Abstracts

Hybrid Analysis of Three-Dimensional MMIC Elements by the Method of Lines

L. Vietzorreck and R. Pregla. "Hybrid Analysis of Three-Dimensional MMIC Elements by the Method of Lines." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2580-2586.

A new eigenmode algorithm, based on the method of lines, is presented for full-wave analysis of real three-dimensional (3-D) MMIC elements. Finite conductor thickness, finite substrate, dielectric or ohmic losses are rigorously modeled. The analytical calculation in the direction of propagation enables the analysis of structures with very short or long interconnections between the single discontinuities. To demonstrate the generality of the proposed algorithm several completely different structures were analyzed. Examinations of the convergence were performed. Scattering parameters of filters and planar transmission line interconnects like air bridges, via holes and bead transitions were investigated. The calculated results agree very well with computed and measured results published in literature.

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