

Fiber Optic Coupler Fabrication by Sintering Method



Overview

A method for fabricating an optical fiber coupler device includes a step of tangibly fusing a first outer cladding of a first optical fiber with a second outer cladding of a second optical fiber as a result of pulling and heating the first and second optical fibers at lengths. A method for fabricating an optical fiber coupler device includes a step of tangibly fusing a first outer cladding of a first optical fiber with a second outer cladding of a second optical fiber as a result of pulling and heating the first and second optical fibers at lengths. A method for the fabrication of a fiber optic coupler includes a step of fusing together two optical fibers along their longitudinal sections by heating them and a step of stretching the two optical fibers independently of one another with different conditions of tension and/or temperature so that. A method for fabricating an optical fiber coupler device includes a step of tangibly fusing a first outer cladding of a first optical fiber with a second outer cladding of a second optical fiber as a result of pulling and heating the first and second optical fibers at lengths not exceeding 3 mm to. 1College of Electronic and Optical Engineering & College of Flexible Electronics (Future Technology), Nanjing University of Posts and Telecommunications, Nanjing, Jiangsu 210023, China 2College of Materials Science and Engineering, Nanjing University of Posts and Telecommunications, Nanjing 210023. These are the "outside vapor deposition" (OVD) process developed by Coming Glass Works and the "vertical axial deposition" (VAD) version developed by a consortium of Japanese cable makers and Nippon Telephone and Telegraph Corporation. The OVD process is one of the most common techniques used. As silicon photonics transitions from research to commercial deployment, packaging solutions that efficiently couple light into highly compact and functional sub-micrometer silicon waveguides are imperative but remain challenging. In one case, we have the proble...

Article Content

Jun 27, 2026

Novel manufacturing method of optical fiber coupler

Based on the coupling mode theory that the coupling ratio of fiber coupler changes periodically with center distance of two optical fibers, a novel manufacturing method of optical fiber couplers was

Sep 11, 2025

Fabrication and characterization of Low cost Plastic optical fiber couplers

2Professor, Dept. of Sensor System Technology, VIT University, Vellore, Tamilnadu, India Abstract —Plastic optical fiber (POF)

Oct 14, 2025

Polymer Optical Fiber Coupler Fabrication using Chemical Etching

Abstract Development of a polymer optical coupler using lapping technique integrated with contact mechanics and

Jun 11, 2026

Analysis and Fabrication of Fused Fiber Optic Couplers for ...

The study confirms that torch head positions do not affect WDM coupler insertion loss. Triangular 1 x 3 monolithic star couplers can

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Fabrication and experimental characterization of precise high ...

In this paper a method for fabricating precise high-efficiency 2D multi-mode fiber array coupler is proposed, and the coupler's performance is experim

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Method of fabricating a fiber optic coupler

The fiber optic coupler fabrication method of the present invention includes steps of fusing together two optical fibers along their

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Selective Laser Sintering of Polymers: Process Parameters ...

Selective laser sintering (SLS) is a bed fusion additive manufacturing technology that facilitates rapid, versatile,

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Fiber Optic Coupling

Generally, coupling light from a well-collimated laser source into a multimode fiber is not a difficult problem. If the user assures that the maximal ray of the focused beam is well within the NA of the

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Optical Fiber Coupling

Optical fiber coupling refers to the process of joining optical fibers to split or combine light with minimal loss, utilizing methods such as fusion splicing, mechanical splicing, or connectors.

Feb 19, 2026

Fabrication and characterization of Low cost Plastic optical fiber couplers

2Professor, Dept. of Sensor System Technology, VIT University, Vellore, Tamilnadu, India Abstract —Plastic optical fiber (POF) couplers/splitters are become an essential tool in an optical networks. Its

Jun 03, 2026

Fiber coupler and method for fabrication of the same

A method for fabricating an optical fiber coupler device includes a step of tangibly fusing a first outer cladding of a first optical fiber

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Fiber Coupler

Taken together, mid-infrared compatible optical fibers, optical fiber tapers, and optical fiber couplers are most useful building blocks that enable the fabrication of complex fiber devices compatible with the

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Sintering of optical fibers — Kanthal®

While there are multiple methods for producing fiber optic cables, such as Modified Chemical Vapor Deposition (MCVD) and Outside Vapor Deposition (OVD),

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Fiber coupler and method for fabrication of the same

Embodiments of the invention provide a solution to the problem of inability of a conventional methodology of fabrication of a fiber coupler to produce, with the use of a MMF, a low-loss tap...

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A Review of Optical Coupler Theory, Techniques, and

In this paper, we evaluate by means of simulation and experimentally the simultaneous coupling of the LP_{01x}-LP_{11ax} fiber modes and the TE₀-TE₁

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Low-cost optical fabrication of flexible copper electrode via laser ...

This laser-induced fabrication method has two steps: a laser-induced reductive sintering and a laser-induced adhesive

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An efficient taper shape model for fused optical fiber components

Using this fabrication method, we propose in this paper a precise model for predicting the shape of thermally tapered

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Materials and Fabrication Technologies in Optical Fiber Manufacturing

Here, we describe the sol-gel casting method for the fabrication of microstructured fiber, developed originally at Bell Laboratories and continued at OFS Laboratories.

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Optical Fiber Manufacturing Process And Methods

Manufacturing Optical Fiber Cable The manufacturing process consists of major steps, including glass deposition,

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Fiber-coupler fabrication with automatic fusion-elongation processes ...

A novel fiber-coupler fabrication system which automatically processes fusion and elongation is presented. Not only conventional single-mode fiber couplers but also polarization-maintaining fiber

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Sintering and Crystallization of Glass-Ceramics for Optical Fiber ...

Phase transitions of Li₂O-Al₂O₃-SiO₂ based glass-ceramic materials, which can be used for the fabrication of optical

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Novel manufacturing method of optical fiber coupler

Based on the coupling mode theory that the coupling ratio of fiber coupler changes periodically with center distance of two optical

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Flame-fused Optical Fiber Directional Couplers: Fabrication and ...

Abstract and Figures A microprocessor controlled system for fabrication of 2 x 2 flame-fused biconical single-mode

May 06, 2026

Fabrication and performance of Tm³⁺-doped silica fiber by powder ...

These results demonstrate that the sol-gel combined with powder sintering is a promising route for fabricating high

Jul 22, 2026

Fabrication and Modeling of Fused Biconical Tapered Fiber Couplers

This article describes a model and the process technology of realizing fused fiber coupler-based branching components

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Analysis and Fabrication of Fused Fiber Optic Couplers for ...

The study confirms that torch head positions do not affect WDM coupler insertion loss. Triangular 1 x 3 monolithic star couplers can achieve equal output couplings with the Intertwined Method. Channel

Feb 06, 2026

Preparation and performance study of a Yb³⁺-doped silica fiber by

Research on non-traditional manufacturing techniques has advanced the development of specialty fiber fabrication processes. This paper employs a laser powder sintering technique to prepare large-core

Sep 20, 2025

Highly efficient fiber to Si waveguide free-form coupler for foundry ...

Leveraging two-photon polymerization (TPP) and a deterministic free-form micro-optics design methodology based on the Fermat's principle, this work demonstrates an ultra-efficient and

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Reproducible Method for Fabricating Fused Biconical Tapered Couplers ...

We have described two alternative methods for fabricating fiber tapers and FBT couplers, utilising CO2 lasers as heat sources. Both

Nov 04, 2025

Method for drying and sintering an optical fiber preform

The invention relates to a method of drying and sintering porous optical fiber preforms, especially those consisting of a solid glass core cane surrounded by a layer of cladding soot. After it is dried in a

Feb 20, 2026

Method for drying and sintering an optical fiber preform

The invention relates to a method of drying and sintering porous optical fiber preforms, especially those consisting of a solid glass

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Fiber-coupler fabrication with automatic fusion-elongation processes ...

A novel fiber-coupler fabrication system which automatically processes fusion and elongation is presented. Not only conventional

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