855	Registration
0855 - 0900	Opening and Agenda Briefing
0900 - 1000	**Characterizing the Performance of Si, SiC, and GaN Devices** Demanding applications in automotive electrification and RF communications require wide bandgap semiconductor technology such as SiC and GaN along with the continued use of traditional silicon. SiC and GaN offer higher voltage operating frequencies, and higher temperatures with lower power loss compared to Si. Understanding the electrical performance of SiC and GaN will help enable a strong value proposition for their use in many emerging power applications. Get to market faster for your power semiconductor devices while minimizing device failures in the field.
1000 - 1030	Booth Demo & Break
1030 - 1130	**Silicon Carbide and Gallium Nitride Components - 5 Key Tests** This session takes us deeper into techniques for high power characterization of Silicon Carbide (SiC) and Gallium Nitride (GaN) components. We will look at power levels as high as 2000W and electrical levels of up to 3,000V or 100A. - Techniques for combining high and low power test equipment - Five Important characterization tests for wide bandgap components - Safety best practices for working with high power
1130 - 1230	**Analyzing Power Integrity on a Power Distribution Network (PDN)** Power Distribution Networks (PDNs) must provide many low-noise DC power rails for sensitive loads such as microprocessors, DSPs, FPGAs and ASICs. The quest for more speed and higher density means faster edge rates, higher frequencies and more rails, with lower voltage levels and higher currents. This places pressure on design for both signal integrity and power integrity. The goal of making power integrity measurements is to validate that the voltage and current reaching the Point of Load (POL) meet the load's power rail specifications under all expected operating conditions. Special attention is required to accurately measure millivolts of power rail noise at GHz frequencies.
1230 - 1400	Lunch and Games
1400 - 1500	**Validating Wide Bandgap Semiconductor Devices for Power Conversion Systems** The rising use of Silicon Carbide (SiC) and Gallium Nitride (GaN) to improve data center power efficiency, speed up EV charging time and EV powertrain efficiency, and improve power conversion requires new validation testing approaches and a better understanding of device performance. Understanding how to make the right measurements and using the right measurement instrumentation is key to a faster time to market for your power conversion designs.
1500 - 1530	Booth Demo & Break
1530 - 1630	**Double Pulse Testing: Automated Measurement and Characterization of Semicon Devices** Minimizing switching losses continues to be a major challenge for power device engineers working on SiC and GaN devices. The standard test method for measuring switching parameters and evaluating the dynamic behavior of Si, SiC, and GaN MOSFETs and IGBTs is the double pulse Test (DPT). Double pulse testing can be used to measure energy loss during device turn-on and turn-off, as well as reverse recovery parameters.
1630 - 1645	Closing and Appreciation Gifts
1645	Event Ends