

Abstract Submitted  
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**Electrical characterization of homoepitaxially deposited boron-doped diamond**<sup>1</sup> SUNIL KARNA, YOGESH VOHRA, GOPI SAMUDRALA, GEORGI TSOI, None — Homoepitaxial boron doped single crystal diamond films were deposited on 100 oriented Ib type synthetic diamond substrates via microwave plasma chemical vapor deposition. The gas phase chemistry of 6% methane/ hydrogen ratio and 5000 ppm of  $(B/C)_{gas}$  was used for all samples deposited at different temperature from 900 to 1200°C. The deposited films were characterized by FTIR, AFM, Raman spectroscopy and XRD Rocking curve measurement to assess doping level, surface morphology and crystalline quality. The high growth rate 16 micron per hour has been obtained by optimizing growth parameters such as microwave power, chamber pressure, and gas flow rate. The four-probe electrical resistance measurements on boron-doped samples were conducted between 14 K and 350 K and show competing effects of intrinsic and hoping conductivity.

<sup>1</sup>GAFP

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None

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