Abstracts

A spline large-signal FET model based on bias-dependent pulsed I-V measurement

Kyoungmin Koh, Hyun-Min Park and Songcheol Hong. "A spline large-signal FET model based on bias-dependent pulsed I-V measurement." 2002 Transactions on Microwave Theory and Techniques 50.11 (Nov. 2002 [T-MTT] (Mini-Special Issue on the 2002 IEEE Radio Frequency Integrated Circuit (RFIC) Symposium)): 2598-2603.

A spline large-signal FET model is presented. This includes a quiescent bias dependency to predict nonlinear dynamic behavior of FETs in which self-heating and trap effects are present. The intrinsic device of the model represented by a parallel connection of current and charge sources and the model parameters are extracted from bias-dependent pulsed I-Vs and S-parameters, respectively. The validity of the model is demonstrated by comparing the simulated small-signal S-parameters over a wide bias range with measured data. Nonlinear behaviors of FETs such as P/sub in/ - P/sub out/, third-order intermodulation distortion, and efficiency are also compared.

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