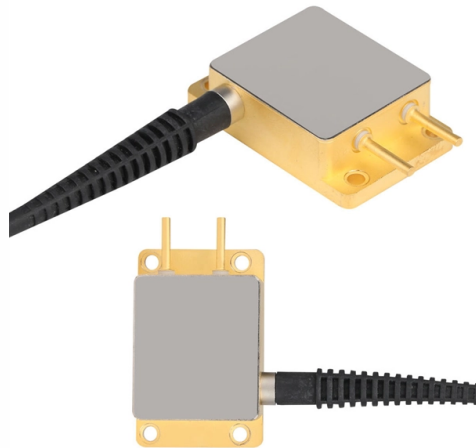


Based on grating waveguide arrays



Article Overview

An arrayed waveguide grating (AWG) is an optical device that multiplexes or demultiplexes multiple wavelengths in fiber-optic communication systems using interference in an array of waveguides.

Overview and Function

AWGs are primarily used as multiplexers and demultiplexers in wavelength division multiplexed (WDM) systems, allowing multiple optical channels of slightly different wavelengths to be transmitted over a single optical fiber with minimal crosstalk. At the transmitter, AWGs combine multiple wavelengths into one fiber, and at the receiver, they separate individual wavelengths for detection and processing. This significantly increases the transmission capacity of optical networks .

Structure and Operating Principle

An AWG typically consists of:

- Input multimode waveguide: Light from an input fiber enters a multimode section.
- Array of single-mode waveguides: Each waveguide has a slightly different length, introducing wavelength-dependent phase shifts.
- Output multimode waveguide section: The light interferes constructively at specific output channels, directing each wavelength to a designated output port. The device operates on the principle of optical interference, where the superposition of light from all waveguides produces wavelength-selective outputs. The phase differences caused by varying waveguide lengths ensure that each output port receives only a specific...

Article Content

100-Channel Arrayed Waveguide Grating Based on Thin Film Lithium ...

In this work, we demonstrated a low-loss AWG with 100 output channels and a channel spacing of 50 pm based on a z

Highly directional waveguide grating antenna for optical phased array ...

In this paper, we propose the highly directional waveguide grating antenna by patterning the top cladding above the

Toward Practical Optical Phased Arrays through Grating Antenna

In recent years, using silicon-based waveguide grating antennas in optical phased array has become a research focus.

Advances in Waveguide Bragg Grating Structures, Platforms, and

A Bragg grating (BG) is a one-dimensional optical device that may reflect a specific wavelength of light while

Arrayed Waveguide Gratings in Integrated Photonics

Arrayed waveguide grating (AWG): A photonic device that disperses or multiplexes optical wavelengths by exploiting phased-array

4 Arrayed Waveguide Gratings

Another highly effective method to reduce the insertion loss of an AWG, which is based on the same idea of tapering, has been

Custom Arrayed Waveguide Gratings with Improved Performance

Arrayed waveguide gratings (AWGs) are key optical components of various new applications in telecommunication, astronomy,

Compact and Efficient Transverse Spliced Waveguide Grating

Waveguide grating antenna with compact size and high diffraction efficiency remains a significant challenge in beam steering

Arrayed waveguide grating

Arrayed waveguide gratings (AWG) are commonly used as optical (de)multiplexers in wavelength division multiplexed (WDM)

Arrayed Waveguide Gratings – AWG

Compact and rugged spectrographs can be produced based on arrayed waveguide gratings. These are particularly interesting in

Arrayed Waveguide Gratings

On average, data traffic in the internet grows by 40% each year. This growth, and, in particular, the rapidly increasing interest in

Design of ultra-long waveguide grating antennas with uniform

We propose a novel type of waveguide grating antennas (WGAs) for silicon photonics based integrated optical

Review paper for developments in Array Waveguide Gratings

The proposed work reviews the evolution of Arrayed Waveguide Gratings (AWG) from concentric phased arrays to present day

Wavelength Tunable, Polymer-Based Arrayed Waveguide Gratings

Our study demonstrates a hybrid photonic integrated circuit with tunable polymer-based arrayed waveguide gratings

Toward Practical Optical Phased Arrays through Grating Antenna

In this paper, the basic principle of a waveguide grating antenna is described, and the researches on effective length,

Array waveguide gratings | IEEE Conference Publication | IEEE Xplore

Array waveguide gratings Abstract: Summary form only given. Fundamental operational principles and key features

A fully reconfigurable waveguide Bragg grating for ...

To date, most fiber-based or waveguide-based gratings are designed with a specific index modulation profile for a user

Design and characterization of arrayed waveguide gratings ...

Planar waveguides with ultra-low propagation loss are necessary for integrating optoelectronic systems that require

Review of fiber Bragg grating interrogation techniques based on array ...

The photonic integrated interrogation technology based on array waveguide grating is a hot but difficult research area in the silicon

Subwavelength grating devices in silicon photonics

Abstract Subwavelength grating (SWG) waveguides in silicon-on-insulator are emerging as an enabling technology for

Arrayed Waveguide Grating

These design of these devices are based on an array of and demultiplexers in a Wavelength Division Multiplexed (WDM)

Silicon-Based Arrayed waveguide gratings for WDM and

We compare the performance of silicon-based arrayed waveguide gratings (AWGs) with star couplers of Rowland and

Design, fabrication and characterization of arrayed waveguide grating ...

The structures of the AWGs we designed are composed of five main parts, including the input/output waveguides, two

Design, fabrication and characterization of arrayed waveguide grating ...

Based on planar waveguide circuits (PLCs), AWG devices are easily coupled with active/passive devices, such as on

Arrayed waveguide gratings in lithium tantalate integrated photonics

Based on the arrangement of the waveguide apertures at the focal plane, the output star coupler can be classified into

PLC-Based Arrayed Waveguide Grating Design for Fiber Bragg

A fiber Bragg grating (FBG) interrogator is a scientific instrument that converts the wavelength change of FBG

Compact Silicon-Arrayed Waveguide Gratings with Low Nonuniformity

Array waveguide gratings (AWGs) have been widely used in multi-purpose and multi-functional integrated photonic

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.watermanfinance.co.za>

Email: sales@watermanfinance.co.za

Phone: +49-176-8294713

Address: Neue Mainzer Str. 66-68, 60311 Frankfurt am Main, Germany

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