

400G QSFP-DD DR4 500m

400G Eth, QSFP-DD, DR4, 500m, MPO-12 APC, 1310nm, SM

CDD-4E-DR-CDFK02

OVERVIEW

The CDD-4E-DR-CDFK02 is a single mode QSFP-DD transceiver designed for 400 Gigabit Ethernet applications. It uses 1310nm optical transmitters and PIN photodiode receivers to support optical transmission distances up to 500m over single mode fiber with FEC.

The module supports 4 parallel optical lanes, each operating at 106.25Gbps PAM4 signalling, and interfaces electrically through 8 channels of 53.125Gbps (400GAUI-8). It complies with IEEE 802.3bs 400GBASE-DR4, QSFP-DD MSA, and CMIS Rev 5.2 specifications.

The transceiver uses an MPO-12 APC connector interface and provides digital diagnostics monitoring through a two-wire serial interface, enabling real-time monitoring of parameters such as temperature, supply voltage, transmit optical power, receive optical power, and bias current.

The module operates from a single 3.3V power supply with a maximum power consumption of 10W and is available in commercial operating temperature range (0°C to +70°C). It is suitable for 400G Ethernet, InfiniBand interconnects, and data center networking applications.

KEY SPECIFICATIONS

- Four Parallel 1310nm Optical Lanes
- Up to 500m Transmission on Single Mode Fiber (SMF) with FEC
- 8*53.125Gb/s Electrical interface (400GAUI-8)
- Data Rate 4*106.25Gbps (PAM4) Optical interface
- Type 2 housing with MPO-12 APC connector
- Maximum power consumption 10W
- Operating Temperature: Commercial range (0°C to +70°C)
- Compliant with CMIS 5.2

TECHNICAL DATA

Parameter	Value	Parameter	Value
Form Factor	QSFP-DD	Transmitter Data:	
Transmission Media	SM (MPO)	Tx Power	-2.9 to +4dBm ³⁾
Typical Reach	500m	Tx Amplitude, OMA	-0.8 to 4.2dBm
Nominal Wavelength	1310nm	Tx Wavelength	1304.5 - 1317.5nm
Data Rate Support	400Gbps ¹⁾ 53.125Gbps (PAM4) ²⁾	Extinction Ratio	≥ 3.5Db
Protocol Support	400G Ethernet	Receiver Data:	
Power Consumption	<10W	Rx Sensitivity	-5.9dBm ³⁾⁴⁾
Operating Temperature	0°C to 70°C	Rx Sensitivity, OMA	-4.4dBm ³⁾⁴⁾
Storage Temperature	-40°C to 85°C	Rx Overload, max	4dBm ³⁾
DDM	Yes	Rx Wavelength	1304.5 - 1317.5nm
		LOS Assert	-7.5dBm
		LOS De-Assert	-6.5dBm
		LOS Hysteresis	0.5

¹⁾ Aggregated line rate 400GbE

²⁾ Line baud rate

³⁾ Average power, per lane

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	+5dBm per lane

ORDERING INFORMATION

Ordering Code	Description
CDD-4E-DR-CDFK02	400G QSFP-DD, DR4, 500m, MPO-12 APC, 1310nm, SM, 0 to 70C

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