Glue-free process for optical modules



Overview

Direct and robust fiber bonding to glass micro-optics, such as GRIN lenses and lens arrays (MLA), can be performed by using a laser welding process. This allows the optical path to be free of adhesive, enabling the transmission of much higher optical power. Our mission is to cover the entire process chain from opto-mechanical and opto-electrical system design to the. Optical adhesives are supporting advances in optical assemblies, collections of optical components and mechanical parts that precisely manipulate light for focusing, imaging, and beam shaping. The finished products using the. When two transparent solid pieces with highly flat and clean surfaces are put into close contact, they will form a solid connection (bond), where they are firmly held together by intermolecular forces such as Van der Waals forces and hydrogen bonds.

Article Content

Micro-AsseMbly And systeM integrAtion

The Fraunhofer IOF uses different flux-free soldering processes for miniaturized photonic systems with improved mechanical properties. They are suitable for vacuum conditions and harsh load cases.

Optical Adhesives: A Technical Guide for Design

Acrylic adhesives that cure with UV light are low-stress materials with applications in imaging modules and consumer optics. They cure in seconds and have low

Optical contact and Optical bonding, Production

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Optical contact refers to the process that two clean, smooth and extremely flat optical parts surfaces are pressed together without any auxiliary materials (like

Optical Contact Bonding – wavefront distortions, extremely flat and ...

It is a process where two transparent solids with extremely flat and clean surfaces are joined without any adhesive. The parts are held together firmly by short-range intermolecular forces, such as Van der

A process method for bonding optical components without overflowing ...

In order to solve the problems of the prior art, an object of the present invention is to provide a process method for bonding optical components without overflowing glue residue, which...

Optical Clear Adhesive (OCA): Technology, Process, and Applications ...

Optical Clear Adhesive has become an indispensable material for modern display design. It simplifies assembly, improves optical performance, and provides durability across a wide range of environments.

Positioning Adhesives for Active Alignment

This guide covers positioning adhesive technologies for active alignment applications, including UV-curable and dual-cure formulations used to secure optical components after precise

Optical Assemblies: A Professional''s Guide to Precision Bonding

This guide provides a professional overview of the critical aspects of optical assembly, the challenges involved, and how specialized adhesive technology can be a strategic solution for

Optics and Optoelectronics

In optoelectronics, optically transparent and non-yellowing adhesives are used as glob tops for diodes or LEDs. Hoenle offers various specially formulated

What is Optical Bonding? A Guide to Industrial Displays

In the realm of display technologies, optical bonding stands out as a fascinating process that brings two optical materials together, not with

Technologies Wafer-level micro-optics fabrication by lens molding

Key Aspects Today, polymer refractive microlenses are the core of micro-optical modules. For small form factor modules, the manufacturing process is based on UV lens molding at wafer level.

Adhesives for Optical Assemblies: Precision & Performance with Incure

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In high-stakes industries like aerospace, medical devices, defense, and advanced electronics, the performance of optical systems hinges on more than just high-quality lenses or

Optical bonding at DATA MODUL

Experience brilliant displays with optical bonding: DATA MODUL offers solutions such as LOCA, OCA, gel and hybrid optical bonding for razor-sharp readability, reduced reflections and maximum precision.

Liquid optically clear adhesive

Liquid optically-clear adhesive (LOCA) is liquid-based bonding technology used in touch panels and display devices to bind the cover lens, plastic, or other optical materials to the main sensor unit or

Modern bonding processes for touch displays | DATA MODUL

At DATA MODUL, we have state-of-the-art OCA, LOCA, air, gel and hybrid bonding methods in-house, enabling us to offer customized touch display solutions directly from a single source.

Micro-AsseMbly And systeM integrAtion

The competence of Fraunhofer IOF covers the complete process chain from design and simulation to the prototype of the photonic system. Our assembly and integration techniques address optical

Optical Bonding – How to Combine Display with a Touch Panel

This process requires carefully selected glue and unique manufacturing technology (usually protected by patents or business confidentiality). This results in high-quality final products

Optical Adhesives

Optical adhesives, often known as optical cements or glues, are specialized adhesives designed for use in optical systems. These adhesives play a crucial

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