



## 4H-Silicon Carbide MOSFET

By Liu, Gang

Condition: New. Publisher/Verlag: Scholar&apos;s Press | Interface Structure, Defect States and Inversion Layer Mobility | Silicon carbide is the only wide band gap semiconductor that has a native oxide, and a leading candidate for development of next-generation, energy efficient, high power metal-oxide-semiconductor field effect transistors (MOSFETs). Progress in this technology has been limited by the semiconductor-dielectric interface structure and its effect on the inversion layer mobility. The major objective of this work is to study and improve 4H-SiC MOSFET interface structure, defect states and inversion layer mobility on the (11-20) crystal face of SiC (a-face), employing nitrogen and phosphorous passivation. We also use these results to explore the effect of reactive ion etching on the a-face, an important aspect of processing optimum power devices. We correlate electrical measurements, i.e. current-voltage (I-V) and capacitance-voltage (C-V) with physical characterization including X-ray photoelectron spectroscopy (XPS), atomic force microscopy (AFM), transmission electron microscopy (TEM), secondary ion mass spectrometry (SIMS) and medium energy ion scattering (MEIS). | Format: Paperback | Language/Sprache: english | 181 gr | 220x150x6 mm | 124 pp.



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