Abstracts

Mode Size and Method for Estimating the Propagation Constant of Single-Mode Ti: LiNbO/sub 3/ Strip Waveguides

S.K. Korotky, W.J. Minford, L.L. Buhl, M.D. Divino and R.C. Alferness. "Mode Size and Method for Estimating the Propagation Constant of Single-Mode Ti: LiNbO/sub 3/ Strip Waveguides." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1784-1789.

We have formulated a model to calculate the mode size and propagation constant of single-mode titanium-lithium niobate diffused strip waveguides directly from controllable fabrication parameters and basic constants. The model is compared to measurements of the lateral and vertical mode width of Ti:LiNbO/sub 3/ waveguides for a variety of diffusion conditions. We show that the model accurately predicts the geometrical mean mode size of the two-dimensional waveguide. The model provides a simplified method for estimating the mode size and propagation constant of the guide, and is useful in designing waveguide devices having low fiber/waveguide coupling and bending losses.

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