Abstracts

Unique and Physically Meaningful Extraction of the Bias-Dependent Series Resistors of a 0.15 µm PHEMT Demands Extremely Broadband and Highly Accurate Measurements

M. Novotny and G. Kompa. "Unique and Physically Meaningful Extraction of the Bias-Dependent Series Resistors of a 0.15 µm PHEMT Demands Extremely Broadband and Highly Accurate Measurements." 1996 MTT-S International Microwave Symposium Digest 96.3 (1996 Vol. III [MWSYM]): 1715-1718.

In addition to known extraction results this paper is fining on the biasdependence of the series resistors of a O.15µm PHEMT with physics-related values. It is shown that nearly all model parameters of a 20-element device model can be obtained applying known fitting procedures. However taking into account nowadays available measurement uncertainties this approach fails in the determination of the bulk resistors R/sub s/ and R/sub d/. Therefore a novel highly sensitive two-frequeney parameter extraction procedure is proposed. Based on simulation and experimental data it is shown that S-parameter data at least above 70 GHz are needed to obtain reliable results. The extracted frequency-dependent element value distribution directly reflects the measurement uncertainties.

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