Abstracts

Intermodulation analysis of the collector-up InGaAs/InAlAs/InP HBT using Volterra series

Bin Li and S. Prasad. "Intermodulation analysis of the collector-up InGaAs/InAlAs/InP HBT using Volterra series." 1998 Transactions on Microwave Theory and Techniques 46.9 (Sep. 1998 [T-MTT]): 1321-1323.

The intermodulation (IM) distortion of the collector-up InGaAs/InAlAs/InP heterojunction bipolar transistor (HBT) is analyzed using Volterra-series theory. A T-equivalent circuit is used for this analysis. The contribution and interaction of four nonlinear elements: base-emitter resistance, base-emitter capacitance, base-collector capacitance, and common base-current gain are analyzed. For the particular device under investigation, it is found that the cancellation effect is not significant and the base-emitter resistance nonlinearity dominates the third-order IM.

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