

Table of Contents

Preface

Electrical Characterization of HV (10 Kv) Power 4H-SiC Bipolar Junction Transistor P. Brosselard, B. Fosso-Sob, D. Planson, P. Bevilacqua, C. Sonnevile, M. Lazar, B. Vergne, S. Scharnholtz and H. Morel	1
Investigation on Effect of Electrical Characteristics of Proton Implanted 4H-SiC MOSFET N. Shikama, K. Ishibashi, H. Niwa, T. Tanaka, H. Amishiro, A. Imai, K. Sugawara, Y. Kagawa and A. Furukawa	7
Evaluation of Switching Performances and Short Circuit Capability of a 1.2 kV SiC GAA MOSFET through TCAD Simulations L. Maresca, V. Terracciano, A. Borghese, M. Boccarossa, M. Riccio, G. Breglio, S. Wirths and A. Irace	17
Impact of Positive and Negative High Voltage Gate Stress on Channel Degradation in SiC MOSFETs S.R. Stein, S. Das, A.K. Biswas, D.J. Lichtenwalner and S.H. Ryu	25
Impact of Single-Step Deep P-Body Implant on 1.2 kV 4H-SiC MOSFET P. Vudumula, Y.C. Chien, A.H. Yeo, L.K. Bera, U. Chand, V.Q.G. Roth, S. Chung, N. Singh and Y.C. Yeo	35
Temperature Dependence of 1200V-10A SiC Power Diodes Impact of Design and Substrate on Electrical Performance A. Abbas, C. Le Royer, R. Laviéville, J. Biscarrat, G. Gelineau, F. Allibert, E. Bano and P. Godignon	41
Designs of 1.2 kV Rated Semi-Superjunction MOSFET on the 2D and 3D Planes for Practical Realization V. Kotagama, A.B. Renz, K. Melnyk, G.W.C. Baker, V.A. Shah, M. Antoniou and P.M. Gammon	51
Superior Characteristics of Body Diode in DMOSFET Fabricated on 4H-SiC Bonded Substrate Y. Higashi, S. Ishikawa, K. Oozono, H. Sezaki, M. Kobayashi, H. Uchida, M. Okamoto, S. Harada, K. Kojima, T. Kato and Y. Tanaka	59
1200 V 4H-SiC VDMOSFET Having > 2.5x On-Current Improvement Y. Widjaja, V. Nebesnyi, A. Asenov, N. Xeni, I. Topaloglu, D. Bensouiah, S. Rath, R. Young, L. Laborie, Y. Qi, M. Bell and D.T. Clark	69
Static Analysis of Temperature-Dependence of Paralleled High Voltage Vertical Silicon & SiC NPN BJTs C. Shen, S. Jahdi, M. Hosseinzadehlish, P. Mellor, K. Floros and I. Lütke	75
Economic Feasibility Analysis of Vertical High-Voltage 4H-SiC Superjunction MOSFETs Compared to Conventional Counterparts M. Torky and W. Sung	85