Abstracts

Exact, conformal-mapping models for the high-frequency losses of coplanar waveguides with thick electrodes of rectangular or trapezoidal cross section

G. Ghione, M. Goano and M. Pirola. "Exact, conformal-mapping models for the high-frequency losses of coplanar waveguides with thick electrodes of rectangular or trapezoidal cross section." 1999 MTT-S International Microwave Symposium Digest 99.3 (1999 Vol. III [MWSYM]): 1311-1314 vol.3.

We propose two exact models for the skin effect losses of symmetric coplanar transmission lines with thick metal strips of rectangular or trapezoidal cross section. Both models make use of an efficient numerical implementation of the Schwarz-Christoffel conformal mapping technique. The results obtained show that the analytical approximations for in vacuo attenuation based on the thin metal assumption are increasingly inaccurate with decreasing spacing between the line and the ground planes. We show also that trapezoidal, non-ideal cross-sections sometimes resulting from the technological process have to be taken into account in critical cases (narrow, thick metal strips), as suggested by comparison to measurements performed on coplanar lines on LiNbO/sub 3/ substrates.

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