Abstracts

A New Model for the Dual-Gate GaAs MESFET

C. Licqurish, M.J. Howes and C.M. Snowden. "A New Model for the Dual-Gate GaAs MESFET." 1989 Transactions on Microwave Theory and Techniques 37.10 (Oct. 1989 [T-MTT]): 1497-1505.

The development of a novel GaAs dual-gate MESFET model suitable for the design and analysis of microwave circuits is described. The model, a quasi-two-dimensioual physical model, is numerically efficient due to a unique formulation of the carrier transport equations. The model includes a comprehensive description of the geometric and material parameters accounting for recess structures, nonuniform doping profiles, current injection into the buffer layer, forward-biased gate conduction, and surface depletion. The accuracy of the model under dc, small-signal, and large-signal operating conditions is assessed by comparing simulated and measured performance.

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