Abstracts

Quasi-TEM Analysis of Coplanar Waveguides with an Inhomogeneous Semiconductor Substrate (Short Papers)

J.-F. Kiang. "Quasi-TEM Analysis of Coplanar Waveguides with an Inhomogeneous Semiconductor Substrate (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.9 (Sep. 1996 [T-MTT]): 1586-1589.

In this paper, we study the normalized wavelength and attenuation constant of coplanar waveguides with a finite metal thickness. The substrate is a lossy inhomogeneous insulator-semiconductor, and the conductor is assumed perfect. Electroquasistatic approximation is used to derive a Laplace's equation with a complex permittivity in each inhomogeneous layer, from which the eigenmodes are obtained. Proper boundary conditions between contiguous layers are applied to calculate the charge distribution on the center conductor. The effects of the insulator depth and semiconductor conductivity on the normalized wavelength and attenuation constant are analyzed.

❑ Return to main document.