

Article Overview

An 850nm optical module is a short-reach, hot-swappable transceiver designed for high-speed data transmission over multimode fiber using an 850nm wavelength laser.

Overview

An 850nm optical module, often in the form of an SFP (Small Form-factor Pluggable) transceiver, is used to transmit data over multimode fiber (MMF) for short-distance connections, typically within data centers or enterprise networks . It is optimized for high-density, cost-sensitive environments, providing reliable performance for switch-to-switch or server-to-switch links where distances are limited, usually up to a few hundred meters .

Key Characteristics

- o Wavelength: 850 nanometers, in the near-infrared range, ideal for multimode fiber due to minimal modal dispersion .
- o Light Source: Uses VCSEL (Vertical-Cavity Surface-Emitting Laser), which is cost-effective, energy-efficient, and suitable for short-reach applications .
- o Fiber Type: Compatible with OM3 or OM4 multimode fiber, which has a larger core diameter (50-62.5 um) allowing multiple light modes to propagate .
- o Data Rates: Supports 1Gbps, 10Gbps (SFP+), and higher, depending on the module and network equipment .
- o Hot-Swappable: Can be inserted or removed from network devices without powering down the system .
- o Digital Diagnostic Monitoring (DDM): Many modules include DDM for real-time monitoring of temperature, voltage, laser bias, and optical power .

Advantages

- o Cost-Effective: Cheaper than single-mode SFPs operating at 1310nm or 1550nm, making it ideal for short-distance deployments .
- o Ease of Deployment: Simple plug-and-play installation with widespread compatibility across multiple switch brands, including Cisco .
- o High Port Density: Supports dense network environments without significant cost increase.

Limitations

- o Short Reach: Higher attenuation compared to longer wavelengths limits effective transmission distance, typically under 550 meters .
- o Multimode Only: Not suitable for long-haul or single-mode fiber applications.



850nm Optical Module Devices

Applications

- o Data Centers: Connecting servers, storage arrays, and switches over short distances.
- o Enterprise Networks: Intra-building or campus LAN connections.
- o Cost-Sensitive Deployments: Where high-speed links are needed without the expense of long-reach single-mode optics. In summary, an 850nm optical module is a practical, cost-efficient solution for short-range, high-speed optical networking, leveraging multimode fiber and VCSEL technology to balance performance, affordability, and ease of deployment .

Multimode SFP 850 nm Fiber Optics are available at Mouser Electronics. Mouser offers inventory, pricing, & datasheets for

Introduction What are optical modules used to build a campus network? What are differences between various optical

200G QSFP-DD VCSEL SR4 850nm 100m Optical Transceiver GIGALIGHT 200G QSFP-DD SR4 optical transceiver modules are

GLSUNMALL's Cisco SFP-10G-SR compatible SFP+ transceiver module provides 10GBase-SR throughput up to 300m over

The XFP module is compliant with the 10G Small Form-Factor Pluggable (XFP) Multi-Source Agreement (MSA), supporting data-rate

Perfect Match with MMF: Optimized for OM3, OM4, and OM5 multimode fibers, 850nm

NVIDIA/Mellanox Compatible 800GBASE-SR8 OSFP Finned Top PAM4 850nm 100m MTP/MPO-16 APC

Shop DigiKey's large in-stock selection of Fiber Optic Transceiver Modules. View inventory, pricing and

850 nm Fiber Optics are available at Mouser Electronics. Mouser offers inventory, pricing, & datasheets for 850 nm Fiber Optics.

850nm 1X8 Multimode Optical Switch Module MM/SM Fiber Switch The 1×8 multi-mode optical switch module is a functional device

The Startech Gigabit 850nm Multi Mode SFP Fiber Optical Transceiver - LC 550m allows you to add, replace, or upgrade SFP

850nm Optical Module Devices

A 1000BASE-SX SFP is a gigabit transceiver for multimode fiber, enabling 1Gbps Ethernet connections up to 550

Red and IR Alignment Laser Diodes are available in output powers from 1 to 100mW at 635nm, 780nm, 808nm, 850nm, and 980nm

Enhance your experiments with the LED850AM-Q: This fiber coupled LED offers a stable output intensity, 850nm wavelength, and

Understand SFP 850nm vs 1310nm differences in fiber type, distance, cost, and use cases. Learn which SFP module

The optical transceiver module is a duplex LC connector designed to provide an IEEE C37.94 link for 2Mb/s applications. It provides

Web: <https://in-au.co.za>

