

1. Record Nr.	UNINA9910450831603321
Titolo	SiC materials and devices . Vol. 1 [[electronic resource] /] / edited by Michael Shur, Sergey Romyantsev, Michael Levinshtein
Pubbl/distr/stampa	New Jersey, : World Scientific, 2006
ISBN	1-281-37331-1 9786611373313 981-277-337-1
Descrizione fisica	1 online resource (342 p.)
Collana	Selected topics in electronics and systems ; ; v. 40
Altri autori (Persone)	ShurMichael RomyantsevSergey L LevinshteinM. E (Mikhail Efimovich)
Disciplina	621.38152
Soggetti	Silicon carbide - Electric properties Semiconductors Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Material reprinted from International Journal of High Speed Electronics and Systems, v. 15 no. 4 (2005), with original paging in upper corner.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	CONTENTS; Preface; Sic Material Properties; 1 Introduction; 2 Polytypism; 3 Band Structure and Effective Masses; 4 Thermal Properties; 5 Dopants and free charge carriers; 6 Diffusion of Dopants; 7 Impurity Conduction; 8 Minority Carrier Lifetime 9 Properties of SiC/SiO2 Interfaces Acknowledgments; References; SiC Homoepitaxy and Heteroepitaxy; 1 Introduction; 2 SiC homoepitaxial growth; 3 SiC heteroepitaxial growth; 4 Summary; References; Ohmic Contacts to SiC; 1 Introduction; 2 Metal-Semiconductor Contacts 3 Specific Contact Resistance 4 Ohmic Contacts to n-type SiC; 5 Ohmic Contacts to p-type SiC; 6 Long-Term Thermal Stability of Ohmic Contacts to SiC; 8 Conclusion; References; Silicon Carbide Schottky Barrier Diode 1 Introduction 2 SiC Schottky Contacts; 3 High Voltage SiC SBD JBS and MPS diodes; 4 Applications in Power Electronics Circuits; 5 Other Applications of SiC SBD; 6 Summary and Future Challenges; References; High Power SiC PiN Rectifiers; 1 Introduction

2 PiN Rectifier Design and Operation 3 Experimental Results on PiN Rectifiers; 4 Yield and Reliability of SiC Rectifiers; 5 Conclusions; Acknowledgements; References; Silicon Carbide Diodes for Microwave Applications; 1 Introduction; 2 Silicon Carbide Point-Contact Detectors 3 Silicon Carbide Varactors

Sommario/riassunto

After many years of research and development, silicon carbide has emerged as one of the most important wide band gap semiconductors. The first commercial SiC devices - power switching Schottky diodes and high temperature MESFETs - are now on the market. This two-volume book gives a comprehensive, up-to-date review of silicon carbide materials properties and devices. With contributions by recognized leaders in SiC technology and materials and device research, SiC Materials and Devices is essential reading for technologists, scientists and engineers who are working on silicon carbide or
