Abstracts

Full-Wave Analysis of Conductor Losses on MMIC Transmission Lines (Oct. 1990 [T-MTT])

W. Heinrich. "Full-Wave Analysis of Conductor Losses on MMIC Transmission Lines (Oct. 1990 [T-MTT])." 1990 Transactions on Microwave Theory and Techniques 38.10 (Oct. 1990 [T-MTT]): 1468-1472.

A mode-matching analysis of lossy planar transmission lines is presented. In contrast to the usual perturbation methods, it includes metallic loss by a self-consistent description without any skin-effect approximation. The analysis holds for arbitrarily high losses and also for metallization dimensions smaller than the skin depth. The approach is validated by comparison with previous experimental and theoretical work. MMIC microstrip and coplanar lines are investigated, studying the variation in propagation characteristics for typical metallization thicknesses and discussing the consequences with regard to MMIC design. For the CPW, significant deviations compared to the conventional assumption of lossless zero-thickness strips are found.

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