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**Improved SiC Schottky Diodes using ZrB<sub>2</sub> Deposited at High Temperatures** TOM ODER, Youngstown State University, PAMELA MARTIN, University of Illinois at Urbana-Champaign, ADETAYO ADEDEJI, Georgia Southern University, TAMARA ISAACS-SMITH, JOHN WILLIAMS, Auburn University — Results on ZrB<sub>2</sub> Schottky contacts deposited on n-type SiC by DC magnetron sputtering at temperatures between 20 °C and 800 °C are presented. 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 ZrB<sub>2</sub>/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 ZrB<sub>2</sub> on n-type SiC when the contacts are deposited at elevated temperatures, making them attractive for high temperature applications.

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