Abstracts

A MESFET Variable-Capacitance Model for GaAs Integrated Circuit Simulation

T. Takada, Y. Kiyoyuki, M. Ida and T. Sudo. "A MESFET Variable-Capacitance Model for GaAs Integrated Circuit Simulation." 1982 Transactions on Microwave Theory and Techniques 30.5 (May 1982 [T-MTT]): 719-724.

A simple MESFET capacitance model which has a clearly explained physical meaning for a wide bias voltage range has been developed for use in simulations of GaAs integrated circuits. In this model, gate-source, gate-drain capacitances are represented by analytical expressions which are classified into three different regions for bias voltages: a before-pinch-off region including the neighborhood of the built-in voltage, an after-pinch-off region, a transition region. 2-dimensional analysis results support the validity of the analytically derived capacitance model. The model is applicable to MESFET's used in integrated circuits that have low donor-thickness product.

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