

TITLE 100G QSFP28 LR4 Transceivers	DOC No. RFD-20220926004-002	
	REVISION : 02	AUTHORIZED BY : Hawk Rong
	DATE : 2024.05.14	CLASSIFICATION : Optical Transceiver

1. PRODUCT FEATURES

- 4 Independent LAN-WDM channels
- Low Power Consumption <4W
- Wide Operating Temperature(0°C~70°C)
- Maximum link length of 10km via Single Mode Fiber (SMF)
- Digital diagnostic monitor interface

2. PRODUCT APPLICATIONS

- 100GBASE LR4 100G Ethernet
- High performance computing, data com and sever data links
- High speed access

3. PRODUCT DESCRIPTION

3.1 PRODUCT NAME

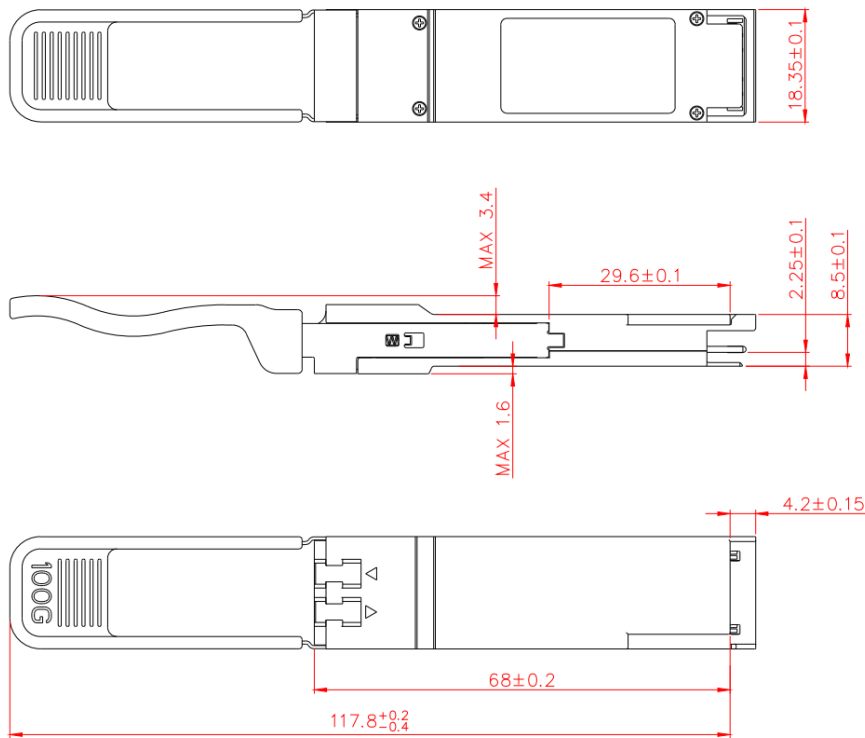
100G QSFP28 LR4 Transceiver

JPC P/N	Laser(nm)	Distance	Fiber Type	Power (dBm)	Sen. (dBm)	Connector	Tem.	Tray
P58**0ERCU10-1	LAN WDM	10km	SMF	-4.3~4.5	-8.6	LC	C	4pcs
P58**2ERCU10-1	LAN WDM	10km	SMF	-4.3~4.5	-8.6	LC	C	2pcs

Note-1 : ** Indicates the customer code.

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3.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKING



Unit is millimeter. All dimensions are ± 0.1 mm unless otherwise specified

4. Absolute Maximum Ratings & Recommended Operating Conditions

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V _{CC3}	-0.3	-	+3.6	V	
Storage Temperature	T _s	-40	-	+85	°C	
Operating Humidity	RH	+0	-	+85	%	

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Recommended Operating Conditions and Power Supply Requirements

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T _C	0	-	+70	°C	
Power Supply Voltage	V _{cc}	3.135	3.3	3.465	V	
Signaling Rate each Channel			25.78125		Gbps	
Supply Noise Rejection		-	-	100	mV	
Receiver Differential Data Output			100		Ohm	
Operating Distance	D	-	-	10	km	
Power Consumption				4	W	
Supply Current	I _{cc}			1250	mA	

Electrical Interface Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Transmitter						
Signaling rate, each lane (range)	GBb		25.78125		GBb	
Center Wavelength	λ0	1294.53		1296.59	nm	
	λ1	1299.02		1301.09	nm	
	λ2	1303.54		1305.63	nm	
	λ3	1308.09		1310.19	nm	
Side-mode suppression ratio	SMSR	30			dB	
Total average launch power				10.5	dBm	

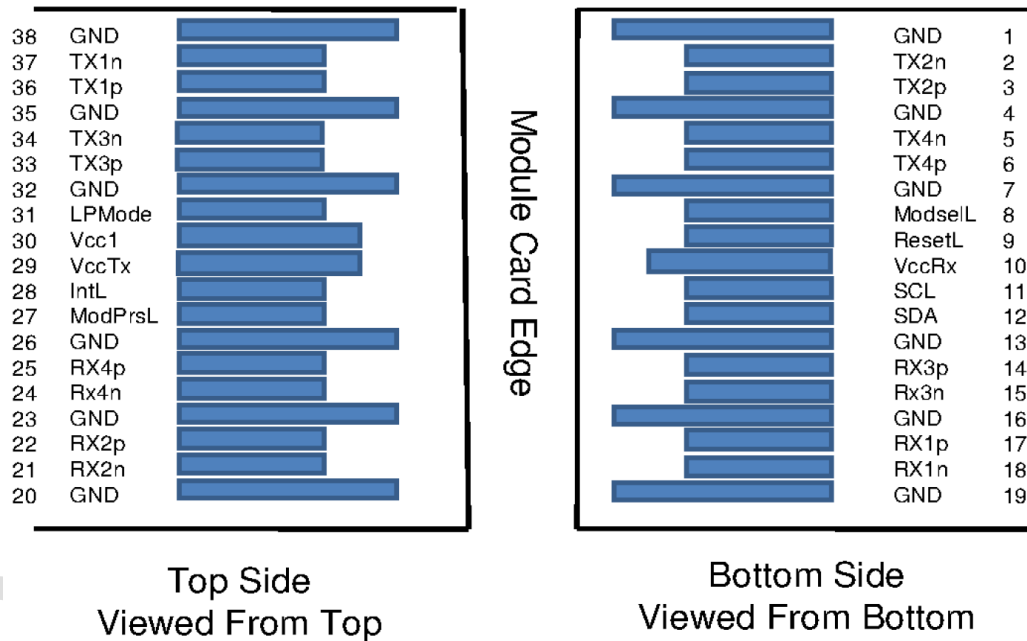
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Average launch power, each lane	Pf	-4.3		4.5	dBm	
Optical Modulation Amplitude (OMA), each lane	TxOMA	-1.3		4.5	dBm	
Transmitter and Dispersion Penalty	TDP			2.2	dB	
Average launch power of OFF transmitter, each lane				-30	dBm	
Extinction ratio	ER	4			dB	
Optical return loss tolerance				20	dB	
Transmitter reflectance				-12	dB	
Receiver						
Signaling rate, each lane (range)	GBb		25.78125		GBb	
Center Wavelength	λ_0	1294.53		1296.59	nm	
	λ_1	1299.02		1301.09	nm	
	λ_2	1303.54		1305.63	nm	
	λ_3	1308.09		1310.19	nm	
Damage threshold		5.5			dBm	
Average power at receiver input, each lane		-10.6		4.5	dBm	
Receive power, each lane (OMA)				4.5	dBm	
Return Loss	RL	-26			dB	
Receiver sensitivity (OMA)	S _{OMA}			-8.6	dBm	BER@10e-12
LOS Assert	LOS _A	-24			dBm	
LOS De-Assert	LOS _D			-10.8	dBm	
LOS Hysteresis		0.5			dB	

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5. Applications Note:

Pin Definitions



Pin Function Definitions for QSFP28

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	

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4		GND	Ground	
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	
20		GND	Ground	
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	
30		Vcc1	+3.3 V Power Supply	
31	LVTTL-I	LPMode	Low Power Mode	
32		GND	Ground	
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	

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35		GND	Ground	
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	

6. Digital Diagnostic Monitor Accuracy

The following characteristics are defined over recommended operating conditions

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	deg.C
Internally measured transceiver supply voltage	+/-3	%
Measured Tx bias current	+/-10	%
Measured Tx output power	+/-3	dB
Measured Rx received average optical power	+/-3	dB

7. Modification History

Rev.	Comments	Date	Originator	Approval
01	Initial	2022.09.26	Albert Lin	Mike Sun
02	Add applicable for SR4 Ethernet	2024.05.14	Hawk Rong	Mike Sun

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JPC Connectivity