Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems)

Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems)

Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems)

This book presents the first comprehensive overview of the properties and fabrication methods of GaN-based power transistors, with contributions from the most active research groups in the field. It describes how gallium nitride has emerged as an excellent material for the fabrication of power transistors; thanks to the high energy gap, high breakdown field, and saturation velocity of GaN, these devices can reach breakdown voltages beyond the kV range, and very high switching frequencies, thus being suitable for application in power conversion systems. Based on GaN, switching-mode power converters with efficiency in excess of 99 % have been already demonstrated, thus clearing the way for massive adoption of GaN transistors in the power conversion market. This is expected to have important advantages at both the environmental and economic level, since power conversion losses account for 10 % of global electricity consumption.

The first part of the book describes the properties and advantages of gallium nitride compared to conventional semiconductor materials. The second part of the book describes the techniques used for device fabrication, and the methods for GaN-on-Silicon mass production. Specific attention is paid to the three most advanced device structures: lateral transistors, vertical power devices, and nanowire-based HEMTs.
Other relevant topics covered by the book are the strategies for normally-off operation, and the problems related to device reliability. The last chapter reviews the switching characteristics of GaN HEMTs based on a systems level approach.

This book is a unique reference for people working in the materials, device and power electronics fields; it provides interdisciplinary information on material growth, device fabrication, reliability issues and circuit-level switching investigation.

Download and Read Free Online Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems)

From reader reviews:

James Ray:

Now a day individuals who Living in the era wherever everything reachable by talk with the internet and the resources included can be true or not involve people to be aware of each data they get. How a lot more to be smart in obtaining any information nowadays? Of course the answer then is reading a book. Reading a book can help persons out of this uncertainty Information especially this Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) book because this book offers you rich information and knowledge. Of course the knowledge in this book hundred per-cent guarantees there is no doubt in it as you know.

Jeremy Turner:

The event that you get from Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) will be the more deep you searching the information that hide into the words the more you get thinking about reading it. It does not mean that this book is hard to comprehend but Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) giving you excitement feeling of reading. The article author conveys their point in a number of way that can be understood by simply anyone who read that because the author of this book is well-known enough. This book also makes your vocabulary increase well. That makes it easy to understand then can go to you, both in printed or e-book style are available. We recommend you for having this particular Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) instantly.

Virginia Higgins:

The e-book with title Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) includes a lot of information that you can understand it. You can get a lot of gain after read this book. That book exist new knowledge the information that exist in this book represented the condition of the world now. That is important to yo7u to know how the improvement of the world. This book will bring you in new era of the internationalization. You can read the e-book on your own smart phone, so you can read this anywhere you want.

Maria Green:

Don't be worry should you be afraid that this book will probably filled the space in your house, you can have it in e-book way, more simple and reachable. This particular Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) can give you a lot of pals because by you investigating this one book you have issue that they don't and make you more like an interesting person. This kind of book can be one of a step for you to get success. This book offer you information that possibly your friend doesn't realize, by knowing more than additional make you to be great men and women. So , why hesitate? We need to have Power GaN Devices: Materials, Applications and Reliability (Power Electronics

and Power Systems).

Read Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) for online ebook

Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) books to read online.

Online Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) ebook PDF download

Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) Doc

Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) Mobipocket

Power GaN Devices: Materials, Applications and Reliability (Power Electronics and Power Systems) EPub