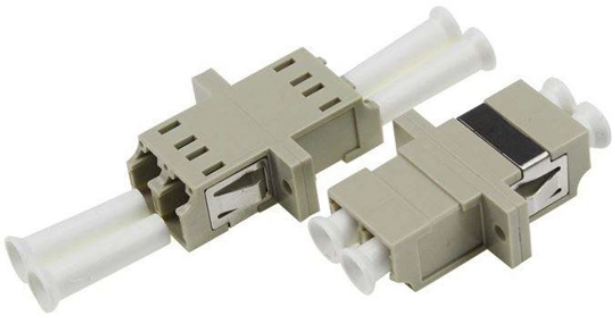
Performance Comparison of New Arrayed Waveguide Gratings with Bandwidth



Overview

In this paper, we further improve the optical bandwidth of grating couplers, propose and experimentally validate a new and novel approach for wideband waveguide grating coupler design which can attain wideband coupling with unprecedented bandwidth of over 200 nm. Arrayed waveguide gratings (AWGs) are key optical components of various new applications in telecommunication, astronomy, medical imaging, and spec-troscopy. It is a very powerful integrated light dispersion technology with significant flexibility for tailoring its performance to the. With this slot waveguide grating structure, both the grating strength, mode effective index and dispersion in the grating region can be flexibly tuned to enable high coupling efficiency and wideband operation. 3D FDTD simulations predicted coupling efficiency of −4. High resolution fabrication processes realized four types of Si3N4 AWG devices: 8 channel × 200 GHz, 16 channel × 100 GHz, 16 channel × 50 GHz, and 16 channel ×.

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This leads to the first implementation of arrayed waveguide gratings on X-cut thin-film lithium niobate with various configurations and high-performances.

Optical loss, bandwidth, spectral resolution, transmission function shape, crosstalk, and polarization sensitivity are the most important performance parameters of an AWG spectrometer and for different ...

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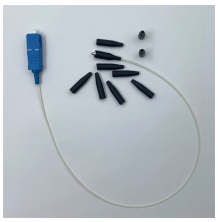

In this paper, we designed and demonstrated AWGs utilizing a 200-nm-thick-Si3N4-core platform with a moderate confinement factor (33 %) to realize relatively low-loss, low-crosstalk and small footprints. ...

In this review, an overview of the available methods for improving the bandwidth, spectral resolution, and transmission function shape of AWGs is provided. The working principle as well as the advantages ...

We compare the performance of silicon-based arrayed waveguide gratings (AWGs) with star couplers of Rowland and Confocal configurations, respectively, for both TE and TM polarizations.

A conventional AWG spectrometer with the same bandwidth and resolution values was realized to compare its performance with the interleaved AWG. Based on the measurement results, interleaved ...

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