100G QSFP28 LR1 10km

100G Eth, QSFP28, LR1, 10km, LC, 1311nm, SM

CPQ-CE-1LR-CDF02

OVERVIEW

The CPQ-CE-1LR-CDF02 is a QSFP28 100GBASE-LR1 optical transceiver designed for 100 Gigabit Ethernet applications over single-mode fiber (SMF), supporting transmission distances of up to 10 km. It uses PAM4 modulation at 53.125 GBd and converts 4×25G CAUI-4 electrical lanes into a single 100G optical lane at 1311 nm, with the reverse conversion performed on the receive side.

The module incorporates a 1311 nm EML transmitter and a PIN photodiode receiver for reliable long-reach optical communication. It supports KP4 Forward Error Correction (FEC) termination, complies with 100G Lambda MSA 100G-LR1 specifications, and provides Digital Diagnostics Monitoring (DDM) for real-time monitoring of key operating parameters. The transceiver operates from a 3.3 V supply, consumes up to 3.5 W, supports an operating case temperature range of 0°C to +70°C.

KEY SPECIFICATIONS

- 100G QSFP28 optical transceiver with duplex LC connector
- Compliant with 100G Lambda MSA 100G-LR1
- Single-lambda 1311nm EML transmitter with PIN receiver
- 4-lane 25G electrical interface (CAUI-4) with 53.125 GBd PAM4 optical signaling
- KP4 FEC termination inside the module
- Maximum power consumption: 3.5W
- Operating case temperature range: 0°C to +70°C
- Supports Digital Diagnostics Monitoring (DDM) via two-wire interface
- QSFP28 MSA compliant (SFF-8636), SFF-8679

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TECHNICAL DATA

Parameter	Value	Parameter	Value
Form Factor	QSFP28	**Transmitter Data:**	
Transmission Media	SM (LC)	Tx Power	-1.4 to +4.5dBm[3)]
Typical Reach	10km	Tx Power, OMA	+4.7dBm
Nominal Wavelength	1311nm	Tx Wavelength	1304.5-1317.5nm
Data Rate Support	103.125Gbps[1)] 53.125GBd [2)]	Extinction Ratio	≥ 3.5dB
Protocol Support	100GbE	**Receiver Data:**	
Power Consumption	<3.5W	Rx Power, min	-7.7dBm[3)]
Operating Temperature	0°C to 70°C	Rx Sensitivity, OMA	-6.1dBm [4)]
Storage Temperature	-40°C to 85°C	Rx Overload, max	+4.5dBm[3)]
DDM	Yes	Rx Wavelength	1304.5-1317.5nm
		LOS Assert	-26dBm
		LOS De-assert	-10dBm
		LOS Hysteresis	0.5dB

[1)] Aggregated line rate 100GbE
[2)] Baud rate
[3)] Average Power, per lane
[4)] For PRBS 2^{31}-1, 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 4.0V	Relative Humidity	85%
Storage Temp	-40°C to 85°C	Max Rx Optical Power	+5.5dBm

ORDERING INFORMATION

Ordering Code	Description
CPQ-CE-1LR-CDF02	100G QSFP28, LR1, 10km, LC, 1311nm, SM, 0 to 70C

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