

Abstract Submitted  
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**Ideal SiC Schottky Barrier Diodes Fabricated Using Refractory Metal Borides**<sup>1</sup> TOM ODER, RANI KUMMARI, Youngstown State University — We present results of n-type 4H-SiC Schottky barrier diodes fabricated using several refractory metal boride Schottky contacts deposited on SiC held at various temperatures. From the electrical properties determined by current-voltage measurements, diodes with contacts deposited on SiC substrates held at 600 °C had average ideality factors in the range 1.04 – 1.09 and Schottky barrier heights of 1.02 eV – 1.14 eV; and these values remained unchanged after the diodes were annealed at 600 °C for 20 min. Diodes with contacts deposited on substrates held at 20 °C had much higher ideality factors which decreased only slightly after the annealing. The Rutherford backscattering spectroscopy spectra of these contacts revealed a systematic decrease in oxygen with increase in the deposition temperature. The improved electrical properties and thermal stability are attributed to the removal of oxygen from the boride/SiC interface during high temperature deposition.

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