Modeling of the Operating Characteristics of Thin Film Diamond Electronic Devices Using SPICE

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ABSTRACT

Diamond processes a unique combination of excellent properties making it a promising candidate for high-temperature and high power applications. However,emerging electronic device applications of diamond thin film demand a better understanding of their electronic properties as well as the development of numerical simulation tools that can be directly employed to model and predict the operating characteristics of diamond electronic devices. In view of this, 2 major tasks are thus include in this research: 1. Characterization of the operating characteristics of diamond electronic devices. 2. The construction of appropriate physical and circuit models for diamond thin films and their electronic device applications and the development of numerical simulation tools that can be directly used in a popular circuit simulation software package (Design Center) In this work, the numerical simulation software can be used a valuable toolin the further development of novel diamond electronic devices as well as their circuit applications.

Keywords : diamond ; numerical simulation

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