Abstracts

Optimum Design of Coplanar Waveguide for LiNbO/sub 3/ Optical Modulator

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In this paper, we first present a novel finite element method combined with the conformal mapping (FEM-CM) for a quasi-static analysis of coplanar waveguides (CPW). Using this approach, the optimum CPW structures for the use in the Ti:LiNbO/sub 3/ optical modulator are discussed in detail to realize optical-microwave phase velocity match and electrode-source characteristic impedance match. Our numerical results reveal that both conditions can be satisfied simultaneously by introducing a SiO/sub 2/ buffer layer and thicker electrodes. The modulator efficiency with respect to the voltage-length product is also evaluated for the optimized structures. Finally, the design guidelines to the optimum CPW structure are presented.

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