Abstracts

FET Statistical Modeling Using Parameter Orthogonalization

J. Carroll, K. Whelan, S. Prichett and D.R. Bridges. "FET Statistical Modeling Using Parameter Orthogonalization." 1996 Transactions on Microwave Theory and Techniques 44.1 (Jan. 1996 [T-MTT]): 47-55.

A new method for representing the statistical variation of FET equivalent circuit parameters (ECP's) is presented. This method utilizes a statistical technique known as principal components and provides an efficient method for statistically representing the means, standard deviations, and correlations of the FET ECP's. The technique can easily be implemented into commercial CAD simulators resulting in FET variation simulations that are more accurate than existing methods. Appropriate statistical tests for determination of equivalence between simulated and measured FET parameter distributions is also discussed. Both the modeling methodology and statistical testing were demonstrated using both scattering and noise parameters for 300 µm low-noise GaAs FET's.

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