Abstracts

Measurement and Analysis of Periodic Coupling in Silicon-Clad Planar Waveguides

G.M. Mc Wright, T.E. Batchman and M.S. Stanziano. "Measurement and Analysis of Periodic Coupling in Silicon-Clad Planar Waveguides." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1753-1759.

Computer modeling studies indicate that planar dielectric waveguides clad with silicon exhibit a damped periodic oscillation in their attenuation and phase characteristics. The effect is due to a periodic coupling between the lossy, guided modes in the silicon film and the TE/sub 0/ mode of the dielectric waveguide. Experimental confirmation of the periodic coupling for a wavelength of 632.8 nm is presented. Propagation characteristics for a wavelength of 1150 nm were investigated for application in integrated optical modulators. Frequency filtering properties, of silicon-clad waveguides are also examined and it is shown that the silicon thickness controls the filter response curve.

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