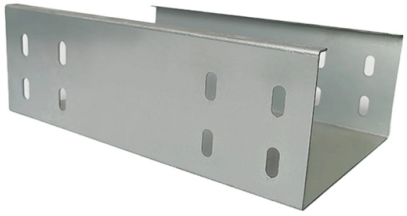
Description of each functional pin of the optical module



Overview

Complete QSFP28 100G pinout reference with detailed pin functions, descriptions, and logic types for network engineers and hardware designers.

Key Takeaways

Each pin in an optical module serves a specific role, including power supply, ground, data transmission, control, and monitoring functions. Power and Ground PinsGND (Ground): Serves as the common reference for all signals and power supplies within the module. All voltages are referenced to this potential, and it should be connected to the host board's signal common ground plane to ensure stable operation.

VccTX, VccRX, Vcc1: These pins provide power to the transmitter, receiver, and internal circuitry. They are applied concurrently and may be internally connected in any combination within the module. Each pin is rated for a maximum current of 1000 mA.

Data Transmission PinsTX+ / TX- (Transmit Differential Pair): Carry the electrical signals from the host to the transmitter optical sub-assembly (TOSA), which converts them into optical signals. RX+ / RX- (Receive Differential Pair): Carry the electrical signals from the receiver optical sub-assembly (ROSA) back to the host after optical-to-electrical conversion. Control and Monitoring PinsModSelL (Module Select): Allows the host to select or deselect the module for communication, often used in multi-module systems.

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Reset

L: Enables the host to reset the module, initializing internal circuits and clearing faults.

LP

Mode (Low Power Mode): Signals the module to enter a low-power state to reduce energy consumption when full operation is not required.

Int

L (Interrupt): Indicates an alarm or warning condition from the module to the host, such as temperature or optical power thresholds.

SC

L / SDA (I^2C Clock and Data): Two-wire serial interface for module management, allowing the host to read monitoring data (temperature, voltage, optical power) and configure module settings. Pull-up resistors to 3. 3V are required on the host side.

Optical Interface PinsTOSA (Transmitter Optical Sub-Assembly): Converts electrical signals from TX pins into modulated optical signals. Includes a laser diode, monitoring photodiode, and automatic power control circuit.

ROS

A (Receiver Optical Sub-Assembly): Converts incoming optical signals into electrical signals for the RX pins. Includes a photodetector and amplification circuitry.

Mechanical and Auxiliary Pins

Latches / Springs: Ensure secure mechanical connection to the host device and facilitate insertion/removal. Color-coded in some modules for easy identification. Module Presence Pin: Indicates to the host that a module is inserted and operational.

These pins collectively enable the optical module to perform optoelectronic conversion, power management, monitoring, and communication with the host system, ensuring reliable high-speed data transmission in fiber-optic networks.

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Article Content

QSFP28 100G Pinout Guide | Pin Functions & Descriptions

Complete QSFP28 100G pinout reference with detailed pin functions, descriptions, and logic types for network engineers and hardware designers.

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

The Key External Components of Optical Modules

Despite the variety in types and designs, these modules share a common structural framework. In this blog, we''ll explore the core structure of an optical transceiver, explaining the

Internal Structure of Optical Modules

Optical modules are key components in fiber optic communication systems, responsible for electro-optical conversion, meaning the conversion of electrical signals to optical signals or vice

Optical Module Working Principle | SFP Transceiver Technical Guide ...

A lesser-known but vital design feature is the SFP module''s gold finger (connector pins), which has varying lengths to ensure proper power-up sequence. The longest pins are for signal

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The function of the optical module is to carry out the photoelectric and electro-optic conversion. The transmitter converts the electrical signal into an optical signal, which is transmitted

Understanding Optical Modules: Working Principles, Structures, and ...

Explore the working principles, structures, and performance metrics of optical modules, essential components of optical fiber communication systems. Learn about key indicators such as

The Internal Components and Structure of The Optical Transceiver

This article will focus on the internals of the optical transceiver including the TOSA, ROSA and BOSA, and PCBA. Through this article, you will know the details of the components and

Why SFP Module Pinouts Matter More Than You Think

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Understanding SFP module pinouts is more than a technical exercise; it is the basis for reliable network performance. This comprehensive article will detail pin definitions, connector types,

Optical module

Optical modules typically have an electrical interface on the side that connects to the inside of the system and an optical interface on the side that connects to the outside world through a fiber optic

What Is an Optical Module and Its FAQs (V200)

What Is an Optical Module and Its FAQs (V200) Describes what an optical module is and FAQs, including the fundamentals, appearance and structure, key performance counters, common types,

What Is an Optical Module

An optical module is a device for converting electrical signals to optical signals and vice versa, widely used in telecommunications and data centers.

Optical module

An optical module is a typically hot-pluggable optical transceiver used in high-bandwidth data communications applications. Optical modules typically have an electrical interface on the side that

Optical module – A comprehensive exploration

The optical module is composed of optoelectronic devices, functional circuits, and optical interfaces. It mainly performs photoelectric and electro-optical conversion, that is, the transmitting

Optical module design resources | TI

Overview Description Related applications Integrated circuits and reference designs help you create a smaller and faster optical module design used in high-bandwidth data communication applications.

What Is an Optical Module and Its FAQs (V300)

Fundamentals of an Optical Module As an important part of fiber-optic communication, an optical module is a photoelectric converter which converts electrical signals into optical signals and

WHAT IS AN OPTICAL MODULE AND ITS FAQS (V200)

An optical module works at the physical layer of the OSI model and is one of the core components in the fiber communication system. It mainly consists of optoelectronic devices (optical transmitter and

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1.6Tb/s Twin-port XDR OSFP 2xFR4 1310nm 2km Optical Transceiver

Pin Function Definitions ... Notes: OSFP uses common ground (GND) for all signals and supply (power). All are common within the OSFP module and all module voltages are referenced

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