

WIDE BANDGAP DEVICE – TESTING BEYOND ROBUSTNESS

23 September 2020, Wednesday ▶ 1:00 – 5:00pm (SGT)

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AGENDA

1:00pm	Welcome
1:10pm	Keynote: Trends and future of power electronics Cam Pham, Global Automotive FAE Leader, Wolfspeed
1:30pm	Switching analysis – From switching loss measurement to verifying robustness of your design CS Wong, Scope Product Manager, Rohde & Schwarz Regional HQ Singapore
2:30pm	Probing in power electronics Dr Markus Herdin, Market Segment Manager ICR, Rohde & Schwarz GmbH & Co. KG
3:30pm	Redesigning with SiC – an EMI compliance rapid prototyping approach Cam Pham, Global Automotive FAE Leader, Wolfspeed
4:15pm	Power electronics and EMI Heng Wee Boo, Senior Regional Application Engineer, Rohde & Schwarz Regional HQ Singapore
5:00pm	End

Note: Each session will be followed by Q&A where the speaker will address your queries live.

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PRESENTATION SYNOPSES

Keynote: Trends and future of power electronics

Cam Pham, Global Automotive FAE Leader, Wolfspeed

In 1996, Dr Richard E Smalley, Nobel Prize winner in Chemistry, predicted that energy is number one in “humanity’s top ten problem for the next 50 years”. Today, the hunger for more “power” makes energy efficiency top priority. Will wide bandgap devices be the game changer in power electronics? Learn more as Cam Pham, Global Automotive FAE Leader from Wolfspeed, bring you for a trip back to the future with power electronics. Get more insights on the future of SiC/ GaN market.

Switching analysis – From switching loss measurement to verifying robustness of your design

CS Wong, Scope Product Manager, Rohde & Schwarz Regional HQ Singapore

The ultimate goal of every product is to meet its application requirement with some tolerance and taking into account of various input and environment factors. However, there is no direct measurement of robustness of the design. In this session, we look into the basic of switching loss and gate timing measurement. From there, we will dwell deeper into how to gain insight into robustness using different measurement methodology.

Probing in power electronics

Dr Markus Herdin, Market Segment Manager ICR, Rohde & Schwarz GmbH & Co. KG

Continuing the previous topic on robustness verification, we touch on how probing can affect the overall measurement accuracy. The right probing equipment and measurement techniques are of crucial importance in order to perform reliable oscilloscope measurements on power electronics. In this session, we will investigate further on the impact of probes and what attributes we should pay attention to when selecting the right probe for measurement, for example CMMR, attenuation ratio, etc.

Redesigning with SiC – an EMI compliance rapid prototyping approach

Cam Pham, Global Automotive FAE Leader, Wolfspeed

Wide bandgap (WBG) devices like SiC and GaN are seeing more adoption, especially in applications that require higher efficiency and power density such as EV, PV and datacenter. However there are some myths that using SiC is more challenging from EMI standpoint. In this session, we will share some design tips and document that SiC is as easy to meet as Si.

Power electronics and EMI

Heng Wee Boo, Senior Regional Application Engineer, Rohde & Schwarz Regional HQ Singapore

Prior to market launch, all electronics products have to comply with their respective EMC standards. Power electronics deals with high voltage high current, and thus result in higher magnitude of unwanted conducted or radiated emission. To mitigate the potential issue of non-compliance, prompt analysis of EMI problems during development is essential. In this session, we revisit various requirement for compliance and a look into various methods to quantify EMI performance. Different development stages can benefit from different instruments, like EMI receivers for precision in pre-compliance phase; while during prototype phase, oscilloscopes and spectrum analyzer can help in EMI debugging.

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