Abstracts

Straightforward and accurate nonlinear device model parameter-estimation method based on vectorial large-signal measurements

D.M.M.-P. Schreurs, J. Verspecht, S. Vandenberghe and E. Vandamme. "Straightforward and accurate nonlinear device model parameter-estimation method based on vectorial large-signal measurements." 2002 Transactions on Microwave Theory and Techniques 50.10 (Oct. 2002 [T-MTT]): 2315-2319.

To model nonlinear device behavior at microwave frequencies, accurate large-signal models are required. However, the standard procedure to estimate model parameters is often cumbersome, as it involves several measurement systems (DC, vector network analyzer, etc.). Therefore, we propose a new nonlinear modeling technique, which reduces the complexity of the model generation tremendously and only requires full two-port vectorial large-signal measurements. This paper reports on the results obtained with this new modeling technique applied to both empirical and artificial-neural-network device models. Experimental results are given for high electron-mobility transistors and MOSFETs. We also show that realistic signal excitations can easily be included in the optimization process.

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