Abstracts

An Efficient Algorithm for the Three-Dimensional Analysis of Passive Microstrip Components and Discontinuities for Microwave and Millimeter-Wave Integrated Circuits

A. Hill and V.K. Tripathi. "An Efficient Algorithm for the Three-Dimensional Analysis of Passive Microstrip Components and Discontinuities for Microwave and Millimeter-Wave Integrated Circuits." 1991 Transactions on Microwave Theory and Techniques 39.1 (Jan. 1991 [T-MTT]): 83-91.

A numerical technique for the full-wave analysis of shielded, passive microstrip components on a two-layer substrate is presented. The distinct feature of the technique is a novel, efficient formulation for establishing the system matrix in the moment method procedure which allows the derivation of the elements of any large matrix by a linear combination of elements in a precomputed index table, The table is obtained from a two-dimensional discrete fast Fourier transform. In the moment method procedure, the two-dimensional surface current is represented by locally defined rooftop functions. The effect of the resonant modes associated with the metallic enclosure on the numerical procedure is examined. In order to demonstrate the features and the accuracy of the technique, numerical results for microstrip open end and for a right-angle bend with and without the compensated corner are computed by using the resonant technique and are compared with other published computational and experimental data.

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