Abstract

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Performance Evaluation and Enhancement of 2×2 Ti: LiNbO3 Mach Zehnder Interferometer Switch at 1.3 ?m and 1.55 ?m

In this paper, the electro-optic 2×2 switching devices using titanium (Ti) diffused lithium niobate (Ti:LiNbO3)as a waveguide medium in the optical switch is designed based on integrated Mach-Zehnder interferometer (MZI) at 1.3 ?m and 1.55 ?m. Two major design parameters ion loss and extinction ratio are evaluated and tested in details. The novelty of this paper is obtaining the optimum, Ti, strip thickness on MZI switch that results in improving switching performance at 1.3 ?m and 1.55 ?m. We have optimized the switch design parameters in order to reduce the overall switch losses (? 0.0138 dB) and to achieve the best possible extinction ratio (= 30 dB). The designed switch has a very high switching capability and a high degree of reliability.