Abstracts

Harmonic and two-tone intermodulation distortion analyses of the inverted InGa/InAlAs/InP HBT

Bin Li and S. Prasad. "Harmonic and two-tone intermodulation distortion analyses of the inverted InGa/InAlAs/InP HBT." 1997 Transactions on Microwave Theory and Techniques 45.7 (Jul. 1997 [T-MTT]): 1135-1137.

Harmonic and two-tone intermodulation distortion analyses of the InGaAs/InAlAs/InP collector-up heterojunction bipolar transistor (HBT) are performed by a simple Ebers-Moll model. The parasitic elements of the equivalent circuit are extracted at zero bias by numerical optimization. A semianalytical approach is used to extract the intrinsic parameters of the small-signal equivalent circuit at nonzero bias points. Appropriate equations given by device physics are fitted to the bias variation of intrinsic parameters so that the Ebers-Moll model parameters can be extracted. Agreement between simulation and measurement of harmonic and intermodulation distortion is achieved.

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