

High-speed optical module COB test



AI Overview

COB testing for high-speed optical modules ensures functional verification, optical reliability, and parameter consistency of Chip-on-Board packaged modules. Overview of COB in Optical Modules COB (Chip-on-Board) refers to directly mounting bare optical and electrical chips onto a PCB, connecting them via gold wire bonding, and encapsulating them with organic adhesive for protection and stability. This packaging method is widely used in VCSEL arrays and high-integration silicon photonics, particularly in data center applications where high-speed signal integrity and compact integration are critical. COB offers short electrical paths, high packaging density, and minimal signal degradation, making it suitable for high-speed optical modules. Key Steps in COB Packaging Die Bonding: Chips are attached to the PCB using conductive silver adhesive, ensuring precise alignment and strong adhesion. Thermal performance is considered for high-power components like lasers and drivers. Wire Bonding: Gold wires connect chip pads to PCB pads, providing both electrical and mechanical connections. Wire length and quantity are optimized to maintain signal integrity and prevent defects such as sagging or open circuits. Optical Coupling: Ensures proper alignment between optical chips and fibers or lenses, critical for maintaining transmit and receive performance. COB Testing Objectives COB testing verifies: Functional performance of the module Optical reliability of VCSEL or detector chips Electrical parameters such as VCC, ICC, PO (optical output power), ITH (threshold current), and SE (slope efficiency) Consistency and repeatability across multiple modules Test Equipment The PSS COBT2001 automatic test system is commonly used for COB module testing. Key features include: Pre- and post-optical coupling testing for VCSEL multi-mode packages High repeatability in power measurements across different module powers Support for multiple package types: SFP, QSFP, QSFP-DD, OSFP Parallel testing with dual-board, 4-station capability...

Article Content

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

This COB packaging technique of optical Rx module can be applied for the integration and assembly of the optical module of higher data rate of 100 Gbps and beyond.

High-Speed Optical Transceiver COB Packaging in Data Centers

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

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

As data centers expand and 5G networks become more widespread, the demand for faster, more efficient optical communication components surges. The COB (Chip-On-Board)

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. The so-called COB process refers to the process in which the bare

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

100 Gbps (4 × 25 Gbps) optical receiver (Rx) module is demonstrated using Germanium (Ge) photodetector (PD) which is fabricated through Silicon-photonics process using 750 ohm-cm of

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)

Optical Interconnect Technology Analysis: LPO, NPO, CPO

Exploring optical interconnects for AI data centers: LPO for low-power, short-distance links, NPO for high-density, near-package connections, and CPO for ultra-high-bandwidth co

Understanding COB, BOX, and TO-CAN Packaging for

COB, BOX, and TO-CAN packaging impact optical devices by balancing size, cost, and reliability. Learn how COB excels in compact, high

Why 100G Data Center Transceiver Prefers COB

Why COB packaging process is more suitable for data centre 100G optical modules?

1. Save volume and meet high density requirements.

Comparing COB vs. BOX Packaging for 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

800G Client Optics in the Data Center

The speed with which hyperscale data center operators have moved to the high volume deployment of 400G demonstrates the huge transition that has occurred in the market for client optics.

1.6T/800G High-Speed Optical Module Testing

As data center bandwidth demands soar, the optical communication industry is driving the development of higher-speed standards. The 800G standard typically

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

Optical Transceiver: Packaging Methods & Optical Chip

This article analyzes the requirements of optical transceivers and discusses packaging methods and optical chip types to help readers better

800G Optical Module Testing Solution: Meeting the

In the realm of high-speed communication, optical modules play a crucial role in data transmission. The performance of these modules directly

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

Optical Module COB Process Introduction

The so-called COB process refers to the process in which the bare chip is directly fixed on the printed circuit board, then bonded by gold wire, and then the chip and lead are packaged and

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

COB Tester-Module testing_TO testing_WUHAN PSS

The equipment not only verifies the function of the COB module itself and the reliability of the optical part, but is also used for reliability verification testing of

Introduction To The COB Process For Optical Modules

Compared with conventional processes, the COB process offers high packaging density, simplified procedures, minimal signal integrity issues, and a certain cost advantage.

Why Optical Engine with COB Technology for Optical Transceivers?

Optical transceivers are critical components of modern communication networks, enabling high-speed data transmission over optical fibers. These devices must be compact, efficient,

Testing Strategies for Next-Generation Optical Interconnects: Co ...

module and is undergoing the last optimization step and pass/fail test before it ships to the customer. This setup typically includes a test fixture to support high-speed signal access to the optical

Optical Module: A Comprehensive Analysis from Source

However, for high-speed optical modules operating at 40Gbps and above, there is often a need to use multiple channels in parallel due to limitations

Testing Considerations for High-Density Co-Packaged Optical Devices

This white paper provides an overview of the work underway to ensure the interoperability of co-packaged optical devices for a variety of high-bandwidth applications and discusses how to address

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