Abstracts

Efficient Single-Mode Fiber to Titanium Diffused Lithium Niobate Waveguide Coupling for Lambda = 1.32 µm

R.C. Alferness, V.R. Ramaswamy, S.K. Korotky, M.D. Divino and L.L. Buhl. "Efficient Single-Mode Fiber to Titanium Diffused Lithium Niobate Waveguide Coupling for Lambda = 1.32 µm." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1795-1801.

We report detailed results on the achievement of very high optical throughput for titanium diffused lithium niobate waveguides coupled between input and output single-mode fibers. By determining appropriate diffusion parameters to obtain excellent dimensional match between the fiber and waveguide modes and simultaneously low propagation loss, we have achieved total measured fiber-waveguide-fiber insertion loss as low as 1 dB for a 1 cm long waveguide at Lambda = 1.32 µm. The relative contributions of coupling and propagation loss are determined. Very good correlation is found between the coupling loss and the match between the fiber and waveguide mode dimensions. Design data for diffusion parameters to obtain good mode match for arbitrary fiber dimension are presented.

❑ Return to main document.