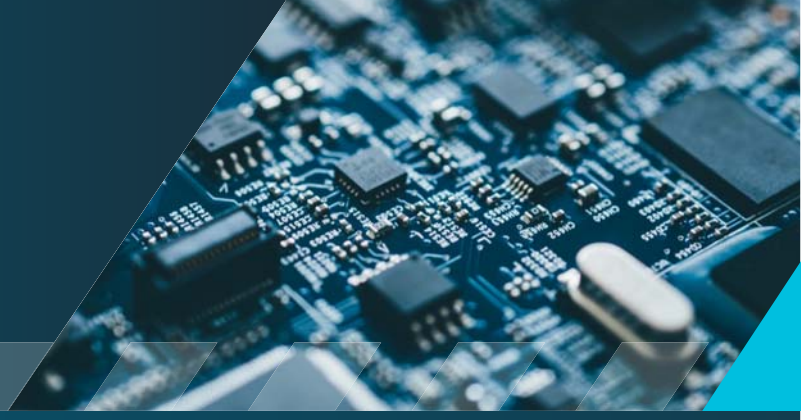
Tektronix

POWER SEMICON SEMINAR

Wednesday, November 15, 2023
10.00am - 4.30pm
NTU@one-north



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 Si, SiC and GaN Devices
- Validating Wide Bandgap Semiconductor Power Conversion Systems
- Key Tests essential for SiC and GaN Devices
- Automated Measurement on Double Pulse Testing

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

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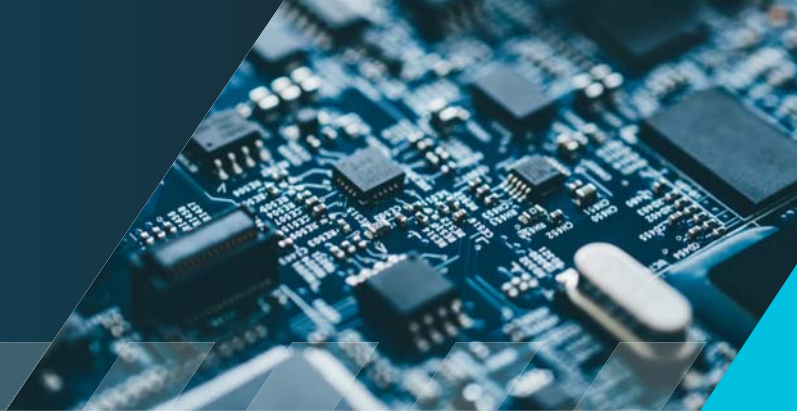

Time	Session Title
0930 - 0955	Registration
0955 - 1000	Opening and Agenda Briefing
1000 - 1100	**Wide Bandgap Power Devices: The Future of Power Electronics** Power semiconductor devices made from wide bandgap materials such as silicon carbide (SiC) and gallium nitride (GaN) are just beginning to become commercialized. Because they are made from multiple types of materials, they can be unstable and difficult to characterize. Because they are new, their manufacturing processes are immature. For these reasons, testing is critically important to drive process improvements, improve yields, and lower cost.
1100 - 1200	**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.
1200 - 1300	Lunch Break
1300 - 1400	Demo and Hands-On
1400 - 1500	**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
1500 - 1600	**Automated Measurement on Double Pulse Testing** 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.
1600 - 1630	Closing and Appreciation Gifts
1630	Event Ends

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