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Electrical Characterization of SiC using DLTS System

By Muhammad Rizwan Qayyum

VDM Verlag Dr. M \ddot{u} ller. Paperback. Book Condition: New. Paperback. 72 pages. Dimensions: 8.7in. x 5.9in. x 0.2in. Experiments were carried out on a high blocking voltage Schottky diode (2KV) fabricated on an n-type 4H-polytype Silicon Carbide. The sample is low doped in low 10^{14} (carrier concentration is $2.4 \times 10^{14} \text{ cm}^{-3}$) and thickness of epitaxial layer is $30 \mu\text{m}$. The substrate is n-type of doping in the mid 10^{18} range. Silicon carbide (SiC) is selected because it has a wide bandgap, high thermal conductivity, high breakdown electric field and high electron saturation velocity. Therefore, SiC can be used as high temperature electronics, high power switching and high frequency power generation. I-V and C-V measurements were performed on the sample. The leakage current was found to be below 10^{-6} A with applied reverse bias rating as high as $V_r = 10\text{v}$. From the capacitance voltage (C-V) measurements we obtain the carrier concentration to be $2.4 \times 10^{14} \text{ cm}^{-3}$. Characterization of deep levels in n-type 4H-polytype SiC has been carried out using deep level transient spectroscopy. One deep level at $E_c + 0.23$ and Capture Cross Section of this deep level is $1.59 \times 10^{-20} \text{ cm}^2$. This item ships from multiple locations. Your book may arrive...



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