

**Faculty of Electrical Engineering
Research and Innovation Centre for Electrical Engineering**

**New Generation of Traction Converters – SiC dies with TPC
ceramic substrates**

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Abstract

This report deals with new technologies and materials for high-power power modules based on the SiC. With the increasing demand for greater power, current silicon (Si)-based transistors have reached their limits, prompting a demand for more modern materials such as silicon carbide (SiC) and gallium nitride (GaN). Solving technical problems, including appropriate component encapsulation, is crucial for harnessing the full potential of these new elements, opening the way to a new generation of high-power density converters. The dissertation introduces an innovative power module with SiC elements on a ceramic base, utilizing the new TPC technology and deals in detail with issue of its characterization.

Keywords

Power module, SiC, Thick Print Layer, Characterization, Measurement of parasitic inductance