Abstracts

Bias and temperature dependent noise modeling of HBTs

T. Daniel. "Bias and temperature dependent noise modeling of HBTs." 1997 MTT-S International Microwave Symposium Digest 3. (1997 Vol. III [MWSYM]): 1469-1472.

This paper presents a detailed model which accurately predicts the bias and temperature dependent noise characteristics of AlGaAs/GaAs heterojunction bipolar transistors (HBTs). The features introduced to the intrinsic noise model are the following: (i) correlation of the noise sources and (ii) the frequency dependency of the noise sources. Compared to the present noise models, this study provides significant improvement in predicting small signal and large signal noise for HBT based circuits. These models can be implemented easily into any SPICE or harmonic balance simulators. The results of this study are validated using devices from different foundries.

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