

### QSFP-100G-CWDM4L-S-OPC

Cisco® QSFP-100G-CWDM4L-S Compatible 100GBase-CWDM4 QSFP28 Transceiver (SMF, 1270nm to 1330nm, 500m, LC, DOM, Limited Temp 15C to 55C)

#### Features

- SFF-8636/ 8661/ 8679/ 8682 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Single-mode Fiber
- Integrated CWDM DFB TOSA (1271,1291,1311,1331nm) and PIN ROSA
- Supports 25.78125Gbps Data rate per wavelength
- Build in CDR on both TX and RX
- DDM function implemented
- Hot pluggable QSFP28 form factor
- Operating case temperature: 15 to 55C
- Power consumption: 3.5W
- Single +3.3V power supply
- RoHS6 Compliant



#### Applications:

- Ethernet over CWDM
- Access, Metro and Enterprise

#### Product Description

This Cisco® QSFP-100G-CWDM4L-S compatible QSFP28 transceiver provides 100GBase-CWDM4 throughput up to 500m over single-mode fiber (SMF) using wavelengths between 1270nm to 1330nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Cisco® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

OptioConnect's transceivers are RoHS compliant and lead-free.

### Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

### Absolute Maximum Ratings

| Parameter                            | Symbol           | Min. | Typ. | Max. | Unit |
|--------------------------------------|------------------|------|------|------|------|
| Maximum Supply Voltage               | V <sub>CC</sub>  | -0.5 |      | 3.6  | V    |
| Storage Temperature                  | T <sub>S</sub>   | -40  |      | 85   | °C   |
| Operating Case Temperature           | T <sub>C</sub>   | 15   | 25   | 55   | °C   |
| Relative Humidity (non-condensing)   | RH               | 5    |      | 85   | %    |
| Receiver Damage Threshold, each lane | P <sub>max</sub> | 3.5  |      |      | dBm  |

### Recommended Operating Conditions

| Parameter                  | Symbol          | Min.  | Typ.     | Max.  | Unit |
|----------------------------|-----------------|-------|----------|-------|------|
| Operating Case Temperature | T <sub>C</sub>  | 15    | 25       | 55    | °C   |
| Power Supply Voltage       | V <sub>CC</sub> | 3.135 | 3.3      | 3.465 | V    |
| Power Dissipation          | P <sub>D</sub>  |       |          | 3.5   | W    |
| Total Data Rate            |                 |       | 103.125  |       | Gbps |
| Data Rate, each lane       |                 |       | 25.78125 |       | Gbps |
| Transmission Distance      |                 |       |          | 0.5   | km   |

## Optical and Electrical Characteristics

| Parameter                                                 |     | Symbol          | Min.                               | Typ. | Max.   | Unit | Notes |
|-----------------------------------------------------------|-----|-----------------|------------------------------------|------|--------|------|-------|
| Transmitter                                               |     |                 |                                    |      |        |      |       |
| Bit Rate, each Lane                                       |     |                 | 25.78125±100ppm                    |      |        | Gbps |       |
| Line Wavelengths (Range)                                  | CH0 | λ0              | 1264.5                             |      | 1277.5 | nm   |       |
|                                                           | CH1 | λ1              | 1284.5                             |      | 1297.5 | nm   |       |
|                                                           | CH2 | λ2              | 1304.5                             |      | 1317.5 | nm   |       |
|                                                           | CH3 | λ3              | 1324.5                             |      | 1337.5 | nm   |       |
| Side Mode Suppression Ratio                               |     | SMSR            | 30                                 |      |        | dB   |       |
| Average Launch Power, each lane                           |     | P <sub>TX</sub> | -6.5                               |      | 2.5    | dBm  |       |
| Transmitter Optical Modulation Amplitude (OMA), each lane |     | OMA             | -4                                 |      | 2.5    | dBm  |       |
| Extinction Ratio                                          |     | ER              | 3.5                                |      |        | dB   |       |
| Average Launch Power of OFF Transmitter, each lane        |     |                 |                                    |      | -30    | dBm  |       |
| Transmitter Reflectance                                   |     |                 |                                    |      | -12    | dB   |       |
| Input Differential Impedance, each lane                   |     |                 |                                    | 100  |        | Ω    |       |
| Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}  |     |                 | {0.31, 0.4, 0.45, 0.34, 0.38, 0.4} |      |        |      | 1     |
| Receiver                                                  |     |                 |                                    |      |        |      |       |
| Bit Rate, each Lane                                       |     |                 | 25.78125±100ppm                    |      |        | Gbps |       |
| Line wavelengths (range)                                  | CH0 | λ0              | 1264.5                             |      | 1277.5 | nm   |       |
|                                                           | CH1 | λ1              | 1284.5                             |      | 1297.5 | nm   |       |
|                                                           | CH2 | λ2              | 1304.5                             |      | 1317.5 | nm   |       |
|                                                           | CH3 | λ3              | 1324.5                             |      | 1337.5 | nm   |       |
| Average receive power, each lane                          |     |                 | -11.5                              |      | 2.5    | dBm  |       |
| Unstressed Receiver Sensitivity (OMA), each lane          |     |                 |                                    |      | -10    | dBm  | 2     |

### Notes:

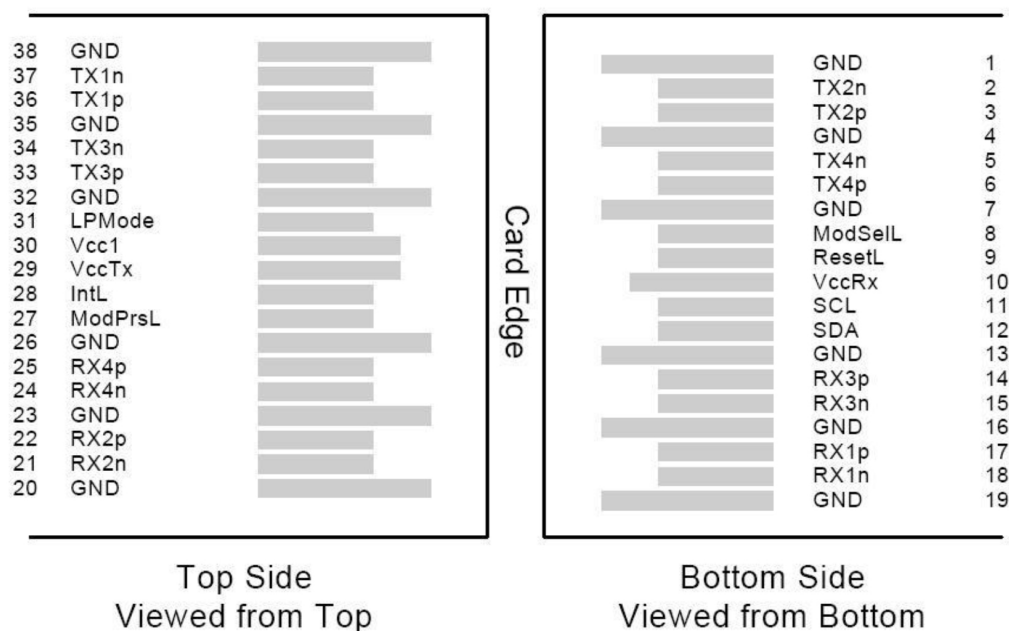
1. Eye mask hit ratio  $5 \times 10^{-5}$ .
2. Receiver sensitivity is informative. Measured with 25.78125Gb/s, PRBS31 NRZ, BER= $5 \times 10^{-5}$ .

## Pin Descriptions

| Pin | Symbol  | Name/Descriptions                    | Ref. |
|-----|---------|--------------------------------------|------|
| 1   | GND     | Ground                               | 1    |
| 2   | Tx2n    | Transmitter Inverted Data Input      |      |
| 3   | Tx2p    | Transmitter Non-Inverted Data output |      |
| 4   | GND     | Ground                               | 1    |
| 5   | Tx4n    | Transmitter Inverted Data Input      |      |
| 6   | Tx4p    | Transmitter Non-Inverted Data output |      |
| 7   | GND     | Ground                               | 1    |
| 8   | ModSelL | Module Select                        |      |
| 9   | ResetL  | Module Reset                         |      |
| 10  | VccRx   | +3.3V Power Supply Receiver          | 2    |
| 11  | SCL     | 2-Wire Serial Interface Clock        | 1    |
| 12  | SDA     | 2-Wire Serial Interface Data         |      |
| 13  | GND     | Ground                               |      |
| 14  | Rx3p    | Receiver Non-Inverted Data output    |      |
| 15  | Rx3n    | Receiver Inverted Data output        |      |
| 16  | GND     | Ground                               | 1    |
| 17  | Rx1p    | Receiver Non-Inverted Data output    |      |
| 18  | Rx1n    | Receiver Inverted Data output        |      |
| 19  | GND     | Ground                               | 1    |
| 20  | GND     | Ground                               | 1    |
| 21  | Rx2n    | Receiver Inverted Data output        |      |
| 22  | Rx2p    | Receiver Non-Inverted Data output    |      |
| 23  | GND     | Ground                               | 1    |
| 24  | Rx4n    | Receiver Inverted Data output        | 1    |
| 25  | Rx4p    | Receiver non-Inverted Data output    |      |
| 26  | GND     | Ground                               | 1    |
| 27  | ModPrsL | Module Present                       |      |
| 28  | IntL    | Interrupt                            |      |
| 29  | VccTx   | +3.3V Power Supply Transmitter       | 2    |
| 30  | VccI    | +3.3V Power Supply                   | 2    |
| 31  | LPMode  | Low Power Mode                       |      |
| 32  | GND     | Ground                               | 1    |
| 33  | Tx3p    | Transmitter Non-Inverted Data input  |      |
| 34  | Tx3n    | Transmitter Inverted Data output     |      |
| 35  | GND     | Ground                               | 1    |
| 36  | Tx1p    | Transmitter Non-Inverted Data input  |      |
| 37  | Tx1n    | Transmitter Inverted Data output     |      |
| 38  | GND     | Ground                               | 1    |

**Notes:**

1. GND is the symbol for signal and supply (power) common for QSPF28 modules. All are common within the QSPF28 module and all module voltages are referenced to this potential unless otherwise noted. Connected these directly to the host board signal common ground plane.
2. VccRx, Vcc1 and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. VccRx, Vcc1 and VccTx may be internally connected within the QSPF28 transceiver module in any combination. The connector pins are each rated for a maximum current of 1000mA.

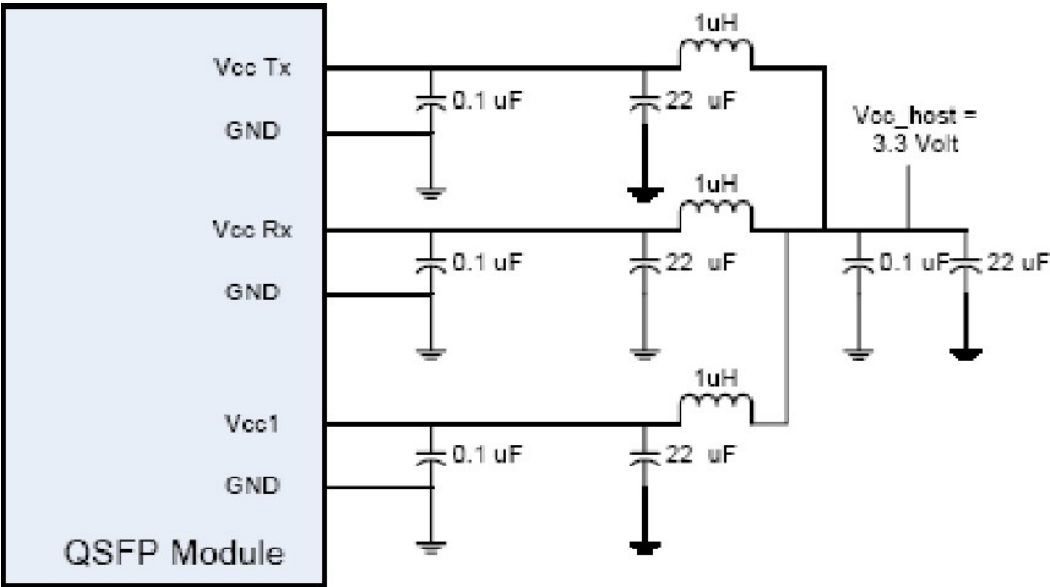
**Electrical Pin-out Details****Digital Diagnostic Functions**

| Parameter                             | Symbol    | Min. | Typ. | Max. | Unit | Notes |
|---------------------------------------|-----------|------|------|------|------|-------|
| Temperature monitor absolute error    | DMI_Temp  | -3   |      | 3    | °C   | 1     |
| Supply voltage monitor absolute error | DMI_Vcc   | -3%  |      | 3%   | V    | 2     |
| Bias current monitor absolute error   | DMI_Ibias | -10% |      | 10%  | mA   |       |
| Laser power monitor absolute error    | DMI_Tx    | -3   |      | 3    | dB   |       |
| RX power monitor absolute error       | DMI_Rx    | -3   |      | 3    | dB   |       |

**Notes:**

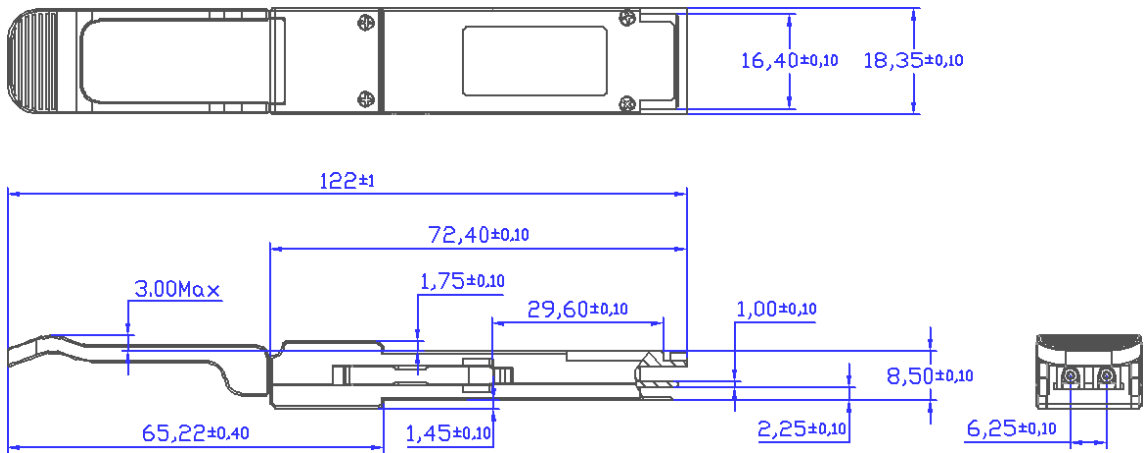
1. Over operating temperature
2. Over operating voltage

Recommended Interface Circuit



Mechanical Specifications

Measurement unit: mm





## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

#### **Who We Are**

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

#### **What We Do**

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

#### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

#### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

#### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

#### **Let's Connect**

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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