Abstracts

Circuit Simulations Combined with the Electromagnetic Field Analysis

T. Shibata. "Circuit Simulations Combined with the Electromagnetic Field Analysis." 1991 Transactions on Microwave Theory and Techniques 39.11 (Nov. 1991 [T-MTT]): 1862-1868.

In order to provide a means of rigorous simulation for wide-band and nonlinear microwave integrated circuits, the concept of a lumped device model is introduced into a three-dimensional, time-domain electromagnetic field analysis method. This makes it possible to perform both a circuit simulation including nonlinear lumped devices and an electromagnetic field analysis for distributed microwave components at the same time. As an example, the generation of picosecond pulses from a nonlinear transmission line circuit is simulated. Based on the results, the features and the validity of the method are discussed in comparison with conventional circuit simulations.

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