



Dr. Peter Friedrichs

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Exhibit Halls A & B – Industry Exchange

Wide band gap power devices and related robustness and reliability aspects

Abstract

Silicon carbide (SiC) devices offer many advantages, especially in power-conversion circuits for applications where efficiency is at a premium. These include solar inverters and electric vehicles, which may also be expected to remain in service for decades. For these applications, a combination of very high efficiency and long-term reliability is essential. The challenge in deploying SiC in such applications is that the technology is at an earlier stage of development than silicon. This means that the best ways of deploying SiC are still being explored, and that some failure modes unique to SiC devices still need to be better understood and more effectively mitigated. Infineon has been working on these issues for years and so has the insights and experience necessary to both help customers deploy SiC devices to their advantage, and to understand and mitigate their failure mechanisms to ensure the necessary reliability. The contribution will give insights into specific aspects regarding long term reliability and failure modes of SiC power devices, taking into account application relevant mission profiles.

Biography

Dr. Peter Friedrichs received his Dipl.-Ing. in microelectronics from the Technical University of Bratislava in 1993 and his Ph.D in 1997 from the Fraunhofer Institut FhG-IIS-B in Erlangen. His focus area of expertise was the physics of the MOS interface in SiC. In 1996 he joined the Siemens AG and was involved in the development of power devices on SiC.

Peter joined SiCED GmbH & Co. KG, a company being a joint venture of Siemens and Infineon, on March the 1st, 2000. Since July 2004 he was the managing director of SiCED. In 2009 he achieved the Dipl.-Wirt.-Ing. From the University of Hagen. After the integration of SiCED's activities into Infineon he joined Infineon on April 1st, 2011 and acts currently as Vice President SiC.