

Advanced SiC Power Modules for E-Mobility

Dr. Fabio Carastro

Semikron Danfoss

Abstract:

Next generation SiC-MOSFET power modules for electric vehicle applications are targeting increased power density and efficiency to reduce the overall drivetrain and charger cost. High currents, fast switching transients as well as high power density packages demand: best use of semiconductor area by advanced bonding, cooling technologies and layout optimization.

This presentation will give an overview of state-of-the-art of Semikron Danfoss power modules packaging, latest development in current sensing integration and some examples of high power density converter design with focus on SiC-MOSFET for E-Mobility applications.

Curriculum Vitae:



Fabio Carastro is a Senior power Electronics Engineer with 20+ years of practical experience in Business-Driven R&D. He received his M.Sc. degree in Electrical Engineering in 2003 and the Ph.D. degree in Electrical Engineering from the University of Nottingham, UK in 2007. From 2007 to 2010 he was a Research Fellow at Nottingham University. He joined General Electric R&D High Power Electronic Department Germany in 2010 then Semikron-Danfoss in 2018. Is currently responsible for the Power Electronics Hardware at the System Development Centre in Munich (Germany), creating customized power electronics solutions for the e-mobility and industrial applications. His research interests are high power Si and SiC devices for Automotive and Industrial applications, Power Modules design and system level optimization, MW scale converter design, topologies, power quality and reliability.

Contact Details:

Dr. Fabio Carastro
Senior Electrical Engineer
Semikron Danfoss
System Development
Carl-Zeiss-Ring 5
DE-85737 Ismaning, Deutschland
Email: fabio.carastro@semikron-danfoss.com
Phone : +49 (0) 151 17913367
<https://www.danfoss.de>