WTQP27Y-2D

QSFP28 100Gb/s Single-mode 2km DDM Transceiver / PRODUCT FEATURES

Part Number WTQP27Y-2D	Temperature 0~70



1. Product Overview

Features

- Support line rates from 103.125 Gbps;
- Transmission data rate up to25.78（NRZ） per channel;
- Up to 2km transmission on single mod e fiber;
- High speed I/O electrical interface (CAUI-4);
- I2C interface with integrated Digital Diagnostic monitoring;
- QSFP28 MSA package with duplex LC connector;
- Single +3.3V power supply; Dissipation:
- Commercial(0~70)：< 3.5W
- Complies with EU Directive 2015/863/EU;

Applications

- 100GBASE- CWDM4 Ethernet
- 100G Datacom& Telecom connections
- DESCRIPTIONS
- 100G QSFP CWDM4 Transceiver is designed for 2km optical communication applications. This module contains 4-lane optical transmitter, 4-lane optical receiver and module management block including 2 wire serial inter-face. The optical signals are multiplexed to a single-mode fiber through an industry standard LC connector.
- Module Block Diagram

2. Ordering Information

Part No.	Data Rate(optical)	Laser	Fiber Type	Distance	Optical Interface	Temp	DDMI	Latch Color
WTQP27Y-2D	103.125	DML	SMF	2km	LC	0~70	Yes	Green

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TS	-40	+85	°C
Maximum Supply Voltage	VCC	-0.5	3.6	V
Operating Relative Humidity	RH		85	%

4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	Top	0		+70	°C	
Power Supply Voltage	VCC	3.13	3.3	3.47	V	
Power Supply Current	ICC			1.06	A	
Maximum Power Dissipation	PD			3.5	W	
Aggregate Bit Rate	BRAVE		103.125		Gb/s	
Lane Bit Rate	BRLANE		25.78125		Gb/s	
Transmission Distance	TD			2	km	
Coupled fiber	Single mode fiber	Single mode fiber	Single mode fiber	Single mode fiber	Single mode fiber	9/125um SMF

5. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)	Transmitter (Module Input)
Data Rate, each lane			25.78125		Gbps	
Differential Voltage pk-pk	Vpp			900	mV	1
Common Mode Voltage	Vcm	-350		2850	mV	
Transition time	Trise/Tfall	10			ps	2
Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)	Receiver (Module Output)
Data Rate, each lane			25.78125		Gbps	
Common Mode Noise, RMS	Vrms			17.5	mV	
Differential output voltage swing	Vout, pp			900	mV	
Eye width	EW15	0.57			UI	
Eye height	EH15	228			mV	
Differential Termination Resistance Mismatch				10	%	1
Transition time	Trise/Tfall	12			ps	

6. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Signaling Speed per Lane			25.78125		Gbps	
Lane Wavelength	L0	1264.5	1271	1277.5	nm	
Lane Wavelength	L1	1284.5	1291	1297.5	nm	
Lane Wavelength	L2	1304.5	1311	1317.5	nm	
Lane Wavelength	L3	1324.5	1331	1337.5	nm	
Total Average Launch Power	PT			8.5	dBm	1
Average Launch Power per Lane,	Pavg	-6.5		2.5	dBm	1
OMA, each Lane	POMA	-4		2.5	dBm	1
Difference in launch power between any two lanes(Average and OMA) between any Two Lanes (OMA)	Ptx,diff			3	dB	
Average Output Power (Laser Turn off)	Poff			-30	dBm	
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	3.5			dB	
RIN20OMA	RIN			-130	dB/Hz	
Optical Return Loss Tolerance	TOL			20	dB	
Transmitter Reflectance	RT			-12	dB	
Optical Eye Mask	{0.25,0.4, 0.45, 0.25, 0.28, 0.4}	{0.25,0.4, 0.45, 0.25, 0.28, 0.4}	{0.25,0.4, 0.45, 0.25, 0.28, 0.4}	{0.25,0.4, 0.45, 0.25, 0.28, 0.4}	%	2
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Signaling rate, each lane			25.78125		Gbps	
Center Wavelength Lane 0	λ0	1264.5	1271	1277.5	nm	
Center Wavelength Lane 1	λ1	1284.5	1291	1297.5	nm	
Center Wavelength Lane 2	λ2	1304.5	1311	1317.5	nm	
Center Wavelength Lane 3	λ3	1324.5	1331	1337.5	nm	
Damage threshold , each lane	Pdamage	3.5			dBm	
Average Receive Power, each lane		-11.5		2.5	dBm	
Receiver Sensitivity (OMA) per Lane	SEN			-10	dBm	3
Los Assert	LosA	-30			dBm	
Los De-assert	LosDA			-12	dBm	
Los Hysteresis	LosH	0.5			dB	

7. Digital Diagnostics

Parameter	Range	Unit	Accuracy	Calibration
Temperature	0 to +70	°C	±3°C	Internal / External
Voltage	3.0 to 3.6	V	±3%	Internal / External
Bias Current	10 to 100	mA	±10%	Internal / External
TX Power	-6.5 to 2.5	dBm	±3dB	Internal / External
RX Power	-11.5 to 2.5	dBm	±3dB	Internal / External

8. Digital Diagnostics

PIN	Logic	Symbol	Description	Plug Seq.	Notes
1		GND	Ground	1	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	3	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	3	
4		GND	Ground	1	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	3	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	3	
7		GND	Ground	1	1
8	LVTLL-I	ModSelL	Module Select	3	
9	LVTLL-I	ResetL	Module Reset	3	
10		VccRx	+ 3.3V Power Supply Receiver	2	2
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock	3	
12	LVCMOS-I/O	SDA	2-Wire Serial Interface Data	3	
13		GND	Ground	1	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	3	
15	CML-O	Rx3n	Receiver Inverted Data Output	3	
16		GND	Ground	1	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	3	
18	CML-O	Rx1n	Receiver Inverted Data Output	3	
19		GND	Ground	1	1
20		GND	Ground	1	1
21	CML-O	Rx2n	Receiver Inverted Data Output	3	

PIN	Logic	Symbol	Description	Plug Seq.	Notes
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	3	
23		GND	Ground	1	1
24	CML-O	Rx4n	Receiver Inverted Data Output	3	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	3	
26		GND	Ground	1	1
27	LVTTL-O	ModPrsL	Module Present	3	
28	LVTTL-O	IntL/Rx_LOS	Interrupt/Rx_LOS	3	
29		VccTx	+3.3 V Power Supply transmitter	2	2
30		Vcc1	+3.3 V Power Supply	2	2
31	LVTTL-I	LPMode/TxDIS	Low Power Mode/Tx_Disable	3	
32		GND	Ground	1	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	3	
34	CML-I	Tx3n	Transmitter Inverted Data Output	3	
35		GND	Ground	1	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	3	
37	CML-I	Tx1n	Transmitter Inverted Data Output	3	
38		GND	Ground	1	1

9. Revision History

Version No.	Date	Description
1.0	July 15, 2022	Preliminary datasheet
1.1	July 20,2024	Format change

10. Technical Figure 1

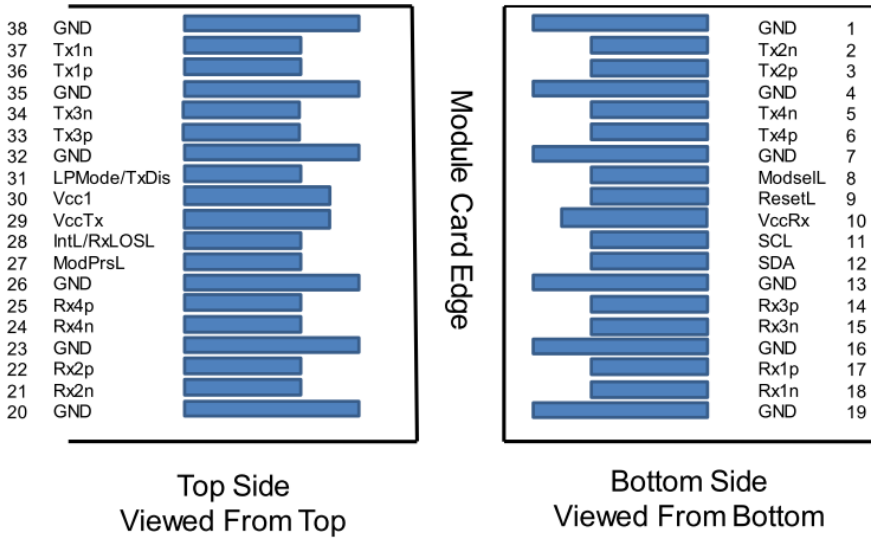


FIGURE 5-1 MODULE PAD LAYOUT

11. Revision History

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