

Abstract Submitted  
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**Characterization of WB/SiC Schottky Barrier Diodes Using I-V-T Method**<sup>1</sup> JAMES ALDRIDGE, TOM ODER, Youngstown State University — The importance of silicon carbide (SiC) semiconductor for high temperature and high power microelectronic device applications has long been established. We have fabricated SiC Schottky barrier diodes using tungsten boride (WB) as the Schottky contact. The diodes were characterized using the current-voltage-temperature method. The sample was mounted on a heated stage and the temperature varied from about 25 °C to 300 °C at intervals of 25 °C. From the Richardson's plot, we obtained an energy barrier height of 0.96 eV and a Richardson's constant of 71.2  $\text{AK}^{-1}\text{cm}^{-2}$ . Using the modified Richardson's plot, we obtained a barrier height of 1.01 eV. From the variation of the ideality factor and the temperature, we determined a characteristic energy of 0.02 eV to 0.04 eV across the range of the measurement temperature. This implies that thermionic emission is dominant in the low measurement temperature range. Our results confirm the excellent thermal stability of WB/SiC Schottky barrier diodes.

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