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Reliability Characterisation of Electrical and Electronic Systems

Edited by Jonathan Swingler

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PUBLISHING

Woodhead Publishing Series in Electronic
and Optical Materials: Number 74

Reliability Characterisation of Electrical and Electronic Systems

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Jonathan Swingler



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80 High Street, Sawston, Cambridge, CB22 3HJ, UK
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Langford Lane, Kidlington, OX5 1GB, UK

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British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library.

Library of Congress Control Number: 2014954005

ISBN 978-1-78242-221-1 (print)

ISBN 978-1-78242-225-9 (online)

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Typeset by Spi Global

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Foreword

Reliability of systems and their sub-elements – be they optical, optoelectronic, electrical, or electronic – is a crucially important topic in industry for enabling the classification of the faults and failure modes of devices and systems during their operational lifetime and the quantification of their residual useful life. Unfortunately it is a topic absent in the majority of syllabi in universities worldwide. As electrical and electronic devices become more complex, students ought to understand, let alone apply, design-for-reliability and the various testing methods that they might employ in industry.

In that respect, this book fills an important gap in the market. Its unashamedly empirical approach to the topic and the case studies presented in some of its chapters offer the reader a unique opportunity to relate to his/her own experience in the field.

The contributors to the book rightly took a practical view to reliability while presenting physics of failure and accelerated lifetime testing. More importantly, they dissected how knowledge of reliability could be applied not only across various classes of devices—microcircuits, diode, transistors, and embedded systems—but also across many applications ranging from oil and gas, automotive, and photovoltaics. This pedestrian approach is certainly welcome and will help those engineers who require specific information related to their main concerns.

In summary, I am delighted to give this book my personal recommendation and congratulate Dr Swinger and his contributors on providing a book that will be a very useful addition to the body of knowledge already present in the field.

Marc Desmulliez

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