Abstracts

Full-Wave Characterization of a through Hole via in Multi-Layered Packaging

S.-G. Hsu and R.-B. Wu. "Full-Wave Characterization of a through Hole via in Multi-Layered Packaging." 1995 Transactions on Microwave Theory and Techniques 43.5 (May 1995 [T-MTT]): 1073-1081.

A full-wave analysis is presented for the propagation characteristics of a through hole via connecting two semi-infinitely long transmission lines in multi-layered packaging environment. The current distribution on the via and a section of transmission line is solved under the thin wire approximation by the moment method and the scattering parameters are extracted by the matrix pencil method. The Green's function in multilayer packaging environment is derived by applying the image theory and evaluated by the help of the Poisson summation formula. Numerical results are included to investigate the frequency-dependent propagation characteristics for via structures with various geometrical parameters, e.g., the via height, wire diameter, and distance between two ground planes. The excitation of the radial waves due to the current distribution on the via is also discussed in detail.

❑ Return to main document.