WT102-LR4-C1

QSFP28 112Gb/s LR4 10km DDM Transceiver

Part Number
WT102-LR4-C1



1. Product Overview

Features

- Support line rates from 103.125 Gbps
- 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)

Applications

- 100GBASE LR4 100G Ethernet
- 100G OUT4
- High performance computing, data com and sever data links
- High speed access

2. Ordering Information

Part No.	Case Operating Temperature
WT102-LR4-C1	100G QSFP28 Dual rate 10km LR4 0 to 70 ºC

3. Absolute Maximum Ratings

Parameter	Symbol	Conditions	Min.	Max.	Unit
Storage Temperature	TStorage		-40	+85	°C
Relative Humidity	RH		0	+85	%

4. Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Case Temperature	TC		0		70	°C
Power Supply Voltage	VCC		3.135	3.3	3.465	V
Signaling Rate each Channel 1				25.78125		Gbps

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Signaling Rate each Channel 2				27.9525		Gbps
Supply Noise Rejection			---	---	100	mV
Receiver Differential Data Output			---	100		Ohm
Operating Distance	D		---	---	10	km

5. Optical Parameters

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Signaling rate, each lane (range)	Gb/s			25.78125		Gb/s
Center Wavelength	λ0		1294.53		1296.59	nm
Center Wavelength	λ1		1299.02		1301.09	nm
Center Wavelength	λ2		1303.54		1305.63	nm
Center Wavelength	λ3		1308.09		1310.19	nm
Side-mode suppression ratio	SMSR		30			dB
Total average launch power					10.5	dBm
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
Transmitter eye mask definition				{0.25,0.4,0.45,0.25,0.28,0.4}		
Mask margin		Hit ratio @5E-5	5			%
Optical return loss tolerance					20	dB
Transmitter reflectance					-12	dB
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Signaling rate, each lane (range)	Gb/s			25.78125		Gb/s
Center Wavelength	λ0		1294.53		1296.59	nm
Center Wavelength	λ1		1299.02		1301.09	nm
Center Wavelength	λ2		1303.54		1305.63	nm
Center Wavelength	λ3		1308.09		1310.19	nm

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
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)	SOMA	BER@10e-12			-8.6	dBm
LOS Assert	LOSA				-10.8	dBm
LOS De-Assert	LOSD		-24			dBm
LOS Hysteresis			0.5			dB

6. Optical Parameters

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Signaling rate, each lane (range)	Gb/s			27.9525		Gb/s
Center Wavelength	λ0		1294.53		1296.59	nm
Center Wavelength	λ1		1299.02		1301.09	nm
Center Wavelength	λ2		1303.54		1305.63	nm
Center Wavelength	λ3		1308.09		1310.19	nm
Side-mode suppression ratio	SMSR		30			dB
Total average launch power					10	dBm
Average launch power, each lane	Pf		-4.3		4.5	dBm
Optical Modulation Amplitude (OMA), each lane	TxOMA		-0.6		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
Transmitter eye mask definition				{0.25,0.4,0.45,0.25,0.28,0.4}		
Mask margin		Hit ratio @5E-5	5			%
Optical return loss tolerance					20	dB
Transmitter reflectance					-12	dB
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Signaling rate, each lane (range)	Gb/s			27.9525		Gb/s
Center Wavelength	λ0		1294.53		1296.59	nm
Center Wavelength	λ1		1299.02		1301.09	nm
Center Wavelength	λ2		1303.54		1305.63	nm
Center Wavelength	λ3		1308.09		1310.19	nm
Damage threshold			5.5			dBm
Average power at receiver input, each lane			-6.9		4	dBm
Receive power, each lane (OMA)					4.5	dBm
Return Loss	RL		-26			dB
Receiver sensitivity (OMA)	SOMA	BER@10e-12			-8.4	dBm
LOS Assert	LOSA				-9	dBm
LOS De-Assert	LOSD		-24			dBm
LOS Hysteresis			0.5			dB

7. Electrical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power Consumption					4	W
Supply Current	Icc				1200	mA

8. Digital Diagnostics

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

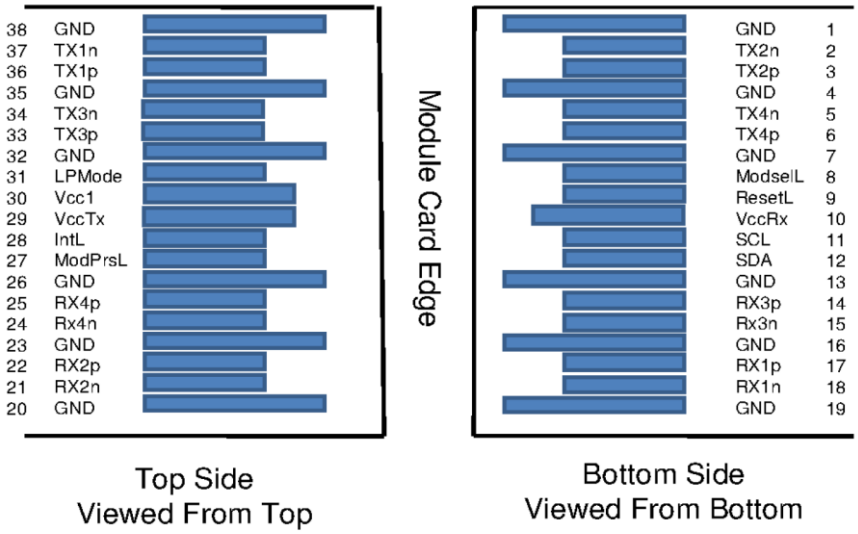
9. Pin Descriptions

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	

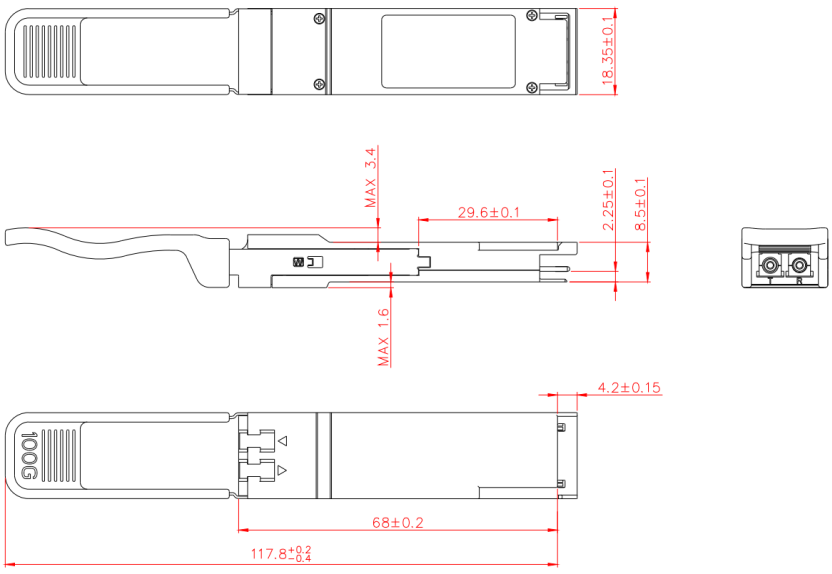
PIN	Logic	Symbol	Name/Description	Note
4		GND	Ground	
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVCMOS-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	

PIN	Logic	Symbol	Name/Description	Note
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	

10. Technical Figure 1



11. Technical Figure 2



12. Revision History

Version	Date	Description	Prepared by
V6	2025	Unified WincoTek datasheet format	WincoTek
V6.1	2026-10-23	Engineering and format review	WincoTek