

COB Optical Module Concept



AI Overview

COB (Chip-on-Board) optical modules mount bare chips directly on a PCB, wire-bond them, and encapsulate them to achieve high-density, cost-effective, and high-performance optical transceivers.

Overview of COB Technology

COB, or Chip-on-Board, is a packaging technology where bare optical and electrical chips are directly mounted onto a printed circuit board (PCB). The chips are connected via gold wire bonding and then encapsulated with an organic adhesive or epoxy for protection and mechanical stability. This approach eliminates the need for individual chip packages, reducing size, weight, and interconnect length, which improves signal integrity and thermal performance.

Key Procedures

- **Die Bonding:** Bare chips are placed on the PCB using conductive adhesives, typically silver-based, and secured through high-temperature baking. Precision equipment ensures accurate placement.
- **Wire Bonding:** Gold wires connect the chips to each other and to PCB pads, providing both electrical and mechanical connections. Wire length and tensile strength are critical for performance, as defects can affect sensitivity and signal quality.
- **Optical Coupling:** Optical fibers are aligned with the chips using lens arrays or waveguide structures, enabling efficient light transmission. COB reduces the difficulty of optical alignment compared to traditional free-space optics packaging

Article Content

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What is a COB Module?

Our COB modules are crafted with meticulous attention to detail, ensuring that each unit delivers optimal light output

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Introduction To The COB Process For Optical Modules

The COB process refers to a technology that directly mounts bare chips onto a printed circuit board (PCB), connects

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COB Packaged Optical Module Market Size | CAGR 12.8 Forecast 2033

Explore the dynamic COB Packaged Optical Module market, driven by soaring demand for Ethernet data centers,

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COB Technology: The Future of Compact Electronics

COB (Chip on Board) powers compact, efficient electronics with better signal integrity and

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What is Co-Packaged Optics (CPO) Technology? | Corning

Co-Packaged Optics (CPO) Solutions Co-Packaged Optics (CPO) Solutions Today, data centers use a separate approach for optics

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Understanding COB LED Technology: Expert Explanation

This guide explores the intricacies of COB LED technology and its significant impact on various lighting sectors, also

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Optical Module: A Comprehensive Analysis from Source to Terminal

Optical modules are key transmission components in communication networks, and their applications, technologies,

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A Closer Look at COB and BOX Packaging in Optical Modules:

Both COB and BOX packaging offer unique advantages that make them suitable for different scenarios in the rapidly

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Understanding CoB LEDs

A single CoB LED can contain hundreds of chips forming a dense array. This dense array enables a CoB LED to

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COB vs BOX transceiver packaging technology

COB (Chip on Board) and BOX (Airtight Package) are two types of primary packaging technology in fibre optic

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A Closer Look at COB and BOX Packaging in Optical Modules:

Conclusion Selecting the right packaging technology for optical modules requires a careful evaluation of the

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Optical Module COB Process Introduction

1. What is COB process in recent years, high-speed optical modules often mention the COB (Chip-on-Board) process.

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Cob In Led: Lighting Explained

COB LED lighting represents a significant advancement in illumination technology, offering numerous advantages over traditional

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What is Optical Link Module?

Explore the world of optical link modules, essential components in optical fiber communication. Learn

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What is a COB LED: Understanding LED Technology

COB vs. SMD: The Core Differences COB, or "Chip on Board" technology, employs a

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COB Packaging Technology of Data Center Optical Transceiver

For COB packaging technology, this article introduces the advantages and disadvantages of COB and the

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Co-Packaged Optic Assembly Guidance Document

1.3. Introduction The CPO JDF plans to release three documents focused on different elements of Co-Packaged Optics (CPO): the

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What is a COB Lens? Functions, Design & Applications in LED Lighting

What is a COB Lens? As LED lighting technology continues to evolve, improving luminous efficacy and optical

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COB vs. BOX Packaging Transceiver Optics: What is The Difference?

From the user's point of view, the main difference between COB and BOX Packaging transceiver optics is the

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COB, BOX and coaxial difference analysis

In the field of optical communication, the packaging of optical devices plays a crucial role in the performance and

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Comparing COB vs. BOX Packaging for Optical Modules

Explore the differences between COB and BOX packaging in optical modules. Discover their applications, costs, and

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COB optical module and preparation method thereof

The present invention provides a COB optical module, including a circuit substrate, a light-emitting device, a module housing, a

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Technical note / Optics modules

The optics module uses COB technology to mount photodiodes directly to the circuit board. The COB technology enables the

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Chip-on-board packaging of high-speed optical transceiver applying ...

We demonstrate chip-on-board (COB) packaged optical module operating at data rate of 25 Gb/s based on silicon

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Co-Packaged Optics (CPO): Rethinking Optical Interconnects for AI

Co-Packaged Optics (CPO) places the optical engine next to the switch ASIC, reducing the need for long high-speed

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COB LED Module: What It Is, How It Works & How to Choose

COB LED module delivers sharper images, finer pixel pitch, and longer lifespan than SMD. Find out how and whether

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COB Packaged Optical Module in the Real World: 5 Uses You'll

The COB (Chip-On-Board) packaged optical module is a compact device that combines optical components, such as

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Optical device packaging technology: COB,BOX and coaxial

Common optical device packaging methods include COB (chip-on-board packaging), BOX and coaxial packaging.

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The Evolution of Optical Communication Modules: From COB to

This evolution—from Chip-On-Board (COB) to Co-Packaged Optics (CPO)—is fundamentally reshaping PCB

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Understanding How COB LED Chips Redefine Performance

Redefining Lighting Performance Chip-on-Board (COB) technology marks a pivotal evolution in LED lighting. By

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What is Co-Packaged Optics (CPO) Technology? | Corning

Co-Packaged Optics (CPO) is a technology and design approach where optical components, such as lasers and photodetectors, are

Contact Us

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