Abstracts

A Simple Network Analog Approach for the Quasi-Static Characteristics of General Lossy, Anisotropic, Layered Structures (Dec. 1985 [T-MTT])

V.K. Tripathi and R.J. Bucolo. "A Simple Network Analog Approach for the Quasi-Static Characteristics of General Lossy, Anisotropic, Layered Structures (Dec. 1985 [T-MTT])." 1985 Transactions on Microwave Theory and Techniques 33.12 (Dec. 1985 [T-MTT] (1985 Symposium Issue)): 1458-1464.

A network analog method to compute the quasi-static parameters of multilayered planar structures consisting of lossy and/or anisotropic dielectric media is presented. The discrete network analog having complex (e.g., RL, RC) branches can be reduced and solved for the desired interface node voltages and currents by using known techniques leading to the solution of the quasi-static potential problems. All of the quasi-static transmission-line constants required for the evaluation of the propagation characteristics of general multilayered quasi-TEM planar structures are computed from the solution of the two-dimensional discrete analog network. These constants include the self- and mutual-resistances, inductances, conductance, and capacitances per unit length of the structure. The method is applied to compute the propagation constants, impedances, and field distribution for typical single and coupled strip structures on lossy, anisotropic, and layered substrates.

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