

Table of Contents

Preface

Demonstration of ALD SiO₂ as Gate Oxide in the 1.7kV SiC UMOSFET for High-Power and Embedded CMOS Circuit Integration	
C.L. Hung, P. Rabinzohn, A. Vozny, T. Ivanova, M. Söderlund, Y.K. Hsiao and H.C. Kuo	1
Threshold Voltage Control in 4H-SiC MOS Devices by Atomic Layer Deposited AlO/SiO Interface Dipole Engineering	
B. Lee and V. Misra	9
Electrical Performance of 4H-SiC MOSFETs with Different Gate Oxide Processes	
W.C. Yu, C.L. Hung, W.C. Lin, W.T. Lin, T.S. Rawat, Y.K. Hsiao, T.L. Wu and H.C. Kuo	15
Impact of ALD Oxidant and Deposition Temperature on Electrical Characteristics of Al₂O₃/SiO₂/SiC MOS-Capacitors	
H.V. Manchineni, A. Wachowiak and T. Mikolajick	21
Extraction of Trench Sidewall Capacitance by Linear Component Separation towards Wafer Level Evaluation	
M. Szabo, T. Becker, M. Jank and T. Erlbacher	29
Characterization of Al-Gate MOS Capacitor on Thermally Oxidized 3C/4H Hybrid Polytype-Heterostructure Si-Face SiC(0001) Wafer Fabricated by Simultaneous Lateral Epitaxy (SLE) Method	
M. Sakuraba, T. Oki, S. Watanabe, S. Sato, I. Morita, T. Ueno, S. Sato, H. Nagasawa, Y. Watanabe and M. Suemitsu	39
Enhanced Mobility in SiC (0001) MOSFETs Using a Decoupled Plasma Nitridation (DPN) Process and Oxide Deposition	
K. Ramadoss, J. Holt, L. Date, S. Muhammad, J. Kalliomaki, F. Albrechtvechietti, W. Charles, A. Pang, S. Jain, B. Briggs, L. Megalini, M. Chudzik, D. Morisette and J.A. Cooper	47
Characterizations of 4H-SiC/SiO₂ Interface by High-Temperature N₂/H₂ Pretreatment	
H. Wang, Y.M. Du, J. Shu, P.W. Zhou, Y.C. Yang and K.J. Chen	53
Preliminary Study into Ferroelectric Properties of ALD Al-Doped HfO₂/SiO₂/ 4H-SiC MOS Capacitors for Improved Short Circuit Reliability	
X. Tian, A.B. Renz, K. Melnyk, M.A. Yildirm, M. Boccarossa, L. Maresca, A. Irace, J.A. Gott, N.S. Agbo, P. Taylor, M. Antoniou, P.A. Mawby and P.M. Gammon	59
High-Temperature H₂- and N₂-Containing Surface Conditioning for SiO₂/4H-SiC Interface Optimization	
J. Ziegler, D. Scholten, H. Bartolf and J. Schulze	67
Electrical Characterization of Mo-Carbide Schottky Contacts on 4H-SiC	
M. Vivona, S.E. Panasci, M. Zignale, V. Votadoro, S. di Franco, E. Schilirò, G. Greco, R. Lo Nigro, P. Fiorenza, F. Giannazzo and F. Roccaforte	75
Ni Si Alloy/4H-SiC Reaction and Silicide Formation under Excimer Laser Annealing for Ohmic Contact	
P. Badalà, C. Bongiorno, S. Sanzaro, A. Bassi, S. Rascunà, G. Bellocchi, M. Boscaglia, A. La Magna and A. Alberti	81
Influence of Different Contact Lengths on the Correct Extraction of the Resistance Parameters of TLM Test Structures on 4H-SiC	
M. Ley, J. Kauth, M. Rommel, B. Fischer, A. May and J. Schulze	89
Analysis of Backside Metal Contact Resistance on Low-Resistivity Polycrystalline in 4H-SiC-Bonded Substrates	
M. Kobayashi, S. Ishikawa, Y. Higashi, H. Sezaki, M. Okamoto, S. Harada and K. Kojima	97