Abstracts

A Technique for Modelling S-Parameters for HEMT Structures as a Function of Gate Bias

S.J. Mahon, D.J. Skellern and F. Green. "A Technique for Modelling S-Parameters for HEMT Structures as a Function of Gate Bias." 1992 Transactions on Microwave Theory and Techniques 40.7 (Jul. 1992 [T-MTT] (Special Issue on Process-Oriented Microwave CAD and Modeling)): 1430-1440.

A physically based technique for modelling HEMT structure S-parameters is presented. The core of the model is directly dependent on the HEMT wafer structure and the physical gate length. The model accurately predicts the device's S-parameters as a function of the applied gate bias. The physical basis facilitates the modelling of different types of HEMT structures. In this paper we present measured S-parameters and simulation results, over a frequency range of 1 to 25 GHz, for three different HEMT structures: uniformly-doped, GaAs-channel; pulse-doped, GaAs-channel; and uniformly-doped, strained-InGaAs-channel.

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