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Compact Low Loss Design of SOI 1x2 Y-Branch Optical Power Splitter with S-Bend Waveguide and Study on the Variation of Transmitted Power with Various Waveguide Parameters

Authors : Nagaraju Pendam, C. P. Vardhani

Abstract : A simple technology–compatible design of silicon-on-insulator based 1×2 optical power splitter is proposed. For developing large area Opto-electronic Silicon-on-Insulator (SOI) devices, the power splitter is a key passive device. The SOI rib-waveguide dimensions (height, width, and etching depth, refractive indices, length of waveguide) leading simultaneously to single mode propagation. In this paper a low loss optical power splitter is designed by using R Soft cad tool and simulated by Beam propagation method, here s-bend waveguides proposed. We concentrate changing the refractive index difference, branching angle, width of the waveguide, free space wavelength of the waveguide and observing transmitted power, effective refractive index in the designed waveguide, and choosing the best simulated results to be fabricated on silicon-on insulator platform. In this design 1550 nm free spacing are used.

Keywords : beam propagation method, insertion loss, optical power splitter, rib waveguide, transmitted power
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