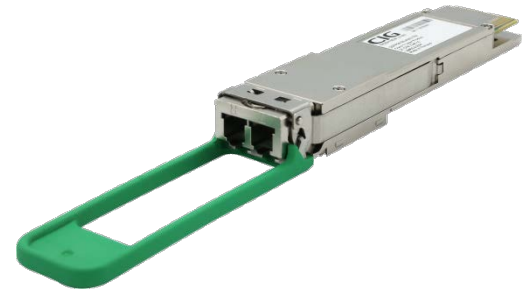


TRD5H10ENF-LF000

400GE QSFP56-DD FR4 2 km Transceiver



Description

CIG's 400G QSFP56-DD FR4 transceiver module (TRD5H10ENF) enables high 400 GbE port densities and high throughput capacity with its compact size (W x L x H): 18.4 x 92.9 x 8.5 (mm)) and low power consumption (12W). These modules can be used in wide range of network applications, including high capacity Ethernet switches and IP routers. A maximum transmission distance of up to 2km over single mode fiber is realized using an EA-DFB-based 4-level pulse amplitude modulation (PAM4) at 53.125 Gbaud optical transmitter and PIN-PD based optical receiver operating on the CWDM wavelength grid. QSFP-DD ports is mechanically and electrically compatible with QSFP28 and QSFP+. The module is hot pluggable when mated to a compliant 76-pin connector that delivers a supply voltage of 3.3 V.

Features

- 400 Gigabit Ethernet (425 Gbit/s) Transceiver
- Aggregate data rate of 425 Gbit/s
- Optical Interface: Compliant to 53.125 GBd PAM4 x 4 wavelength 400G-FR4 [1]
- Electrical Interface: Compliant to 26.5625 GBd PAM4 x 8 lane 400GAUI-8 [2]
- Reach: Up to 2 km over single mode fiber
- Form Factor: Compliant to QSFP-DD MSA hardware specification [3]
- Optical Transmitter: CWDM EA-DFB
- Optical Receiver: PIN photodetector
- Power consumption: 12 W max
- Operating case temperature: 0 to 70 deg C
- Size (W x L x H): 18.4 mm x 92.9 mm x 8.5 mm (not including pull tab)
- Hot Z-Pluggable to 76-pad QSFP-DD electrical connector
- Latching mechanism: Pull tab
- Management Interface: Two-wire common management interface [4][5]
- Environment: RoHS6 compliant

References

- [1] 100G Lambda MSA - "400G-FR4 Technical Specification Rev 2.0"
- [2] IEEE - "802.3bs-2017"
- [3] QSFPDD MSA - "QSFP-DD Hardware Specification for QSFP DOUBLE DENSITY 8X PLUGGABLE TRANSCEIVE Rev. 4.0"
- [4] QSFP-DD Management Interface Specification Rev 4.0
- [5] SNIA - "SFF-8636 Rev 2.5"

Operating Environments

Table 1 Operating Environment

No.	Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
1	Supply Voltage	Vcc	3.135	3.3	3.465	V	
2	Power Consumption	P	-	-	12	W	
3	Case Temperature	Tc	0	25	70	°C	

Optical Characteristics

Table 2 Optical Characteristics

No.	Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
1	Channel data rate			106.25		Gbit/s	
2	Signaling rate, each lane			53.125		GBd	
3	Transmitter Center Wavelength						
	Lane 0		1264.5		1277.5	nm	
	Lane 1		1284.5		1297.5	nm	
	Lane 2		1304.5		1317.5	nm	
	Lane 3		1324.5		1337.5	nm	
4	Total average launch power				9.3	dBm	
5	Optical Output Power (OMA), each lane		-0.3		+3.7	dBm	
6	Launch power in OMAouter minus TDECQ, each lane		-1.7/-1.6			dBm	ER≥4.5dB/ER<4.5dB
7	Transmitter and dispersion eye closure for PAM4, each lane	TDECQ			3.4	dB	
8	Extinction Ratio	ER	3.5			dB	
9	Average receive power, each lane		-7.3		3.5	dBm	
10	Receive power (OMAouter), each lane				3.7	dBm	
11	Stressed eye closure for PAM4, lane under test	SECQ		0.9 to 3.4		dB	
12	OMAouter of each aggressor lane			1.5		dBm	

EMI Compliance

This product meets Electromagnetic Interference (EMI) specifications of following standards.

- 1 FCC Part 15, Subpart B (Class B)
- 2 EN55032 (Class B)

Laser Safety

Certified as a Class 1 laser product per international standard IEC 60825-1:2014 3rd edition

Complies with 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50, and IEC 60825-1 as Class 1 and with FDA 21 CFR as Class I laser product.

For more Information

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