Abstracts

Analytic Physics-Based Expressions for the Empirical Parameters of the Statz-Pucel MESFET Model (Short Papers)

S. D'Agostino, G. D'Inzeo, P. Marietti, L. Tudini and A. Betti-Berutto. "Analytic Physics-Based Expressions for the Empirical Parameters of the Statz-Pucel MESFET Model (Short Papers)." 1992 Transactions on Microwave Theory and Techniques 40.7 (Jul. 1992 [T-MTT] (Special Issue on Process-Oriented Microwave CAD and Modeling)): 1576-1581.

In this paper we present a novel approach to the evaluation of the dc parameters of a semi-empirical MESFET model: starting from the analytical expression of the drain current derived from a physics-based model, previously proposed, we provide a method to calculate the empirical dc parameters of the so called "Raytheon" model. The comparison between computed and measured dc characteristics is quite satisfactory on GaAs microwave FET's of 1 µm or more gate length. By adding to the results, obtained in this work, an adequate model of the stray capacitances, the circuit performance can be optimized using the technological characteristics of active devices.

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