Abstracts

Transient Propagation in Lossy Coplanar Waveguides

C.-L. Liao, Y.-M. Tu, J.-Y. Ke and C.H. Chen. "Transient Propagation in Lossy Coplanar Waveguides." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2605-2611.

Propagation of picosecond Gaussian and rectangular pulses along a lossy coplanar waveguide is investigated in detail. To this end, a new empirical formula for attenuation constant is proposed for discussing the conductor and leakage losses associated with the coplanar waveguide in which the thickness and conductivity of signal strip and ground planes are finite. This formula is obtained by comparing the results by the modified spectral-domain approach with those by the previous empirical formulas. Based on this new empirical formula, an efficient time-domain propagation model is established and applied to analyze the transient characteristics of Gaussian and rectangular pulses propagated along a lossy coplanar waveguide. In particular, the transient propagated pulses calculated by different empirical formulas are discussed and compared with those of the experimental data.

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