Abstracts

A Universal Model for Lossy and Dispersive Transmission Lines for Time Domain CAD of Circuits

J.I. Alonso, J. Borja and F. Perez. "A Universal Model for Lossy and Dispersive Transmission Lines for Time Domain CAD of Circuits." 1992 Transactions on Microwave Theory and Techniques 40.5 (May 1992 [T-MTT]): 938-947.

In this paper, the Branin's method of characteristics has been extended to obtain a universal equivalent model for lossy and dispersive transmission lines. Existing CAD soft-ware packages, such as SPICE, can be used for this implementation. The starting point for obtaining the model are the analog filters that approximate the characteristic impedance Z/sub 0/(s) and the propagation function F(s) = exp (-gamma l) of the transmission line. The circuits are synthesized using conventional network synthesis techniques. An examination of the validity of the model is carried out analyzing an example of RLCG lines driven by bipolar logic gates and the distortion of a Gaussian dc pulse as it propagates along a microstrip line.

❑ Return to main document.