Abstracts

A Process-Dependent Worst-Case Analysis for MMIC Design Based on a Handy MESFET Simulator

The design of inexpensive MMIC modules implies a practical use of worst-case analysis. A reliable method based on the unavoidable dispersion of uncorrelated technological parameters is proposed. The method relies on a convenient MESFET simulator which provides the dc, RF, and noise parameters for any bias conditions. The input data comprise geometrical or electrical information readily available to the designer. All the equations are given in detail. The results are compared with experimental data from several GaAs MMIC manufacturers. Finally the method is successfully applied to the design of a monolithic C-band amplifier. The forecasts of the worst-case analysis are compared with the experimental results. Measurements from different chips and from different wafers are presented and show a high RF yield.

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