Abstracts

A Novel Quasi-TEM Analysis of Valley Microstrip Lines with Slit for Use in Multilayered MMICs

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This paper presents a novel Quasi-TEM analysis of valley microstrip lines with slits for use in multilayered MMICs. The characteristic impedance, effective dielectric constant, conductor loss and dielectric loss are obtained as functions of physical parameters. The original ideas of the present analysis include: (1) the introduction of fictitious polarization charges, which reduces the original structure into a easy to tackle valley microstrip lines imbedded in stratified media; (2) the construction of an auxiliary rectangular structure and flexible application of the Green's theorem, which allow us to exclude the fictitious charges from the total surface charges over the oblique strip in a simple manner; (3) use of the cubic B-spline interpolation, by which the contribution due to the boundary potentials in the auxiliary structure is approximated by a discrete set of potentials.

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