Abstracts

Unified Approach to Solve a Class of Strip and Microstrip-Like Transmission Lines

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This paper presents a unified analytical approach to solve a class of shielded strip and shielded microstrip-like transmission lines with multilayer dielectrics under TEM-wave approximation. The analysis makes use of the variational technique in the space domain combined with the "transverse transmission line" method. Expressions are derived for the capacitance of a single line, coupled two-line and coupled four-line structures. The same formulas can be used for a class of such structures by the substitution of a single parameter, namely, the admittance at the charge plane, which can be obtained using the standard transmission line formulas. Numerical results of two special structures, namely, the broadside-coupled suspended microstrip lines, and broadside-coupled inverted microstrip lines, using two suspended, dielectric substrates are included. The technique presented is the simplest compared to any other analytical procedures reported in the literature.

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