Abstracts

A Simplified Microwave Model of the GaAs Dual-Gate MESFET

J.R. Scott and R.A. Minasian. "A Simplified Microwave Model of the GaAs Dual-Gate MESFET." 1984 Transactions on Microwave Theory and Techniques 32.3 (Mar. 1984 [T-MTT] (Special Issue on Power and Low-Noise GaAs FET Circuits and Applications)): 243-248.

A simplified wide-band model of the GaAs dual-gate MESFET based upon the familiar cascode representation is presented, which is valid over the frequency range of 2-11 GHz. The equivalent circuit contains 14 elements and the parameter values are directly determined from 3-port S-parameters over the frequency range of 4-6 GHz, and dc data. Separate microwave measurements of each FET part are not required, thus greatly reducing the number of measurements required to fully characterize the device. The method has been used to model a GaAs dual-gate MESFET in which both FET parts were in the saturation region, and good agreement has been obtained between measured and calculated results without the need for computer optimization.

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