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PCB manufacturers for optical modules



Overview

Fibre-Optical Module PCB The optical fiber module is an electronic component used for photoelectric conversion.

Key Takeaways

Leading manufacturers of optical module PCBs include AT&S, Venture, APTPCB, and IPCB, specializing in high-speed, high-density, and thermally optimized boards for optical transceivers.Overview of Optical Module PCBs

An optical module PCB is the internal circuit board of transceivers such as SFP, QSFP, or OSFP, responsible for converting electrical signals to optical signals and vice versa. These PCBs operate in highly constrained spaces with extreme signal speed requirements, making signal integrity, thermal management, and precise form factor compliance critical for performance . They often use high-speed materials like Megtron 6/7 or Rogers instead of standard FR4 and may incorporate HDI technology, rigid-flex structures, and precise wire bonding pads .

Key Manufacturers
• AT&S: A global leader in high-speed optical module PCB manufacturing, AT&S collaborates with major optical module producers to deliver 100G to 800G PCBs, with ongoing research into 1.6T and Co-Packaged Optics (CPO). Their boards focus on high density, low latency, and efficient heat dissipation, supporting data centers, undersea cables, and 5G infrastructure .

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• Venture: Specializes in custom high-performance optical PCBs with hybrid optical-electrical integration, supporting 1–20 layer precision. Venture serves industries from 5G base stations to medical devices, offering industrial-grade reliability, turnkey SMT assembly, and long-term warranties .

• APTPCB: Provides miniaturized optical module PCBs for transceivers, emphasizing impedance control, thermal cycling, and high-frequency signal analysis. Their boards are designed to fit strict form factors for server integration and ensure reliable electro-optical conversion .

• IPCB: Focuses on high-speed optical module PCBs for AI, 5G, and large data centers. IPCB emphasizes fine line widths, tight impedance tolerances, and precise laser via/pad alignment, supporting low-power, high-bandwidth applications .
Applications and Technical Considerations

Optical module PCBs are used in data centers, 5G networks, AI computing, and industrial optical systems. Key technical requirements include:

• Line capabilities: Fine line widths and tight impedance tolerances for high-speed signal integrity .

• Thermal management: Efficient heat dissipation to maintain performance in dense server environments .

• Integration: Compatibility with TOSA (transmitter) and ROSA (receiver) submodules, ensuring plug-and-play functionality in standard server form factors .

• Material selection: High-frequency laminates like Megtron or Rogers for 100G–1.6T applications . These manufacturers provide customization, high reliability, and compliance with industrial standards, making them suitable partners for companies developing next-generation optical communication systems.

Article Content

Optical Module PCB

Common PCB materials for optical modules fall into two primary categories: traditional FR4 substrates and specialised high

Optical PCB Manufacturing: Precision Design for Photonics Modules

This guide explains how to spec, design, assemble, and qualify an optical PCB so it can move from prototype builds

Custom Optical PCB Manufacturing | High-Speed

We offers high-performance optical PCB solutions with hybrid optical-electrical integration and 1-20 layer precision, widely used in 5G

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What is Optical PCB?

This article delves into the intricacies of PCB optical modules, discussing their applications, technical requirements,

Optical Module PCB | APTPCB

A comprehensive guide to Optical Module PCB design and manufacturing. Learn definitions, key metrics, selection trade-offs, and

optical module pcb

Optical module circuit boards, also called optical module PCB s, are circuit boards used in optical fiber

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Optical PCB: The Future of High-Speed Data Transmission

Other Uses Apart from its use in telecommunication and high-speed computing systems,

Key Technology of Optical Module PCB

The gold finger part of the PCB of the optical module is an important interface area connecting the optical module with

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Optical Module PCBs

Additionally, module layout must account for manufacturing precision and manufacturability. Pad Design

Manufacturing Process Requirements for Optical

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The manufacture of optical module PCBs constitutes a high-precision, technically demanding task

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Overview of Optical Module PCBs

The quality and reliability of the PCB are particularly important, as they directly affect the quality and reliability of the

PCB Design for AI Optical Interconnect Modules — AtlasPCB

Engineering guide to PCB substrate requirements for co-packaged optics and optical transceiver modules in AI data

4G optical module PCB

4G optical module PCB circuit boards are widely used in optical fiber communications and other fields. The optical module PCB is

About HDI Optical Module PCB

HDI PCB stands for High Density Interconnect PCB. HDI PCB manufacturing is one of the fastest growing areas in

China PCB maker DSBJ bets US$1.2 billion on AI optical modules

Suzhou Dongshan Precision Manufacturing (DSBJ) will invest US$1.2 billion to expand optical chip and optical module

High-Speed Fibre-Optical Module PCB | 400G MEGTRON 6 Fiber

Explore our high-performance Fibre-Optical Module PCB with 8-layer MEGTRON 6 material, 400G speed, and impedance control.

10 companies in the optical transceiver industry chain 2024

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The optical module is in the middle of the industrial chain, and the upstream industry of optical modules mainly

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optical module pcb

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On the Design and Types of Optical Module PCBs

The PCB of photonic modules is a key component for achieving photoelectric conversion, playing a crucial role in

AT&S Empowers High-Speed Optical Module PCB Manufacturing

Together with globally renowned optical module manufacturers, find out how AT&S is empowering high-speed Optical

Optical Module PCB

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The optical module PCB is pcb within the optical module that carries components, enables high-speed signal transmission, and

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To help you choose the best partner, this article will analyze and introduce 10 companies in the optical transceiver

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