Abstracts

Accurate Formulas for Efficient Calculation of the Characteristic Impedance of Microstrip Line (Short Papers)

K.K.M. Cheng and J.K.A. Everard. "Accurate Formulas for Efficient Calculation of the Characteristic Impedance of Microstrip Line (Short Papers)." 1991 Transactions on Microwave Theory and Techniques 39.9 (Sep. 1991 [T-MTT] (Special Issue on Microwave Applications of Superconductivity)): 1658-1661.

A numerically efficient and accurate method for the derivation of the characteristic impedance of an open microstrip line assuming the quasi-TEM mode of propagation is presented. It is based on the spectral-domain method incorporating functions of rectangular shape for describing the surface charge density distribution on the conductor strip. This gives rise to integrals which can be analytically evaluated. The formulas thus obtained can readily be implemented on a desktop computer. It is found that the discrepancies between the results derived from the proposed method (N = 3) and from the substrip method are less than 0.26% through a wide range of w/h ratios and relative permittivity values.

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