Abstracts

Isolation Effects in Single- and Dual-Plane VLSI Interconnects

L. Carin and K.J. Webb. "Isolation Effects in Single- and Dual-Plane VLSI Interconnects." 1990 Transactions on Microwave Theory and Techniques 38.4 (Apr. 1990 [T-MTT]): 396-404.

The issue of interline coupling in high-speed VLSI interconnects is addressed. A full-wave-based technique is used to numerically solve for the modes and hence the line voltages and currents for multiconductor microstrip. The accuracy of these results is compared with time-domain experimental data. Isolation lines placed between signal lines and grounded at both ends are considered as a means of significantly reducing crosstalk. It is shown that the performance of such lines depends on several factors such as relative mode velocities, signal rise and fall times, and Iine length. These points are illuminated by considering the effects of isolation lines in two geometries of interest in high-speed integrated circuits. On the basis of these results one can determine the usefulness of isolation lines for a given geometry.

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