Abstracts

Modelling Drain and Gate Dependence of HEMT 1-50 GHz, Small-Signal S-Parameters, and D.C. Drain Current (Short Papers)

S.J. Mahon and D.J. Skellern. "Modelling Drain and Gate Dependence of HEMT 1-50 GHz, Small-Signal S-Parameters, and D.C. Drain Current (Short Papers)." 1995 Transactions on Microwave Theory and Techniques 43.1 (Jan. 1995 [T-MTT]): 213-216.

We present refinements to a previously validated HEMT model that improves the model's accuracy as a function of drain bias for simulating d.c. drain current and 1-50 GHz, small-signal S-parameters. By comparing simulation data with experimental data for a 0.4-µm-gate pseudomorphic HEMT, we have been able to establish the accuracy of the refined model, which predicts the device's d.c. current and S-parameters as a function of the appfied drain and gate biases to within an accuracy of ~5%. The core of the model and, in particular, its bias dependence, are directly dependent on the HEMT wafer structure and the physical gate length.

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