

400GDR4 Optical Module Structure



Overview

A 400G DR4 transceiver is an optical module that supports 400Gbps Ethernet or IB transmission over parallel single-mode fiber. It uses 4 parallel lanes of 100G PAM4 signaling, transmitted and received via an MPO-12/APC connector. 2, SR8, DR4, FR4, LR4, LR8, ER4, ZR4. They are essential for AI clusters, hyperscale data centers, and next-gen cloud infrastructure. Based on real-world testing (2025-2026) conducted across. Cisco ® 400G QSFP112 modules deliver high-performance, power-efficient connectivity optimized for AI/ML fabrics, high-performance computing, and modern data center networks. Many engineers new to 400G assume DR4 is multimode or believe OSFP modules can be directly swapped with QSFP-DD. The optical signals back into electrical signals. Optical modules are classified by their packaging forms, with common types including SFP, SFP+, SFP28, QSFP+, QSFP28, QSFP56, QSFP-DD, QSFP112, and.



Article Content

400G Optical Modules 2026 Guide: DR4 vs. FR4 vs.

400G DR4 remains the most cost-efficient choice for AI clusters (<500m) 400G FR4 delivers ~40% better fiber utilization in campus backbones

Cisco 400G QSFP Transceiver Modules Data Sheet

The Cisco QSFP-400G-DR4 module (Figure 1) supports 400GBASE-DR4 links and up to four 100G DR1 or two 200G DR2 breakout link

Cisco 400G QSFP-DD Cable and Transceiver Modules

The Cisco QDD-400G-DR4-S Module (Figure 8) supports 400GE links and up to four 100GE breakout link lengths of up to 500m. The module has four

400G ZR, DR4, FR4, LR4, SR8 QSFP-DD Optical

FiberMall 400G DR4 QSFP-DD Optical Transceiver Module The 400G QSFP-DD DR4 fiber module achieves the transmission over SMF (single

400G Optical Transceivers: Powering the Next

400G DR4: High-Speed Intra-Data Center Interconnects The 400G DR4 module is designed for high-speed, short-reach connections within data

Understanding the OSFP 400G DR4 Optical

Discover the OSFP 400G DR4 Optical Transceiver Module, a high-performance solution with a 1310nm wavelength, supporting 500m distance and

400G DR4 Transceiver Guide | QDD 400G DR4-S

A 400G DR4 transceiver is an optical module that supports 400Gbps Ethernet or IB transmission over parallel single-mode fiber. It uses 4 parallel

OSFP 400G DR4 Optical Modules Explained:

This article sets the record straight and provides a clear, technically accurate, and practical guide to what OSFP 400G DR4 is, how it differs from

400G QSFP-DD: Optimizing DR4, FR4, and LR4 for Hyperscale

DR4 modules use parallel single-mode optics (PSM4) architecture. Instead of multiplexing wavelengths onto a single fiber pair, each 100G optical lane travels on its own dedicated fiber strand.

400GBASE-DR4: considerations for power reduction

This contribution suggests a change into 400GBASE-DR4 specification towards an overall module's power consumption reduction. Also show how to align 400GBASE-DR4 receiver sensitivity results,

400G ZR, DR4, FR4, LR4, SR8 QSFP-DD Optical

There are two types of 400G QSFP-DD DR4 optical modules: traditional electric-optical chip-separated optical modules, and the electric-optical

400G QSFP-DD Transceiver: SR8 vs DR4 vs FR4 vs

Complete guide to 400G QSFP-DD transceiver types. Compare SR8, DR4, FR4, and LR4 specifications and selection criteria for your network.

Cisco 400G QSFP Transceiver Modules Data Sheet

High-bandwidth transceiver modules based on the QSFP112 form factor, targeting NICs used in data centers, high-performance computing

InnoLight's QSFP-DD Optical Transceiver

InnoLight's QSFP-DD Optical Transceiver Deep analysis of the 400Gb optical transceiver from a leading Chinese company.

400G Transceiver in Data Center: Types and Wiring

400G FR4:Different from the 400G DR4 structure, 400G QSFP-DD FR4 contains internal optical wavelength division components, also using 100G

400G Optical Modules Explained: SR4 Vs. DR4 Vs.

Key differences between SR4, DR4, FR4, and LR4 400G optical modules. Expert advice from Asterfusion engineers to optimize your data center

Ultimate Guide to QSFP-DD 400G Optical Modules:

The QSFP-DD 400G optical module has become a key element in the fast-changing field of data transmission technology to improve network

Overview of 400G OSFP Optical Module Types and

The 400G OSFP optical module has been widely used in advanced high-performance computing center network architectures, with ultra large bandwidth

Huawei QSFP-DD-400G-DR4 Optical Module Datasheet

Huawei offers a comprehensive series of pluggable optical modules in the Huawei portfolio. The wide variety of modules gives you flexible and plug-and-play options for all types of interfaces. These

400G DR4 Optical Transceiver Guide for High-Speed Networks

Discover 400G DR4 optical transceiver benefits, features, and uses in modern data centers. Learn why 400G DR4 is ideal for high-speed connectivity.

400G Optical Modules 2026 Guide: DR4 vs. FR4 vs.

Our CCIE/HCIE team shares lab-tested benchmarks for DR4, FR4, and LR8, focusing on power efficiency, latency, and AI cluster scalability.

Cisco 400G QSFP-DD High-Power (Bright) Optical

Learn how Cisco 400G QSFP-DD High-Power (Bright) Optical module's small size and low power make it an optimal choice for a wide range of

Understanding the 400G DR4/DR4+ and FR4 Optical Transceivers

This blog will delve into the principles of the 400G DR4/DR4+ and FR4 optics, as well as their key technologies.

Cisco 400G Digital Coherent Optics QSFP-DD Optical

Cisco now offers a range of all new 400G Digital Coherent QSFP-DD transceivers. Cisco already offers a range of Digital Coherent CFP2 transceivers

400G DR4 Transceiver Guide | QDD 400G DR4-S

Discover everything about 400G DR4 and QDD 400G DR4-S transceivers, including IEEE 400GBASE-DR4 specifications, breakout

Demystifying 800G Transceiver: Types, Applications,

As the demand for faster data transmission continues to surge, 800G transceiver has gained significant attention due to its high bandwidth, fast

The Ultimate Guide to OSFP 400G DR4 Optical Modules

The OSFP (Octal Small Form-Factor Pluggable) 400G DR4 optical module plays a critical role in today's high-speed data communication networks. With the ability to transmit data at speeds

400G Optical Modules: The Most In-Depth Q&A You'll

Recently, we've received numerous inquiries from users about 400G optical modules. As a mainstream optical module type today, there are several

400G QSFP-DD DR4 Optical Module and Connectivity Solution

With the increased demand for faster and more reliable networks, 400G has become one of the most popular optical modules when interconnecting next-generation data center networks. QSFP-DD is the

400G Optics - Technologies, Timing, and Transceivers

Caveats and Disclaimers This presentation is an investigation into three potential solutions for 400G optical transceivers given the current objectives – Solutions perceived by the author to have a high

Contact Us

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