

Optical Module Substrate



Overview

Optical module substrates serve as the foundational platform for mounting and interconnecting optical chips, electronic ICs, and photonic components in high-speed optical modules. • SHINKO is developing Co-Packaged Optics (CPO) technologies for high-speed, high-bandwidth data transmission with low power consumption. *4 DLL : Direct Laser & Lamination / DLL is registered trademarks of SHINKO ELECTRIC. Integrated circuits and reference designs help you create a smaller and faster optical module design used in high-bandwidth data communication applications. Whether you are creating a 100-Gbps or 400-Gbps, small form-factor pluggable (SFP) module, SFP+ transceiver, XFP module, CFP, X2/XENPAK module. The Printed Circuit Board (PCB) at the heart of these modules is no longer a simple substrate but a highly engineered system. Although InP substrates have been the gold standard for such applications, the high cost and limited. Definition: An Optical Module PCB is the internal circuit board of a transceiver (like SFP, QSFP, or OSFP) responsible for converting electrical signals to optical signals and vice versa.



Article Content

Jan 13, 2026

Glass Substrate With Integrated Waveguides for Surface Mount

This report highlights the results of glass substrate optimization to include optical waveguides, a fiber connector, and chip interfaces, as well as features for electrical connectivity, as a potential

Jul 22, 2025

Engineered Substrates on Indium Phosphide Basis

Although InP substrates have been the gold standard for such applications, the high cost and limited availability pose significant challenges for large-scale production. To face this challenge, we have

Jun 19, 2026

Optics Primer, Part 3: Co-Packaged Optics (CPO)

Near package optics (NPO) brings the optics module on the same substrate or very close to the switch package, but not inside it: It's close enough

Oct 23, 2025

Optical module design resources | TI

Design requirements Modern optical module designs often require: Reduced power consumption to control and limit module temperature rise. Dynamic and precise control of laser diodes to regulate

Jul 20, 2025

Substrate for Co-Packaged Optics

Features Substrate with optical waveguides for high-density optical transmission based on SHINKO organic substrate technologies SHINKO Optical Polymer Waveguide supports single-mode

Jun 08, 2026

Co-Packaged Optic Assembly Guidance Document

The optical modules may be directly soldered to the CPO substrate or attached using a high-speed, LGA connector. The optical modules must have a heat spreader on the top surface for mating to a heat

Mar 24, 2026

Co-Packaged Optics (CPO) Market Size to Hit USD

The global co-packaged optics (CPO) market size is evaluated at USD 95.04 million in 2025 and is predicted to hit around USD 1,055.11 million by

Mar 06, 2026

GlobalFoundries accelerates adoption of co-packaged optics for

MALTA, N.Y., May 4, 2026 – GlobalFoundries (Nasdaq: GFS) (GF) today announced the introduction of its SCALE™ optical module solution for co-packaged optics (CPO). GF's SCALE solution, or Silicon

Apr 12, 2026

Optical Module PCB: The Ultimate Guide to Design, Fabrication, and ...

Devices such as Optical Coherence Tomography (OCT) scanners and photonic biosensors depend on custom optical modules where the PCB serves as a stable mechanical and electrical foundation.

Apr 23, 2026

EP1602955A2

The present invention relates to optical modules having photoelectric conversion functions to conduct optical communications. The present invention also relates to substrates for such optical modules as

Aug 27, 2025

Optical Module PCB: The Ultimate Guide to Design, Fabrication, and ...

As artificial intelligence, 5G infrastructure, and hyperscale data centers demand ever-faster data transmission, optical modules have become the bedrock of modern communication. The Printed

Sep 29, 2025

Suppliers of optical module chip sockets | Weyland

Optical module substrates serve as the foundational platform for mounting and interconnecting optical chips, electronic ICs, and photonic components in high-speed optical modules. These substrates

Apr 19, 2026

AI Data Center Optical Transceiver Module Market 2025–2030

AI Data Center Optical Transceiver Module Market 2025–2030 Posted on Apr-03-2026
The AI data center optical transceiver market has entered a historic growth phase, driven by the exponential

Oct 27, 2025

GlobalFoundries accelerates adoption of co-packaged optics for

SCALE CPO solution is the industry's first OCI MSA capable platform and built with GF's proven silicon photonics technology MALTA, N.Y., May 4, 2026 – GlobalFoundries (Nasdaq: GFS)

Aug 17, 2025

GF Overseas Electronics & Communications Zhen Ding 4Q25

On the earnings call, management expressed strong confidence in AI-driven growth, targeting 6–7x revenue growth in optical modules and AI server PCB businesses. In addition,

Jan 12, 2026

Warning: The entire AI industry will likely be bottlenecked by two ...

And two vendors could freeze the global InP substrate market covering nearly all of: - Hyperscaler optics (TPU pods, etc) - Optical transceivers (5g, data) - LiDAR (robotaxis, drones,

Jun 12, 2026

US6964528B2

A PLC platform (a mount substrate equipped with an optical circuit, PLC: Planar Lightwave Circuit) is proposed as what is used for an optical module that realizes high-speed optical-electric conversion

Nov 11, 2025

Optical Module PCB | APTPCB

An Optical Module PCB is the miniaturized substrate housed inside optical transceivers. It acts as the bridge between the host system (switch, router, or server) and the optical components (TOSA/ROSA).

Jun 15, 2026

Optical module – A comprehensive exploration

What is an optical module? The optical module is one of the core components of the optical communication system. The optical module is

Nov 16, 2025

Predicting Cost Trends for Widespread Co-Packaged Optics Adoption

Co-packaged optics technology faces significant cost structure challenges that currently limit its widespread adoption across data center and telecommunications markets. The primary cost

Apr 28, 2026

AlN Ceramic Substrates: The Key to Stable, High-Speed

Innovacera is dedicated to providing stable, reliable, and customizable aluminum nitride ceramic substrate solutions for the optical communication

Sep 16, 2025

Silicon Photonics in Pluggable Optics White Paper

The optical communications market has been much smaller than the electronics industry, and optics technologies developed along a different

Feb 05, 2026

AT& S Empowers High-Speed Optical Module PCB

AT& S's expertise in optical module PCB manufacturing technology mainly covers the following areas: High-end Substrates-like PCB (SLP)

Jul 21, 2025

How Industry Collaboration Fosters NVIDIA Co

NVIDIA is developing a co-packaged optics (CPO) platform that integrates optical and electrical components to improve data-center connectivity,

Aug 07, 2025

Light-receiving assembly and optical transceiver module

The present invention provides a kind of light-receiving assembly and optical transceiver module. Optical transceiver module includes substrate, light-receiving assembly and multiple closed type light

Jul 14, 2025

Optical Module: A Comprehensive Analysis from Source

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

Oct 07, 2025

Glass Substrate With Integrated Waveguides for Surface Mount

Co-packaged optics in next-generation datacenters require the assembly of multiple components on the same multichip module (MCM) and interconnection with hundreds of optical

Jul 30, 2025

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