

## TRQ5E13ENF-LF000

### 100GE QSFP28 CWDM4 2 km Transceiver



#### Description

CIG's 100GbE QSFP28 CWDM4 transceiver module (TRQ5E13ENF-LF) enables dense port count and high throughput capacity with its compact size (W x L x H = 18.4 x 72 x 8.5 (mm)) and low power consumption (3.5 W). These modules can be used in a 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 DFB-based optical transmitter and PIN-PD based optical receiver operating on the CWDM wavelength grid. Clock and data recovery ICs in transmit and receive paths ensure robust link performance over all operating conditions. The module is hot pluggable when mated to a compliant 38-pin connector that delivers a supply voltage of 3.3 V.

#### Features

- 100 Gigabit Ethernet (100GbE) 100GBASE-LR4 Transceiver
- Aggregate Data Rate: 103.125 Gbit/s
- Optical Interface: Compliant to CWDM4 MSA [1]
- Electrical Interface: Compliant to CAUI-4 [2]
- Reach: Up to 2km over single mode fiber
- Form Factor: Compliant to QSFP+ 28Gb/s 4X Pluggable Transceiver Specification (SFF-8665) [3]
- Optical Transmitter: CWDM DFB
- Optical Receiver: PIN photodetector
- Power Consumption: 3.5 W max
- Operating Case Temperature: 0 to 70 degC
- Size (W x L x H): 18.4 mm x 72 mm x 8.5 mm
- Hot Z-Pluggable to 38-pin electrical connector
- Latching Mechanism: Pull tab
- Management Interface: Two-wire management interface protocol (SFF-8636) [4]
- Environmental: RoHS6 compliant

#### References

- [1] CWDM4 MSA Technical Specification Rev 1.1, November 23, 2015
- [2] IEEE Std 802.3bm-2015
- [3] SFF-8665 Rev 1.9 June 29, 2015
- [4] SFF-8636 Rev 2.9 April 21, 2017

## 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	-	-	3.5	W	
3	Case Temperature	Tc	0	-	70	°C	

## Optical Characteristics

**Table 2 Optical Characteristics**

No.	Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
1	Channel data rate			25.78125		Gbit/s	
2	Aggregate data rate			103.125		Gbit/s	IEEE 802.3ba
3	Transmitter Center Wavelength						
	Lane 0		1264.5		1277.5	nm	
	Lane 1		1284.5		1297.5		
	Lane 2		1304.5		1317.5		
	Lane 3		1324.5		1337.5		
4	Optical Output Power (OMA), each lane	OMA	-4		+2.5	dBm	
5	Average Optical Output Power of OFF Transmitter	P <sub>off</sub>			-30	dBm	
6	Extinction Ratio	ER	3.5			dB	
7	Receiver Sensitivity (OMA), each lane				-10	dBm	
8	Stressed Receiver Sensitivity (OMA), each lane	SRS			-7.3	dBm	
9	Average Receive Power (OMA), each lane		-11.5		+2.5	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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