

Design Study of 2X2 Optical Directional Coupler With Rectangular Burried-Type

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=81107&lokasi=lokal>

Abstrak

Parallel-coupled wave-guide with symmetrical structure has interesting coupling characteristics and can be used as multiplexer/demultiplexer when certain working requirements are met. The coupling properties in the coupled wave-guide are analyzed theoretically on the basis of two mode interference effect of the propagating waves, wavelength dependence of wave-guide directional coupler is investigated in the coupling region. A rough approximation of the dependence is determined based on simplified transfer matrix multiplications followed by more detailed computer calculation using Beam Propagation method CBPMI.

By varying the dimensions of wave-guide such as width, thickness, gap, interaction length, refractive index difference and wavelength we could get different coupling properties, then the results of analysis are used to select the appropriate dimensions of multiplexer/demultiplexer that works on the range of wavelength (1.3 μm - 1.6 μm). This buried channel-type directional coupler is designed on Silicon substrate to be fabricated by sputtering technology.