Abstracts

GaN-based high electron-mobility transistors for microwave and RF control applications

N.V. Drozdovski and R.H. Caverly. "GaN-based high electron-mobility transistors for microwave and RF control applications." 2002 Transactions on Microwave Theory and Techniques 50.1 (Jan. 2002, Part I [T-MTT] (Mini-Special Issue on 1999 International Microwave and Optoelectronics Conference (IMOC'99))): 4-8.

Heterojunction FETs or high electron-mobility transistors (HEMTs) based on Al/sub x/Ga/sub 1-x/N/GaN are studied for their use as control components for high-power microwave and RF control devices (switches, phase-shifters, etc.). A linear operation model was developed for these components so that optimum transistor geometry and operation parameters may be determined for their use in control applications. The model was verified with experimental data taken on test HEMT devices. It was experimentally established that the HEMT resistance is low for voltages of +1.0 V, and that the capacitive reactance increases for de gate voltages below the threshold voltage of approximately -1.5 V.

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