Abstracts

Investigation of Tapered Multiple Microstrip Lines for VLSI Circuits (Nov. 1990 [T-MTT])

M.A. Mehalic and R. Mittra. "Investigation of Tapered Multiple Microstrip Lines for VLSI Circuits (Nov. 1990 [T-MTT])." 1990 Transactions on Microwave Theory and Techniques 38.11 (Nov. 1990 [T-MTT]): 1559-1567.

The analysis of tapered, coupled microstrip transmission lines is presented. These lines, used as interconnects between integrated circuit devices, are modeled using an iteration-perturbation approach applied in the spatial domain. From this model, a frequency-dependent scattering parameter characterization is determined. A time-domain simulation of pulse propagation through the tapered, coupled microstrip lines is performed. The frequency-domain scattering parameters are inverse Fourier transformed to obtain the time-domain Green's function. The input pulse is convolved with the Green's function, and a Newton-Raphson algorithm is applied to account for nonlinear loads. Finally, some experimental results are shown and a simulation approximation is proposed.

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