

Characteristic and application of the asymmetric slab waveguide in optical integrated circuit

Abstract

In this chapter, consists of demand in optical networking for photonic components that meet performance criteria as well as economic requirements has opened the door for novel technologies capable of high-yield low cost manufacturing while delivering high performance and enabling unique functions. The most promising new technologies are based on integrated optics. Integration permits the parallel production of complex multifunction photonic circuit on asymmetric slab waveguide. This kind of waveguide has very important role for designing the integrated optical circuit. To obtain the high performance function, we need to observe the waveguide characteristic in transverse mode (TE mode and TM mode), the waveguide structure, and materials. Hence, a thoroughly study on asymmetric slab waveguide is essential in future implementation of optical devices in optical network.

Integrated optics is the technology of constructing optic devices and networks on substrates [1]. Integrated optics offers the capability of combining optics and electronic components on a single substrate to produce functional systems or subsystems. Within an integrated optic network, light is transferred between components by a rectangular dielectric-slab waveguide.