

Planar waveguide core equipment



Overview

PWG uses a thin ribbon-like LGM (aka "core") in which the signal beam and the pump co-propagate in the ribbon plane. This arrangement provides a long path for pump absorption and signal amplification. One essential element is the guiding of the optical radiation in waveguides for integrated optical devices and optical fibers for long distance transmission. Waveguides can be as short as a few millimeters. Guiding of light with exceptionally low loss in fiber (0.1 dB/km) can be achieved by using. Optical waveguides are components that enable light to be controlled and transmitted efficiently, and they are attracting attention across a wide range of fields, including communications, sensing, and displays. Articles, news, products, blogs and videos covering the Buyer's Guide > Fiber-optic & Optoelectronic Components, Equipment, & Systems > Planar waveguide. Fields of planar guided waves are confined in the depth direction (designated as the x direction in this book) to the vicinity of the high index layer which is the core.



Article Content

Dec 25, 2025

Planar Waveguides

As photonics technology continues to evolve, planar waveguides are likely to remain a key component, driving innovations in optical communications, sensing, and

May 11, 2026

Optical Waveguides

Optical waveguides are planar dielectric structures with a core surrounded by cladding material. The ideal waveguide has low loss ($<0.2 \text{ dBcm}^{-1}$), is easily coupled to optical fibers and laser diodes, can

Oct 15, 2025

Planar Dielectric Waveguides

Planar (slab) waveguides are the basis of waveguides used in integrated optoelectronics. The same mathematical ideas can be applied (with

Oct 13, 2025

The Planar Slab Waveguide | Springer Nature Link

Keywords Numerical Aperture Transverse Magnetic Eigenvalue Equation Transverse Electric Planar Waveguide These keywords were added by machine and not by the authors. This process is

Mar 16, 2026

Planar waveguide devices (Chapter 5)

How to analyze the generalized planar guided waves has already been discussed in Section 1.2.5. A distinct feature of planar waveguide devices is the utilization of the diffraction, focusing and

Feb 03, 2026

Coplanar waveguide

Coplanar waveguide was invented in 1969 by Cheng P. Wen, primarily as a means by which non-reciprocal components such as gyrators and isolators could be incorporated in planar transmission

Aug 09, 2025

5. Planar Waveguides

5. Planar Waveguides Optical waveguides can be described as transparent structures which are more or less put onto solid carriers. In principle, they function just like fibers and are also described by the

Feb 07, 2026

Coplanar Waveguide: Advantages and Disadvantages

Explore coplanar waveguide (CPW) transmission lines, covering structure, functionality, advantages like ease of fabrication, and disadvantages such as

Jul 25, 2025

Planar Waveguide

A planar waveguide is defined as a waveguide formed on a flat substrate, typically made by depositing films of dielectric materials and defining a core through methods such as lithography and etching,

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Efficient resonantly-clad-pumped laser based on a

We demonstrated continuous wave operation of an in-band pumped Er:YAG planar waveguide laser with the output of 75 W at 1645 nm and a slope

Jul 17, 2025

Planar waveguide devices | Laser Focus World

What Are Optical Waveguides? Basic Principle An optical waveguide confines light in a high-refractive-index core surrounded by lower-index cladding, ensuring

Apr 16, 2026

Comprehensive Guide to Optical Waveguides: From

To meet these needs, planar waveguides—an applied form of optical waveguide technology—have become increasingly important in AR devices in recent years.

Jan 01, 2026

planerik.qxd

Planar magnetics offer an attractive alternative to conventional core shapes when low profile magnetic devices are required. Basically this is a construction method of inductive components with windings

Jul 19, 2025

Planar Waveguide Solid-state Lasers

The planar waveguide geometry for solid-state lasers provides a range of capabilities intermediate between conventional rod and slab lasers with free-space resonators on the one hand and single

May 29, 2026

Planar waveguide | Description, Example & Application

Planar waveguides are different from other types of waveguides, such as fiber optic cables, because they are flat and thin layers. The waveguide structure consists of a core layer, which

Aug 07, 2025

Planar Waveguide Devices for Communication and

The paper reviews progress and future prospects of two kinds of planar waveguide devices; they are (a) silica and silicon photonics

Apr 11, 2026

Planar Waveguides: The Future of Photonics

Delve into the world of planar waveguides and their pivotal role in shaping the future of photonics, from optical interconnects to biosensing.

Nov 27, 2025

2.7 Waveguides and Integrated Optics

2.7.1 Planar Waveguides To understand the basic physics and phenomena in waveguides, we look at a few examples of guiding in one transverse dimension. These simple cases can be treated analytically.

Nov 07, 2025

Theoretical investigation of guided modes in planar waveguides

In this paper, we consider a planar waveguide consisting of a chiral negative index metamaterial film surrounded by a normal dielectric. For guided odd and even modes, electric and

Jan 21, 2026

Growth and fabrication of GaN/Er:GaN/GaN core

Among the many designs of HEL gain medium, the core-cladding planar waveguide (PWG) structure is highly desired due to its abilities to provide

Jul 24, 2025

A Novel Planar Waveguide Laser

In summary, a novel planar waveguide laser was demonstrated. The performance of the waveguide laser was investigated, which indicates that the coupling mode of the pump light with internal total

Aug 13, 2025

Planar Waveguide

PWG uses a thin ribbon-like LGM (aka "core") in which the signal beam and the pump co-propagate in the ribbon plane. This arrangement provides a long path

Feb 22, 2026

High-power Nd:YAG planar waveguide laser with YAG and Al

Thermal effects in Nd:YAG planar waveguide lasers with non-symmetrical claddings are discussed. The heat generated in the active core can be removed m

Dec 31, 2025

Planar waveguide devices (Chapter 5)

A distinct feature of planar waveguide devices is the utilization of the diffraction, focusing and collimation properties in the transverse plane to achieve focusing, switching, deflection, wavelength filtering or

Mar 04, 2026

2.7 Waveguides and Integrated Optics

Most importantly the cross section of a waveguide mode stays constant and therefore a waveguide mode can efficiently interact with the medium constituting the core or a medium that is incorporated

Feb 02, 2026

Analysis of planar waveguides with a thin overlayer and nonlinear ...

The aim of this paper is to analyse a planar optical waveguide with Kerr-type nonlinear cladding and a thin linear overlayer separating the cladding and the guiding core. The results of

Aug 26, 2025

Introduction to Planar Waveguide Optical Sensor

Sensing platform based on the integrated optical planar waveguide represents an active research area. The development of optical planar waveguide sensor has largely been motivated by

Oct 06, 2025

Planar Waveguide | UniversityWafer, Inc.

Explore University Wafer Inc's top-quality substrates for planar waveguides, ideal for advanced optical applications and innovative photonic research.

Jan 01, 2026

Planar Optical Waveguide Fundamentals

This document discusses optical waveguides and waveguide modes. It begins by defining the basic structure of a waveguide, which consists of a longitudinally extended high-index core surrounded by

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