

Table of Contents

Preface

Comparison of the Irradiation Temperature Effect of on the Carrier Removal Rates in GaN and SiC

A.A. Lebedev, K.S. Davydovskaya, V.V. Kozlovski, M.E. Levinstein, D.A. Malevsky, A.E. Nikolaev, A.V. Sakharov and N.S. Solonitsyn 1

Investigation of Mechanical Stress and Warpage in 200 mm Silicon Carbide Wafers: Implications for Production Scalability

L. Dong, Q.Q. Wu and S. Nufer 7

Challenges in Measuring Thin SiO₂ Layers on 4H-SiC via Spectroscopic Ellipsometry

L. Makai, J. Körfer, Z. Pap, B. Fodor and M. Rommel 15

A Frequency-EBIC Technique for High Spatial Resolution of the Effective Minority Charge Carrier Lifetime in SiC PN-Junctions

C.S. Gruber, G. Pobegen and J. Smoliner 21

Evaluation of Oxide Processing Steps in SiC Technology Using Contactless Corona-Based CV Measurements

R. Karhu, V. Häublein, M. Wilson, M. Rommel and B. Kallinger 29

Characterization of the Electric Field in Silicon Carbide Detectors by Optical Beam Induced Current

S. de Luca, A.S. Mancuso, A. Muoio, E. Sangregorio and F. La Via 37

A Study on Simplifying the Process of a Single Cycle for Multiple Epitaxy and Implantation Method to Fabricate SiC Super Junction

H.W. Chen, C.Y. Cheng, W.L. Lai, Y.C.S. Wu and B.Y. Tsui 43

Effects of 673K Temperature Anneal on a 4H-SiC CMOS NOT Logic Gate

N. Rinaldi, L. di Benedetto, M. Rommel, A. May, L. Baier, R. Liguori, A. Rubino and G.D. Licciardo 49

Edge Termination Design for Ultra High-Voltage (>10 kV) 4H-SiC Power Devices Using Background Doping Modulation (BDM)

M. Torky, J. Lynch, N. Yun, S. Mancini, M. Hinojosa, A. Lelis and W. Sung 55

Carbon Vacancy Engineering on High-Temperature Annealing as a Cost-Effective Approach for Reverse Recovery Suppression in SiC-MOSFETs

M. Matsuoka, D. Soda, K. Miyazaki, T. Tanioka, K. Tojima, A. Kiyoi, Y. Kagawa and T. Nitta 61

4H-SiC Diodes to Probe Stark Effect Detection in ⁷Be Decay Lifetime

V. Boldrini, M. Canino, M. Pieruccini, V. Carrano, H.C. Neitzert, L. di Benedetto, C. Santonastaso, R. Buompane, M.L. Mitsou, N. Casali, R.P. Yadav, M. Laubenstein, C.D.E. Boschi, A. Rubino, A. Formicola and L. Gialanella 69

Enhanced Breakdown Voltage and Enlarged Process Window for Junction Termination Extension in SiC Power Devices Using Hybrid Random and Channeling Implantation

S.Y. Zheng, X.J. Luo and H.X. Jiang 75

Effect of Varying N⁺ Source Implantation Depth on the Electrical Characteristics of 1.2 kV 4H-SiC MOSFETs

D.C.Y.B.Y. Mudiyansele, S. deBoer, S.A. Mancini, J. Lynch, S.Y. Jang, A.J. Morgan and W. Sung 81