Abstracts

A Pseudothree-Dimensional Finite Element Analysis of Nonuniform Multiconductor Transmission Lines in the Quasi-Static and High-Frequency Regimes

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A two-dimensional finite element analysis is used with a distributed transmission line model to analyze general nonuniform microwave transmission structures in the quasi-static and high-frequency regimes. An automated meshing scheme is employed to reduce the solution of the three-dimensional problem to one of solving a small number of two-dimensional lines. The distributed transmission line model is briefly outlined, and the quasi-static and full-wave finite element approaches are described. Results validating the approach and showing its versatility are presented and are compared to well-established models. A discussion of the tradeoffs between the full-wave and quasi-static approaches is also presented.

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