400G QSFP-DD DR4+ 2km

400G Eth, QSFP-DD, DR4+, 2km, MPO-12 APC, 1310nm, SM

CDD-4E-DP-CDFK02

OVERVIEW

The CDD-4E-DP-CDFK02 is a QSFP-DD optical transceiver designed for 400 Gigabit Ethernet applications over single-mode fiber (SMF). It supports the 400GBASE-DR4 standard with extended reach of up to 2km, making it suitable for data center interconnects and enterprise networking deployments.

The module converts eight 53.125Gb/s PAM4 electrical lanes (400GAUI-8) into four parallel 1310nm optical lanes through an MPO-12 APC optical interface. Designed in a QSFP-DD Type 2 form factor, it delivers reliable high-speed optical transmission while supporting host-side FEC for extended-reach operation.

The transceiver supports QSFP-DD CMIS Rev. 5.2 management with Digital Diagnostic Monitoring (DDM) for real-time monitoring of key operating parameters. Operating from a single 3.3V power supply with a maximum power consumption of 10W, it supports a commercial operating temperature range of 0°C to +70°C.

KEY SPECIFICATIONS

- 400G QSFP-DD optical transceiver compliant with IEEE 802.3bs 400GBASE-DR4
- Supports transmission up to 2km over single-mode fiber (SMF) with host-side FEC
- 8 × 53.125Gb/s PAM4 electrical interface (400GAUI-8) with 4 × 106.25Gb/s optical lanes
- 1310nm parallel optical interface with MPO-12 APC connector
- Compliant with QSFP-DD MSA HW Rev 5.1 and CMIS Rev. 5.2
- Maximum power consumption: 10W
- Operating temperature: Commercial (0°C to +70°C)

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TECHNICAL DATA

Parameter	Value	Parameter	Value
Form Factor	QSFP-DD	**Transmitter Data:**	
Transmission Media	SM (MPO)	Tx Power	-2 to +4dBm[3]
Typical Reach	500m	Tx Power, 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	400GbE	**Receiver Data:**	
Power Consumption	<10W	Rx Power, min	-6.5dBm[3]
Operating Temperature	0°C to 70°C	Rx Sensitivity, OMA	-4.4dBm[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	0.5dB

[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

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ABSOLUTE MAX RATING

Exceeding these limits can cause permanent damage to the transceiver

Parameter	Value	Parameter	Value
Supply Voltage	-0.5V to 3.63V	Relative Humidity	85%
Storage Temp	-40°C to 85°C	Max Rx Optical Power	+5dBm per lane

ORDERING INFORMATION

Ordering Code	Description
CDD-4E-DP-CDFK02	400G QSFP-DD, DR4+, 2km, MPO-12 APC, 1310nm, SM, 0 to 70C

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