Abstracts

A Large-Signal, Analytic Model for the GaAs MESFET

M.A. Khatibzadeh and R.J. Trew. "A Large-Signal, Analytic Model for the GaAs MESFET." 1988 Transactions on Microwave Theory and Techniques 36.2 (Feb. 1988 [T-MTT] (Special Issue on Computer-Aided Design)): 231-238.

An analytic, large-signal model for the GaAs MESFET is presented. The new device model is physics based and describes the conduction and displacement currents of the FET as a function of instantaneous terminal voltages and their time derivatives. The model allows arbitrary doping profiles in the channel and is thus suitable for the optimization, of ion-implanted and buried-channel FET's. It also accounts for charge accumulation in the conducting channel at high electric fields and the associated capacitance in a self-consistent manner. Theoretical predictions of the model are correlated with experimental data on X-band power FET's, and excellent agreement is obtained.

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