Abstracts

A SPICE Model for Enhancement-and Depletion-Mode GaAs FET's

S.E. Sussman-Fort, J.C. Hantgan and F.L. Huang. "A SPICE Model for Enhancement-and Depletion-Mode GaAs FET's." 1986 Transactions on Microwave Theory and Techniques 34.11 (Nov. 1986 [T-MTT]): 1115-1119.

An improved model for the GaAs MESFET has been implemented in the source code of the circuit-simulation program SPICE. New features include 1) an accurate model for the Schottky barrier, which allows simulation of both enhancement- and depletion-mode devices; 2) detailed modeling of the nonlinear gate-source and gate-drain capacitance; and 3) a user-specifiable value for the exponent in the expression for the dependence of the dc drain current upon the gate-source voltage. Also discussed are some important points concerning the charge-voltage equations that must accompany the new model's capacitance-voltage equations within SPICE. The new GaAs FET SPICE model is believed to be the most comprehensive one available to date in the public domain.

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