

ABSTRACT

A 1x2 multimode interference photonics switch structure based on thermal controlling effect is presented. A ridge waveguide of photosensitive polymer, BenzoCyclobutene (BCB 4024-40) on silica clad is used as a design structure. The temperature profile is analyzed by means two-dimensional finite difference thermal modeling (2D-FDTM) considering both conduction and convection mechanisms. The switching characteristics due to changes in effective index are analyzed by two-dimensional finite difference beam propagation method (2D-FDBPM) with transparent boundary condition. The proposed structure works well with low crosstalk level of -28 dB and low switching power as relative to the structural upper cladding thickness.