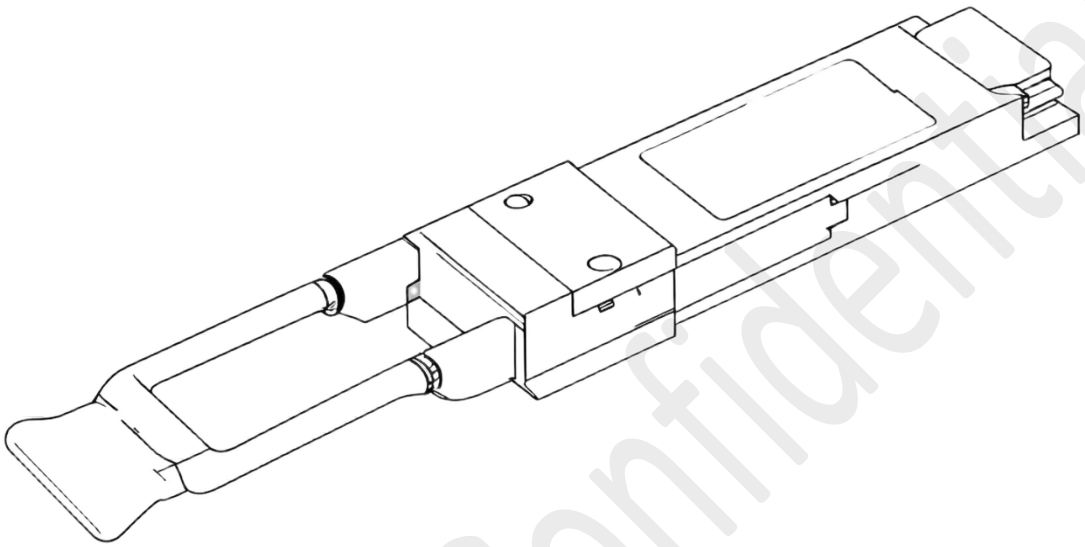
Product Datasheet

100G QSFP28 CWDM4 Transceiver



Application

- Data center & Networking Equipment
- Servers/Storage Devices
- High Performance Computing (HPC)
- Switches/Routers
- Telecom Central Offices (CO)
- Test and Measurement Equipment

1.0 Product Specification

1.1 Absolute Maximum Ratings (TC=25℃, unless otherwise noted)

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings will cause permanent damage and/or adversely affect device reliability.

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Storage Temperature	TS	-40	-	+85	℃	
Maximum Supply Voltage	Vcc	-0.5	-	3.6	V	
Operating Relative Humidity	RH	5	-	95	%	No condensation
Control Input Voltage	V_I	-0.3	-	V_{CC}+0.5	V	

1.2 General Specifications (Tc=25℃, unless otherwise noted)

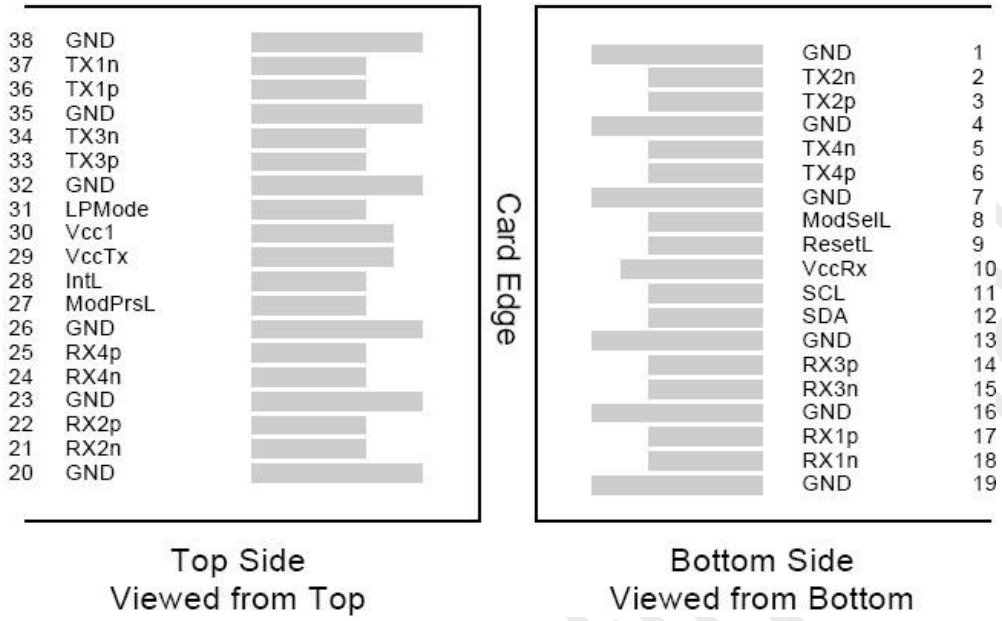
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	T_{OPR}	0	-	70	℃	
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V	
Maximum Power Dissipation	P_D	-	-	3.5	W	
Signaling Rate per Lane	SRL	-	25.78125	-	Gb/s	
Operating Distance (SMF)	-	-	-	2000	m	

1.3 Optical Characteristics (TC=25℃, unless otherwise noted)

Parameter	Symbol	Min	Typical	Max	Units	Notes
Wavelength Assignment	L0	1264.5	1271	1277.5	nm	
	L1	1284.5	1291	1297.5	nm	
	L2	1304.5	1311	1317.5	nm	
	L3	1324.5	1331	1337.5	nm	
Transmitter						
Side Mode Suppression Ratio	SMSR	30			dB	
Total Average Launch Power	P_T			8.5	dBm	
Average Launch Power, each Lane	PAVG	-6.5		2.5	dBm	
Optical Modulation Amplitude (OMA), each Lane	POMA	-4.0		2.5	dBm	
Launch Power in OMA minus Transmitter and Dispersion Penalty (TDP), each Lane		-5.0			dBm	
TDP, each Lane	TDP			3.0	dB	
Extinction Ratio	ER	3.5			dB	
Optical Return Loss Tolerance	TOL			20	dB	
Transmitter Reflectance	R_T			-12	dB	
Average Launch Power OFF Transmitter, each Lane	Poff			-30	dBm	
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		{0.31, 0.4, 0.45, 0.34, 0.38, 0.4}		2		

Receiver						
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Units**	**Notes**
Damage Threshold, each Lane	TH_d	3.5			dBm	
Average Receive Power, each Lane		-11.5		2.5	dBm	
Receive Power (OMA), each Lane				2.5	dBm	
Receiver Sensitivity (OMA), each Lane	SEN			-10	dBm	
Stressed Receiver Sensitivity (OMA), each Lane				-7.3	dBm	
Receiver Reflectance	R_R			-26	dB	
LOS Assert	LOSA	-30			dBm	
LOS Deassert	LOSD			-15	dBm	
LOS Hysteresis	LOSH	0.5			dB	
Receiver Electrical 3 dB upper Cutoff Frequency, each Lane				31	GHz	

1.4 PIN Descriptions



Pin	Symbol	Name/Description	Ref.
1	GND	Ground	
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3 V Power supply receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	

20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3 V Power supply transmitter	
30	Vcc1	+3.3 V Power Supply	
31	LPMode	Low Power Mode	
32	GND	Ground	
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	

2.0 Product Information

Data Rate	Factor		Optical	Wavelength	Reach
100G	QSFP28	CWDM4	LC	1310nm	2000m

ESD Safety Cautionsy

This transceiver is specified as ESD threshold 1KV for high speed data pins based on Human Body Model per ANSI/ESDA/JEDECJS-001. The units are subjected to 15kV air discharges during operation and 8kV direct contact discharges to the case. However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

Important Notice

The performance figures, data, and any illustrative material presented in this datasheet are typical and must be explicitly confirmed in writing by Quantex before they are deemed applicable to any specific order or contract.

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3.0 Revision Record

Rev.	Comments	Date
A01	Initial Release	2025/05/16