COB High-Speed Optical Module

Overview

COB (Chip on Board) powers compact, efficient electronics with better signal integrity and speed, and serves as a key packaging technology supporting FICG's expertise in optical modules and CPO integration. The COB process refers to a technology that directly mounts bare chips onto a printed circuit board (PCB), connects them via gold wire bonding, and then encapsulates and protects the chips and wires using organic adhesive. Packaging impacts more than just size. It determines thermal performance, reliability, and cost. For instance: Hermetic sealing ensures durability in harsh. Optical module (Figure 1) is an important component in the optical communication system, the main function is to realize the photovoltaic conversion and the monitoring and management of communication signals and other functions. In today's optical fiber network, the application scenarios of optical. This method mounts bare silicon dies directly onto a PCB. The process flow is straightforward: die attach, wire. Chip On Board (COB) is a relatively new type of packaging technology. It has many advantages when compared to the hermetically sealed co-axial TO can packaging of Free Space Optics (FSO).

Article Content

Feb 20, 2026

COB Packaging Technology of Data Center Optical

For COB packaging technology, this article introduces the advantages and disadvantages of COB and the development of optical module packaging.

Dec 30, 2025

Introduction To The COB Process For Optical Modules

Moduletek operates its own die bonding, wire bonding, and automatic coupling production lines, and can supply a wide range of optical module products manufactured with the

May 29, 2026

PowerPoint Presentation

Option 1: Optical Module (Tx/Rx) electrically separable from ASIC (i.e. socketed) Very Short Fiber leg (fixed 2 to Optical Module) Tx/Rx Host PCB Option 2: Optical Module (Tx/Rx) permanently fixed to

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Introduction To The COB Process For Optical Modules

In recent years, the COB (Chip-on-Board) process has been frequently mentioned in the context of high-speed optical modules. The COB

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COB Technology: The Future of Compact Electronics

COB (Chip on Board) powers compact, efficient electronics with better signal integrity and speed, and serves as a key packaging technology supporting

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Optical Module: A Comprehensive Analysis from Source

In the backdrop of such diversity and rapid development, we can offer some prospects for the future of optical modules. As communication technology

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100 Gbps (4 × 25 Gbps) Optical Receiver Module ...

High speed PCB for the assembly of both electronic and photonic devices in COB package is precisely designed from the material selection to the device footprint layout and transmission line

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

In the field of optical communications, the packaging of optical modules plays a pivotal role in ensuring performance, reliability, and application suitability. As technology rapidly evolves and

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Optical Transceiver: Packaging Methods & Optical Chip

The packaging of high-speed optical transceivers imposes higher requirements on parallel optical design, high-speed electromagnetic interference,

Oct 13, 2025

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

COB optical modules enable high-bandwidth interconnects, reducing bottlenecks. They support data rates of 400G and higher, essential for scientific simulations and AI workloads.

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Why Optical Engine with COB Technology for Optical

With the growing demand for high-speed data transmission, Tanlink optical engines with COB technology have covered the data-rate range from 10G

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Optical Transceiver: Packaging Methods & Optical Chip

Analyzes the requirements of optical transceivers and discusses packaging methods and optical chip types to understand their design and manufacturing process.

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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 photonic integrated circuits (Si-PIC). Electrical loss and packaging criteria

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Optical Modules Evolution and Innovation From 400G to

Explore the evolution of optical modules in speed and form factors from 400G to 1.6T, stressing key enhancement technologies, and paths to

Dec 12, 2025

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

As technology rapidly evolves and the demand for high-speed data transmission increases, understanding the distinct packaging technologies—Chip-on-Board (COB) and

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Understanding COB, BOX, and TO-CAN Packaging for

Its role in optimizing optical device functionalities highlights its importance in the industry. Key Features and Benefits of COB, BOX, and TO

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Active Optical Cables | Amphenol | Transceivers

Amphenol provides high speed, high reliability Active optical cables and transceivers supporting advanced applications.

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COB | Broadex Technologies

COB utilises high precision die and wire bonders to attach chips and subcomponents to a PCB electronically. Optical coupling, with input and output optical fibers, is then achieved with lens arrays

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COB vs. BOX Packaging Transceiver Optics: A

High-speed optical transceivers, essential components in optical links, are gaining popularity in data center applications. In this guide, we explore two

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COB vs. BOX Packaging Transceiver Optics: What is

The COB transceiver uses chip-on-board technology to connect the laser and receiver to the PCB directly. The below figure shows a typical COB

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COB vs. BOX Packaging Transceiver Optics: A

Explore the differences between COB (Chip-on-Board) and BOX (Airtight Package) packaging for high-speed optical transceivers in data centers.

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Transceiver Packaging | Broadex Technologies

This enables increased manufacturing speeds and yields while decreasing costs. Now Broadex is looking to further integrate the optical and electrical assemblies

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High-Speed Optical Transceiver COB Packaging in Data

Discover the advantages of COB packaging in optical transceivers for high-speed data transmission. Learn about coupling techniques and testing

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COB | Broadex Technologies

The entire process can be highly automated and, because of the precise positioning of chips on the two-dimensional PCB, the difficulty of optical alignment is significantly reduced compared to FSO

Apr 22, 2026

MRSI Mycronic Announces Advanced High-Speed 1µm Die Bonder

MRSI Mycronic is proud to announce the launch of the MRSI-LEAP high-speed 1µm die bonder. This innovative equipment is designed for ultra-high-volume manufacturing of optical

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Understanding COB, BOX, and TO-CAN Packaging for

COB packaging plays a vital role in high-speed optical transceivers, especially in environments where performance and compactness are critical. By

Jan 18, 2026

100 Gbps (4 × 25 Gbps) Optical Receiver Module Packaged in Chip

Abstract Abstract 100 100 Gbps Gbps (4 (4 × × 25 25 Gbps) Gbps) optical optical receiver receiver (Rx) (Rx) module module is is demonstrated demonstrated using using Germanium Germanium (Ge) (Ge)

Contact Us

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