Abstracts

Effect of finite metallization and inhomogeneous dopings on slow-wave-mode propagation

J.J. Kucera and R.J. Gutmann. "Effect of finite metallization and inhomogeneous dopings on slow-wave-mode propagation." 1997 Transactions on Microwave Theory and Techniques 45.10 (Oct. 1997, Part I [T-MTT]): 1807-1810.

A finite-element simulation has been implemented to evaluate the slow-wave-mode propagation characteristics in metal-insulator-semiconductor (MIS) waveguiding structures. Particular emphasis has been placed on coplanar waveguides compatible with silicon integrated circuits (ICs), with an objective of evaluating the effect of inhomogeneous doping on propagation characteristics. The simulator has been successfully benchmarked against a number of cases presented in the literature, including MIS coplanar waveguides. The effect of inhomogeneous doping and finite metallization in maintaining a large slowing factor while reducing the attenuation constant and increasing transmission-line Q is presented, and constraints on slow-wave-mode passive components are discussed.

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