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4H-SiC devices simulation with DEVSIM

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4H-SiC devices could potentially operate in a harsh radiation and room-temperature environment because of its wider band gap, atomic displacement threshold energy and high thermal conductivity. We have simulated the IV, CV characteristics and gain efficiencies of 4H-SiC devices based on DEVSIM——an open source TCAD semiconductor device simulator. The reliability of the software can be verified by comparing the simulation results with the test results of the corresponding devices. In addition, in order to more accurately simulate the performance of 4H-SiC devices, we study the influence mechanism of non-ideal ohmic contact on the leakage current of the devices. Simultaneously, different defect types will have different effects on device performance. DEVSIM simulation can be used to identify harmful defects, thus reducing the formation of harmful defects.

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