Planar Optical Waveguide Low Noise Technical Parameters



Overview

Using coherent optical frequency domain reflectometry, we characterize the group index, fiber-to-chip coupling loss, critical bend radius, and propagation loss of these waveguides. phasis on the transmission theory. In order to investigate and develop optical fiber communication systems and planar lightwave circuits thor-ough understanding of the principle of lightwave propagation and its application to the design of prac ical optical devices are required. 04) dB/m near the free space wavelength of 1580 nm. TOTAL REFLECTION Of the various guiding prin ciples for electromagnetic waves the phenomena of total reflection proves particu larly effective at optical frequencies. We report the first demonstration of a Ta 2 O 5 (tantala) waveguide core fabricated on a crystal quartz substrate lower cladding with TEOS-PECVD SiO 2 upper cladding.

Article Content

Fundamentals of Optical Waveguides

PDF file

Planar waveguides with less than 0.1 dB/m ... - UC Santa Barbara

We have demonstrated silica-based planar waveguides with record low propagation loss of (0.045 ± 0.04) dB/m in the 1580-1610 nm wavelength regime. The waveguides have a high-aspect-ratio

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PLANAR OPTICAL WAVEGUIDES

Some planar devices such as thin-film light deflectors for optical data processing need no such confinement. For other devices and in plane guiding applications transverse confinement may be

Characterizing the Feature Parameters of Planar Optical Waveguide

Our aim in this chapter was to show the mechanisms and experiment methods of how to exactly characterize these feature parameters, which could lay the groundwork for optimally

Low-loss low thermo-optic coefficient Ta2O5 on crystal

We describe the waveguide structure and key design parameters as well as fabrication considerations for processing tantala on quartz waveguides.

Ultra-low-loss Ta2O5-core/SiO2-clad planar waveguides on Si

In this paper, we report on record low propagation losses for Ta2O5-core SiO2-clad planar waveguides across the entire / C-band over the lengths of complete spiral delays.

Optical Waveguides

Optical waveguides are planar dielectric structures with a core surrounded by cladding material.

(PDF) Progress in Planar Optical Waveguides

The structural parameter tolerance was analyzed and the variation of bandwidth was explained by combining the behaviors of the two guided mode

Low-loss low thermo-optic coefficient Ta 2 O 5 on crystal quartz planar ...

This waveguide offers significant advantages over other waveguides in terms of its low thermo-optic coefficient and reduced thermorefractive-related frequency noise. We describe the

Optimized waveguides for mid-infrared lab-on-chip ...

Our strategy enables a rigorous comparison of several state-of-the-art thin-film waveguides using parametric expressions to predict the achievable limits of detection of the sensing

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

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Introduction to Waveguides | Springer Nature Link

Optical waveguides are structures which guide waves (flow of optical energy) in the optical spectrum. These can be broadly categorized into planar and non-planar waveguides; non

Brief Review on Integrated Planar Waveguide-Based Optical Sensor

Planar optical waveguides are the input devices to build an integrated optical sensor. This chapter provides review made in the recent advancement of integrated optical sensor that

Fundamentals of Optical Waveguides

Planar Optical Waveguides circuits and semiconductor lasers. Generally, rectangular waveguides consist of a square or rectangular core surrounded by a cladding with lower refr

Refining silicon nitride waveguide quality through femtosecond laser ...

We present a method for modification of silicon nitride (Si 3 N 4) waveguide resonators using femtosecond laser annealing. The quality (Q) factor of the waveguide resonators can be

Analysis of current challenges in the design of low-noise broadband ...

The adaptation techniques that are favorable for the design of wideband planar low-noise amplifiers are, in order, feedback technique, reactive adaptation, and inductive degeneration.

(PDF) Performance of planar-waveguide external cavity

A 1542-nm planar-waveguide external cavity laser (PW-ECL) is shown to have a sufficiently low level of noise to be suitable for precision measurement

Planar waveguide | Description, Example & Application

Planar waveguide Introduction to Planar Waveguides Planar waveguides are thin films or layers of dielectric materials that guide light waves along a certain path. They are commonly used in

(PDF) Planar Optical WaveGuides and Fibers

Planar optical waveguides such as films and strips or strip-derived structures are needed in these applications to form distributed components and to connect components and subsystems. Glass

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