Abstracts

Simulation of large electromagnetic MMICs using time-domain impedance concept

S.M. Hammadi and S.M. El-Ghazaly. "Simulation of large electromagnetic MMICs using time-domain impedance concept." 1999 MTT-S International Microwave Symposium Digest 99.3 (1999 Vol. III [MWSYM]): 1281-1284 vol.3.

A comprehensive and systematic approach for the 3-D simulation of large and complex microwave circuits is described. The method allows for the integration of both hybrid and monolithic integrated sub-circuits in a global full-wave FDTD simulation. No prior knowledge of the sub-circuit I-V characteristics is required. The method is based on the use of time domain impedance/admittance to include the effects of the different parts of the integrated system over wide frequency ranges. The time domain impedance/admittance is evaluated numerically as an impulse response of the corresponding circuit due to a delta current/voltage source. This approach uses only total field quantities and therefore, it is fully compatible with the FDTD numerical method.

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