Abstracts

Dispersion Characteristics of Transient Signals in Microstrip Step Discontinuity

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We present an analysis of the transmission of electromagnetic pulse through a step discontinuity between two microstrip lines of different width. The step discontinuity is first characterized by a two-port network for which the frequency dependence of the scattering parameters are determined by the method of line. By means of the Fourier transform technique, transient responses of the step discontinuity to various pulses are then investigated for different ratios of strip widths and substrate materials. It is found that the distortion of pulses propagating through the step discontinuity can be quite substantial, particularly for the case of large width ratio and substrate of high dielectric constant. Thus, the results so obtained will provide valuable information for the design of microwave integrated circuits.

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