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Special Issue Reliability and Performance of Components and
Systems for Power Electronic Applications

Guest Editors ■ P. Dherbécourt, and A. El Oualkadi

PAPERS

A Hybrid TSA-Fuzzy Logic Approach to Detect Induction
Motor Rotor Faults

Secured Failure Analysis Methodology for Accurate Diagnostic of
Defects in GaN HEMT Technologies

Experimental and microscopic analysis of 600V GaN-GIT under the
short-circuit aging tests

An Improved SPICE Model for the Study of Electro-thermal Static
Behavior for two New Generations of SiC MOSFET

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Preface

Nowadays, power electronics play an important role in motor drives, utility interfaces based on renewable energy sources, power converters, power transmission, electric or hybrid vehicles and many other industrial applications. Moreover, the advancements in the power semiconductor technology with the emergence of wide band-gap devices have pushed the conversion efficiency of power electronics to very high levels, where however the reliability of power electronics is becoming more and more vital and should draw more attention. In this context, the reliability assessment and improvement of power electronic systems should be addressed efficiently. Indeed, it is important to design reliable power electronic systems to lower the risks of many failures during operation. This special issue received as submissions the best papers accepted and presented at the 19th IEEE MELECON 2018 conference, for the special session “Reliability and failure analysis of power electronic semiconductor devices and systems”. This special issue has come to focus on fundamental understanding of the physical reliability and mechanisms governing failure in a large variety of advanced semiconductor devices and systems, the electrical – physical failure analysis techniques, the methodologies and tools that could be used to reliably identify the root cause of failure in these devices. The papers in this special issue were selected on the basis of novelty and originality of the contribution as well as their technical content. We take this opportunity to thank all the reviewers for their strong support and to acknowledge the valuable contribution of the authors.

Acknowledgements

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