Abstracts

Characteristics of Inhomogeneous Broadside-Coupled Striplines

I.J. Bahl and P. Bhartia. "Characteristics of Inhomogeneous Broadside-Coupled Striplines." 1980 Transactions on Microwave Theory and Techniques 28.6 (Jun. 1980 [T-MTT]): 529-535.

A variational method for the analysis of inhomogeneous broadside-coupled striplines is described. The data for even- and odd-mode characteristic impedances, effective dielectric constants, and mode phase velocity ratios are presented. It is found that the phase velocity ratio may be varied over the range 1.14 <= (V/sub e/ / V/sub 0/) <= 3.6 for broadside-coupled suspended microstrip lines (BSML) and 0.36 <= (V/sub e/ / V/sub 0/) <= 0.93 for broadside-coupled inverted microstrip lines (BIML) using materials with dielectric constant less than 16 and S/b >= 0.05, W/b <= 2.0. The effect of nonzero strip thickness is also calculated. It is noticed that the effect of thickness is more pronounced for the odd-mode case than for the even mode. Losses are obtained using the incremental inductance rule of Wheeler. The odd-mode attenuation constant is always higher than the even-mode value.

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