

400G QSFP-DD FR4 2km

400G Eth, QSFP-DD, FR4, 2km, LC, 1310nm, SM

CDD-4E-FR-CDFC02

OVERVIEW

The CDD-4E-FR-CDFC02 is a single mode QSFP-DD transceiver designed for 400 Gigabit Ethernet applications. It uses cooled EML laser transmitters and PIN photodiode receivers to support optical transmission distances up to 2km over single mode fiber.

The module supports 4 CWDM optical lanes, each operating at 106.25Gbps, and converts 8 channels of 50Gbps PAM4 electrical signals into 4 CWDM optical signals for transmission. It complies with QSFP-DD MSA, 100G Lambda MSA 400G FR4 specifications, and IEEE 802.3bs standards.

The transceiver operates with a duplex LC connector interface and provides high-speed electrical connectivity through an 8x53.125Gbps (400GAUI-8) interface.

The module operates from a single 3.3V power supply with a maximum power consumption of 12W and is available in commercial operating temperature range (0°C to +70°C). It is suitable for 400G Ethernet applications and medium reach optical communication links.

KEY SPECIFICATIONS

- 4 CWDM lanes MUX/DEMUX design Data rate 106.25Gbps per lane
- 100G Lambda MSA 400G FR4 Specification Compliant
- Up to 2km transmission on single mode fiber
- Cooled EML Laser with PIN Receiver
- 8x53.125Gbps electrical interface (400GAUI-8)
- LC Connector
- Single +3.3V power supply
- Maximum power consumption 12W
- Temp operating conditions: Commercial 0°C to +70°C
- Compliant with QSFP-DD MSA Type 2

TECHNICAL DATA

Parameter	Value	Parameter	Value
Form Factor	QSFP-DD	Transmitter Data:	
Transmission Media	SM (LC)	Tx Power	-3.3 to +3.5dBm ³⁾
Typical Reach	2km	Tx Amplitude, OMA	-0.3 to 3.7dBm
Nominal Wavelength	1271nm 1291nm 1311nm 1331nm	Tx Wavelength	1264.5-1277.5nm 1284.5-1297.5nm 1304.5-1317.5nm 1324.5-1337.5nm
Data Rate Support	400Gbps ¹⁾ 53.125GBd ²⁾	Extinction Ratio	≥ 3.5dB
Protocol Support	400G Ethernet	Receiver Data:	
Power Consumption	<12W	Rx Sensitivity	-7.3dBm ^{3) 4)}
Operating Temperature	0°C to 70°C	Rx Sensitivity, OMA	-4.6dBm ⁴⁾
Storage Temperature	-40°C to 85°C	Rx Overload, max	3.5dBm ^{3) 4)}
DDM	Yes	Rx Wavelength	1264.5-1277.5nm 1284.5-1297.5nm 1304.5-1317.5nm 1324.5-1337.5nm
¹⁾ Aggregated line rate 400GbE		LOS Assert	-20dBm
²⁾ Line baud rate		LOS De-Assert	-8.6dBm
³⁾ Average power per lane		LOS Hysteresis	0.5dB
⁴⁾ Per 53.125 GBd lane. Specified @BER 2.4E-4			

Safety/Regulatory Compliance

- Class 1 laser safe
- RoHS Compliance

ABSOLUTE MAX RATING

Exceeding these limits can cause permanent damage to the transceiver

Parameter	Value	Parameter	Value
Supply Voltage	-0.5V to 3.6V	Relative Humidity	85%
Storage Temp	-40°C to 85°C	Max Rx Optical Power	+4.5dBm per lane

ORDERING INFORMATION

Ordering Code	Description
CDD-4E-FR-CDFC02	400G QSFP-DD, FR4, 2km, LC, 1310nm, SM, 0 to 70C

All information contained in this document is subject to change without prior notice at the sole discretion of CloudPhotonix. The company warrants the performance of its products solely in accordance with the current published specifications and applicable warranty terms. CloudPhotonix makes no other warranties, express or implied, including but not limited to any implied warranties of merchantability, fitness for a particular purpose, or non-infringement of third-party rights. For the most current certification and compliance information, please contact CloudPhotonix directly.

CONTACT INFORMATION

Email: sales@cloudphotonix.com
Phone: +91-1203116709, +91-1203116718
CloudPhotonix India Pvt. Ltd.
Block A-51, Sector 67
Noida – 201301, Uttar Pradesh, India