

Power Consumption Comparison of 400G QSFP-DD Optical Modules



Article Overview

Standard 400G QSFP-DD modules typically consume 10-14 watts, while high-power and coherent variants can exceed 20 watts, with silicon photonics-based modules achieving as low as 7 watts.

Standard QSFP-DD Modules

Typical 400G QSFP-DD modules consume between 10 and 14 watts under normal operating conditions. The variation depends on factors such as laser count, DSP complexity, and optical amplification requirements. First-generation discrete-laser designs were less efficient, whereas modern silicon photonics-based FR4 modules reduce power consumption to around 7 watts, lowering thermal output and cooling requirements .

High-Power QSFP-DD Modules

High-power or "Bright" QSFP-DD modules, such as Cisco's 400G QSFP-DD High-Power variant, are designed for enhanced optical transmission and include miniaturized optical amplifiers. These modules maintain a compact form factor but consume more power than standard modules due to additional Tx power and integrated amplification, typically exceeding standard 10-14 watt ranges .

Coherent and Long-Haul Modules...

Article Content

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400G Optical Transceivers: What's the Difference Between OSFP and QSFP-DD?

OSFP integrates a one-piece heat sink to enhance thermal dissipation efficiency, enabling modules with power consumption up to

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

In summary, the 8-way optical 400G QSFP-DD FR8 offers better transmission performance in all aspects compared to

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Differences Between QSFP-DD and QSFP+ / QSFP28 / QSFP56 /

Due to innovative thermal management techniques used in module and cage designs, QSFP-DD modules support power levels of at

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Complete Guide to 400G QSFP-DD Optical Transceivers

Bandwidth & Application The QSFP-DD module provides maximum bandwidth 400Gbps, whereas the

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400G Optical Selection Guide: QSFP-DD vs QSFP28 vs OSFP

Compare QSFP-DD, QSFP28, and OSFP form factors. Learn about compatibility, power constraints, migration TCO,

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400G QSFP-DD vs OSFP: How to Choose the Right... | ABPTEL

400G QSFP-DD vs OSFP: How to Choose the Right Module (SR8, DR4, FR4, LR4) in 2025? 400G Get specs &

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Know Your 400G Transceiver | Juniper Networks

400 Gigabit Ethernet (400G) transceivers are optical modules capable of handling data rates of 400 Gbps. With a transmission rate

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400Gb/s QSFP-DD ZR+ Coherent Optical Transceiver

Notes: In 400GbE mode, the typical power consumption is 21W and the maximum power consumption is 22.5W

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QSFP-DD Power Consumption: 400G Power Budget & Thermal Guide

Complete guide to QSFP-DD power consumption: 400G module wattage, power class specifications, data center

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Cisco 400G QSFP-DD Cable and Transceiver Modules

Product overview The Cisco 400GBASE Quad Small Form-Factor Pluggable Double Density (QSFP-DD) portfolio offers customers a

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QSFP-DD Optical Module Overview: What is the differ?

The QSFP-DD is the smallest 400G form factor optical module on the market today. It is

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Cisco 400G Digital Coherent Optics QSFP-DD Optical Modules Data

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

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QSFP-DD Transceiver Guide: 200G vs. 400G vs. 800G Modules

This guide explains how QSFP-DD technology works, the differences between 200G, 400G, and 800G QSFP-DD

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400G Coherent Optics Guide: ZR, ZR+ & MZR Comparison

Master 400G coherent optics with our comprehensive guide covering ZR, ZR+, MZR variants, reach capabilities,

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400G Optical Module Form Factors: QSFP-DD vs. OSFP vs. QSFP112

A full comparison of 400G QSFP-DD, OSFP, and QSFP112 optical module form factors. Learn their differences in

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800G Optical Transceiver Overview: QSFP-DD and OSFP Packages

This article provides an overview of 800G optical transceivers, focusing on the QSFP-DD and OSFP packages.

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Cisco 400G QSFP-DD Cable and Transceiver Modules Data Sheet

The Cisco® family of QSFP-DD modules provide the industry's highest bandwidth density while leveraging the

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QSFP-DD Power Consumption: 400G Power Budget

The QSFP-DD optical modules proved responsible for the power consumption problem,

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400G QSFP-DD Transceiver: SR8 vs DR4 vs FR4 vs LR4 Guide

Choosing the wrong 400G transceiver module can significantly impact data center performance, leading to insufficient

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What Is QSFP-DD? Specs, Architecture, and 400G Use Cases

Monitoring: Ensure DOM/diagnostic telemetry for temperature, voltage, and optical power is supported and integrated

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400G QSFP-DD Cable and Transceiver Modules Data Sheet | FS

Product overview The FS® 400GBASE Quad Small Form-Factor Pluggable Double Density (QSFP-DD) portfolio offers customers a

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

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

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400G OSFP/QSFP-DD/QSFP112 Module Introduction and Selection

This article explores the technical characteristics, product lineup, and use cases of 400G OSFP/QSFP-DD/QSFP112

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QSFP-DD vs OSFP vs QSFP112: Which 400G Module Packaging

400G optical module packaging comparison: Choose QSFP-DD, OSFP, or QSFP112 for data center, AI, or HPC based on

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400G QSFP-DD vs OSFP: What is the Difference?

The power consumption of a 400G optical module is critical in determining its suitability for different

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

Regarding Packaging Questions: Q1: What is the difference between QSFP-DD and OSFP optical modules? A:

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400G QSFP-DD Cable and Transceiver Modules Data Sheet | FS

It is a cost-effective and lower power consumption solution for 400GBASE data center . The QDD-LR4-400G Module supports link

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Overview of 400G DR4, FR4, LR4, and SR8 QSFP-DD Optical

Similar to the DR4, FR4, and LR4 modules, the 400G SR8 is widely used in short-reach intra-data center applications. Conclusion

Contact Us

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