



Description

The OptiWorks 100Gbps CWDM4 transceiver is designed for use in 100G Ethernet links for up to 10km reach over duplex single mode fiber. The transceiver is compliant to the QSFP28 MSA, CWDM4 MSA and IEEE 802.3bm. Transceiver monitor, control and digital diagnostics is provided via I2C interface as defined in QSFP28 MSA.

Note: 100G F/W,M-LD

Applications

- 100GbE Data Center Switching and Routing interconnect
- Client interface connectivity for Routing and Transport Networks
- 100GBASE Ethernet Links
- Local Area Network (LAN) and Wide Area Network (WAN)

Key Features

- Hot pluggable QSFP28 form factor
- Two-wire common management interface (SFF-8636 MSA)
- CAUI-4 compliant Electrical interface (4 x 25.78125 Gbps)
- Transmission distance up to 10km
- Low power consumption: <3.5W
- Commercial temperature operating up to 70°C
- Duplex LC receptacle for Optical connectivity
- Pull tab based latching mechanism (MSA Compliant Purple color)
- Remote firmware upgrade capability using I2C interface
- Provides capability to place CDRs in bypass mode for 40G operation
- Programmable output de-emphasis and input CTLE



Absolute Maximum Ratings

| | Min. | Max. |
|-------------------------------------|---------|-------|
| Storage Temperature | -40°C | +85°C |
| Operating Case Temperature | 0°C | +70°C |
| Relative Humidity (Non-condensing) | 0% | 85% |
| Supply Voltage | -0.5V | +3.6V |
| Receiver Damage Threshold, Per Lane | +3.5dBm | |

Electrical Characteristics

| | Min. | Typ. | Max. |
|---|--------|-------|--------|
| Supply Voltage | 3.135V | | 3.465V |
| Supply Current (@3.3V) | | | 1.09A |
| Module Total Power | | | 3.5W |
| Programmable Differential Data Output Per Lane (mVppd) ¹ | 300mV | 800mV | 930mV |
| Programmable Output De-emphasis ² | 0dB | | 7.5dB |
| Data Output Rise/ Fall Time (20/80%) | | | 20psec |
| Differential Data Input Per Lane (mVppd) | 200mV | | 1000mV |
| Programmable CTLE Peaking ³ | 1dB | | 10dB |

Note 1: Default factory setting is 800 mV
 Note 2: Default factory setting is 0 dB
 Note 3: Default factory setting is 1 dB

Optical Transmit & Receive Characteristics

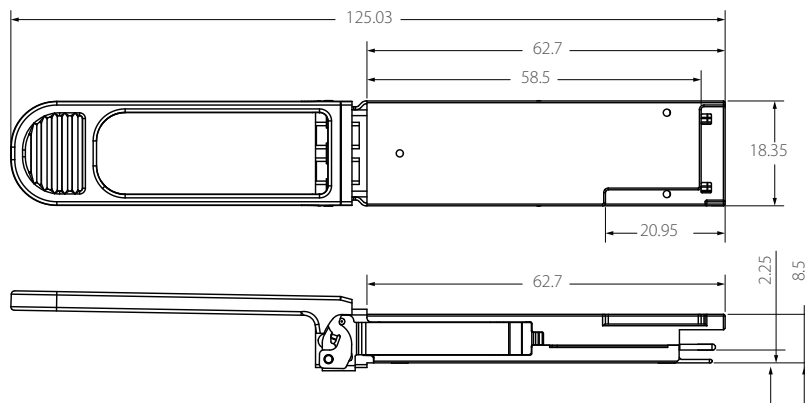
| | Value |
|---|---|
| Signaling speed, each lane | 25.78125 ± 100 ppm GBd |
| Center wavelength range, each Lane | 1264.5 to 1277.5/ 1284.5 to 1297.5/ 1304.5 to 1317.5/ 1324.5 to 1337.5 nm |
| Side-mode suppression ration (SMSR), min | 30.0 dB |
| Total average launch power (max) | 8.5 dBm |
| Average launch power, each lane (max) | 2.5 dBm |
| Average launch power, each lane (min) | -6.5 dBm |
| Optical Modulation Amplitude (OMA), each lane (max) | 2.5 dBm |
| Optical Modulation Amplitude (OMA), each lane (min) | -4.0 dBm |
| Transmitter and dispersion penalty (TDP), each lane (max) | 3.0 dB |
| Launch power in OMA – TDP (min) | -5.0 dBm |
| Average launch power in OFF transmitter, each lane (max) | -30.0 dBm |
| Extinction ratio (min) | 3.5 dB |
| Transmitter and Dispersion Eye Closure (TDEC, max) | 3 dB |
| Vertical Eye Closure Penalty (VECP, max) | 3.5 dB |
| Tx Power Monitor Accuracy | ±1.5 dB |
| Transmitter reflectance (max) | -12.0 dB |
| Optical return loss tolerance (max) | 20.0 dB |
| Receiver damage threshold, each lane (min) | 3.5 dBm |
| Average receive power, each lane (max) | 2.5 dBm |
| Average receive power, each lane (min) | -12.8 dBm |
| Receive power, each lane (OMA) (max) | 2.5 dBm |
| Receiver sensitivity (OMA), each lane (max) at 2.1 x 10 ⁻⁵ BER | -11.3 dBm |
| Stressed receiver sensitivity (OMA), each lane (max) | -8.9 dBm |
| Rx Power Monitor Accuracy | ±1.5 dB |
| Receiver reflectance (max) | -26.0 dB |

FEC Requirements

The OptiWorks 100Gbps CWDM4 Optical link is specified to operate at a bit error ratio (BER) of 2.1×10^{-5} .

The host system is required to enable RS FEC in accordance with Clause 91 of IEEE 802.3bj.

Dimensions



Unit: mm

References

- SFF-8665, Specification for QSFP+ 28 Gb/s 4X Pluggable Transceiver Solution (QSFP28), Rev 1.9, June 29 2015
- SFF-8636, Specification for Management Interface for Cabled Environments, Rev2.7, January 26 2016
- SFF-8661, Specification for QSFP+ 4X Pluggable Module, Rev 2.3, September 2014
- SFF-8679, Specification for QSFP+ 4X Base Electrical Specification, Rev 1.7, August 2014
- IEEE 802.3ba Clause 87, Physical Medium Dependent (PMD) sublayer and medium, type 40GBASE-LR4
- 100G CWDM4 MSA Technical Specifications, 2km optical specifications, Rev1.1, November 23 2015

OptiWorks Headquarters

OptiWorks, Inc.

47211 Bayside Parkway, Fremont, CA 94538, USA
Phone +1 510 438 4560
sales@optiworks.com
www.optiworks.com

OptiWorks (Kunshan) Co., Ltd.

No. 168, Nanhe Rd., Kunshan Economic & Technology
Development Zone, Kunshan City, Jiangsu 215300, China
Phone +86 512 5763 0863
contact@optiworks.com

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OptiWorks (Shanghai) Co., Ltd.

Room 810-811, Changchun Business Building,
No. 953 Qinzhou North Road, Shanghai 200233, China
Phone +86 021 6485 8787
contact@optiworks.com