Abstracts

Large-signal characterization of AlGaAs/GaAs HBT's

Bin Li, S. Prasad, Li-Wu Yang and S.C. Wang. "Large-signal characterization of AlGaAs/GaAs HBT's." 1999 Transactions on Microwave Theory and Techniques 47.9 (Sep. 1999, Part I [T-MTT]): 1743-1746.

A modified Ebers-Moll model is developed for AlGaAs/GaAs heterojunction bipolar transistors (HBT's). The self-heating effect is modeled by a thermal-electrical sub-circuit. The model is verified by comparing the large-signal RF simulation and measurement. Good agreement is achieved when the HBT is biased at low DC power dissipation. The discrepancy between simulation and measurement when the HBT is biased at high DC power dissipation is explained by considering the self-heating effect under large-signal RF excitation.

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