

先端科学技術研究科 修士論文要旨

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学籍番号	1911033	提出日	令和 3年 1月 22日
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論文題目	Measurement of BTI-induced Threshold Voltage Shift for Packaged SiC Power MOSFETs under Actual Switching Operation SiCパワーMOSFETのスイッチング動作下におけるBTI起因しきい値電圧変動の測定		
要旨			
<p>While silicon carbide (SiC) MOSFETs can tolerate high-voltage and high-temperature operations with low power loss, long-term reliability of SiC devices is of a concern due to the threshold voltage shift caused by bias temperature instability (BTI). Although the industry-standard BTI characterization method can measure long-term threshold voltage fluctuation, it is hard to quantify the fluctuation under the actual switching operation. In this thesis, we propose a long-term BTI characterization method that reflects a realistic switching operation of power devices. We demonstrate the effectiveness of the proposed method using a commercial SiC MOSFET and then discuss the suitable model to represent BTI on the basis of the measurement data.</p>			