Abstracts

Hybrid Mode Analysis of Microstrip Lines on Anisotropic Substrates (Dec. 1981 [T-MTT])

A.-M.A. El-Sherbiny. "Hybrid Mode Analysis of Microstrip Lines on Anisotropic Substrates (Dec. 1981 [T-MTT])." 1981 Transactions on Microwave Theory and Techniques 29.12 (Dec. 1981 [T-MTT] (1981 Symposium Issue)): 1261-1266.

A rigorous hybrid mode analysis is applied to microstrip lines on anisotropic substrates to determine its high-frequency performance. The analysis is based on a general formulation of the problem of planar transmission lines on multilayered substrates with uniaxial anisotropy, of which the microstrip line is a special case. Exact solution is obtained using a functional equation technique which was previously developed and applied to microstrip and bilateral finlines. The results were used to check the validity of the concept of equivalent isotropic substrate, suggested by some authors to simplify the calculation of the parameters of these lines. Certain approximations are introduced to allow the efficient calculation of the characteristics of microstrips on anisotropic substrates at relatively high frequencies or for wide strips. Numerical results are given for some values of the parameters of microstrip lines on sapphire and include the regions of excitation of higher modes.

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