Abstracts

Quasi-TEM characteristic impedance of micromachined CMOS coplanar waveguides

M. Ozgur, V. Milanov, C. Zincke, M. Gaitan and M.E. Zaghloul. "Quasi-TEM characteristic impedance of micromachined CMOS coplanar waveguides." 2000 Transactions on Microwave Theory and Techniques 48.5 (May 2000 [T-MTT]): 852-854.

Micromachined coplanar waveguides (CPW's) fabricated in CMOS technology consist of glass-encapsulated metal conductor strips, fully suspended by selective etching of the silicon substrate. The minimum amount of etching necessary for proper operation of the micromachined waveguides is determined by using an isolation criterion. In this paper, the quasi-TEM characteristic impedance of a CPW is derived, including the finite conductor thickness and the thicknesses of surrounding dielectric layers. The employed analytical approach is based on conformal mapping and the partial capacitance technique. The losses both in conductor and dielectric layers are neglected. The analytical results and proposed approximations are verified by integral-equation computation and by measurement of various sample structures.

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