

عنوان مقاله:

A New Distributed Model for Heterojunction Bipolar Transistors (HBTs) for Millimeter-Wave Applications

محل انتشار:

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خلاصه مقاله:

A new distributed model for Heterojunction Bipolar Transistors (HBT) which considers simultaneously signal and noise behavior of the device in a wide frequency range is presented. The model is extracted through physical structure scaling and it is tried to include most of the known physical parameters, hence having a rich model to be used for prediction in frequency ranges where measurement is difficult. Unlike some other models that only consider two line electrodes (e.g. base and collector in common emitter configuration), the three electrode effects have been taken into account because at high frequencies, the emitter is not directly grounded. In this paper, the methodology to obtain the distributed model, scaling and slicing criteria and the way to simultaneously analyze the model for signal and noise is described. Finally for the sake of verification the general model is applied to a specific HBT and the results are compared to measured data.

کلمات کلیدی:

HBT, Distributed Model, Noise

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