Abstracts

DC and Transmission Line Models for a High Electron Mobility Transistor

D.-H. Huang and H.C. Lin. "DC and Transmission Line Models for a High Electron Mobility Transistor." 1989 Transactions on Microwave Theory and Techniques 37.9 (Sep. 1989 [T-MTT] (Special Issue on FET Structures Modeling and Circuit Applications)): 1361-1370.

Two improved dc models are developed for the output current voltage characteristics and small-signal parameters of a GaAs high electron mobility transistor (HEMT). A simple analytical nonlinear charge control model for two-dimensional electron gas is introduced and included in one of the dc models. The HEMT is modeled as a transmission line for the microwave frequency ac analysis, and the microwave performance of the HEMT is predicted by the parameters obtained from fitting dc characteristics. Both dc and ac model predictions show a good agreement with experimental results of a 0.3 µm GaAs HEMT.

❑ Return to main document.