

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Improved Schottky Contacts on n-type SiC using ZrB₂ TOM ODER, PAMELA MARTIN, Youngstown State University, ADETAYO ADEDEJI, Georgia Southern University, TAMARA ISAACS-SMITH, JOHN WILLIAMS, Auburn University — We present results on ZrB₂ Schottky contacts deposited on n-type SiC by DC magnetron sputtering at temperatures between 20 °C and 800 °C. The Schottky barrier heights determined by current-voltage measurements, increased with the deposition temperature from 0.87 eV for contacts deposited at 20 °C to 1.07 eV for those deposited at 600 °C. The RBS spectra of these contacts revealed a substantial decrease in oxygen peak with increase in the deposition temperature and showed no reaction at the ZrB₂/SiC interface. The barrier heights of the contacts annealed in nitrogen for 20 mins at 200 °C to 500 °C using a rapid thermal processor revealed only a slight increase. These results indicate improvement in the electrical properties and thermal stability of ZrB₂ on n-type SiC when the contacts are deposited at elevated temperatures, making them attractive for high temperature applications.

Tom Oder
Youngstown State University

Date submitted: 20 Nov 2006

Electronic form version 1.4