Abstracts

Simulation of High-Frequency Integrated Circuits Incorporating Full-Wave Analysis of Microstrip Discontinuities

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We incorporate full-wave simulation of microstrip interconnects into circuit analysis and show how predicted responses diverge from those based on models from a modern microwave-circuit CAD package. A method is presented for characterizing microstrip interconnects and discontinuities through the method-of-moments applied to a mixed-potential integral equation. The speed is greatly improved though the use of a recently published techniques for rapid evaluation of microstrip spatial Green's functions. A microstrip circuit element is analyzed separately through this procedure, and scattering parameters are extracted from the computed current density. These parameters are passed to a circuit simulator, where small- and large-signal analysis reveal how differences in interconnect modeling affect predicted responses.

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