

Table of Contents

Preface

Total Ionizing Dose (TID) Effects on the 1.2 kV SiC MOSFETs under Proton Irradiation J.H. Seo, Y.J. Yoon, Y.J. Kim and H.W. Kim	1
Reliability of SiC MOSFETs in the High Cycle Fatigue Regime under Fast Power Pulses C. Schwabe, N. Seltner and T. Basler	7
Study of the Bias Driven Threshold Voltage Drift of 1.2 kV SiC MOSFETs in Power Cycling and High Temperature Gate Bias Tests R. Boldyrjew-Mast, P. Heimler, X. Liu, K. Reiter, C. Schwabe, N. Thönelt, J. Lutz and T. Basler	13
Dependence of the Silicon Carbide Radiation Resistance on the Irradiation Temperature A.A. Lebedev, V.V. Kozlovski, M.E. Levinshtein, K.S. Davydovskaya and R.A. Kuzmin	21
Anomalous Electrical Behavior of 4H-SiC Schottky Diodes in Presence of Stacking Faults M. Vivona, P. Fiorenza, V. Scuderi, F. La Via, F. Giannazzo and F. Roccaforte	27
Early-Stage Reliability Evaluation of Passivation Stack and Termination Designs in SiC MPS Diodes D. Momeni, M. Mazzillo, S. Laha, M.S.B.A. Sani, J. Urresti, T.X. Dai, C. Liguda and S. Habenicht	33
A Unique Failure Mode of SiC MOSFETs under Accelerated HTRB P. Moens, M. Domeij, J.F. Cano, L. de Schepper, S. Verleye and F. Allerstam	39
Design Optimization and Reliability Evaluation in 1.2 kV SiC Trench MOSFET with Deep P Structure K.W. Lee, J. Choi, Y.H. Seo, K.S. Park, M. Domeij and F. Allerstam	47
Experimental Demonstration of Ultra-Fast SiC MOSFET Overload Protection Using Embedded Current and Temperature Sensors D. Tournier, T. Vadebout, P. Bevilacqua, P. Brosselard and J.F. de Palma	53
Dynamic Bias-Temperature Instability Testing in SiC MOSFETs E. Martino, S. Kicin, Y. Zong, A. Nasralla, G. Romano, R. Burkart, A. Mesemanolis and S. Wirths	59
UIS Ruggedness of Parallel 4H-SiC MOSFETs P. Steinmann, M. Atzeri, I.H. Ji, J. Langan, K. Myers, N. Oldham, J.H. Park, R. Potera, C. Rinderer and E. van Brunt	65
The Impact of Gamma Irradiation on 4H-SiC Bipolar Junction Inverters under Various Biasing Conditions A. Metreveli, A. Hallén, I. di Sarcina, A. Cemmi, A. Verna and C.M. Zetterling	71
Single Event Effects in 3.3 kV 4H-SiC MOSFETs due to MeV Ion Impact Z. Yuan, J.K. Lim, A. Metreveli, H. Krishna Murthy, M. Bakowski and A. Hallén	77
AFM-sMIM Characterization of the Recombination-Enhancing Buffer Layer for Bipolar Degradation Free SiC MOSFETs R.C. Germanicus, T. Phulpin, K. Niskanen, A. Michez and U. Lüders	85
Modelling-Augmented Failure Diagnostics in Planar SiC MOS Devices Using TDDb Measurements D. Cornigli, H. Schlichting, T. Becker, L. Larcher, T. Erlbacher and M. Pesic	93
High Single-Event Burnout Resistance 1.2 kV 4H-SiC Schottky Barrier Diode Y. Qi, A.B. Renz, V. Kotagama, M. Antoniou and P.M. Gammon	99
Investigation of Threshold Voltage Instability and Bipolar Degradation in 3.3 kV Conventional Body Diode and Embedded SBD SiC MOSFET H. Krishna Murthy, J.K. Lim and M. Bakowski	105
Demonstration of 800°C SiC MOSFETs for Extreme Temperature Applications E. Andarawis, D. Shaddock, T. Johnson, S. Goswami and R. Ghandi	111
Dynamic On-State Resistance and Threshold-Voltage Instability in SiC MOSFETs A.J. Leles, R. Green Jr., D.B. Habersat, D.P. Urciuoli and E.S. Schroen	117