WTQ2Dxx080C0CN1 DWDM QSFP28 Transceiver

100Gb/s DWDM C-Band 100Ghz SMF 80km / Applications 3



Part Number	Temperature
WTQ2Dxx080C0CN1	0°C~+70°C

1. Product Overview

Features

- Hot pluggable QSFP28 MSA form factor
- Up to 80km reach for G.652 SMF with transport white box
- Single +3.3V power supply
- Temperature Range 0 to 70°C
- Transmitter: Cooled EML 2*27.5Gbaud/s DWDM TOSA
- Receiver: 2*27.5Gbaud/s Pin-PD ROSA
- 4*25G CAUI4 electrical interface
- Integrated SFEC with high coding gain
- PAM4 modulation format on 100GHz ITU DWDM wavelength grid compatible
- Dual CS adaptor
- Compatible with RoHS6

Applications

- High bandwidth connectivity for Data Center Interconnection
- 100G Ethernet Metro-Access over DWDM
- P to P Access Network

2. Ordering Information

Part Number	Data Rate (Gbps)	Wavelength (nm)	Transmission Distance(m)	Temperature (oC) (Operating Case)
WTQ2Dxx080C0CN1	103.1Gb/s	Cooled EAM DFB-LD	80km SMF	0°C~+70°C

3. Absolute Maximum Ratings

Parameter	Symbol	Units	Min	Max	Notes
Storage Temperature Range	Ts	oC	-40	+85	
Relative Humidity	RH	%	5	85	
Power Supply Voltage	Vcc	V	-0.5	+3.6	
Operating Case Temperature Range	Tc	oC	0	+70	
Receiver Damage Threshold Per Lane	Pdag	dBm	+5.2		

4. Recommended Operating Conditions

Parameter	Units	Min	Typical	Max	Notes
Operating Case Temperature	°C	0		+70	
Power Supply Voltage	V	3.135	3.3	3.465	
Control Input Voltage High	V	2		Vcc+0.3	
Control Input Voltage Low	V	-0.3		0.8	
Rx Diff Data Output Load	Ω		100		
Power Dissipation	W		5		Tc = 70 °C, Vcc = 3.465V, End of Life

5. Optical Parameters

Parameter	Unit	Min.	Typical	Max.	Notes
Optical output power	dBm	-1		+7	
Transmitter Rate	Gbps		55.04318		55.04318*2λ
Lane center wavelength spacing	GHz		100		
Center wavelength	nm	See Wavelength Table	See Wavelength Table	See Wavelength Table	
Extinction ratio	dB		6		
Side-mode suppression Ratio	dB	30			
RIN OMA	dB/Hz			-132	
Optical Return Loss Tolerance	dB			20	
Transmitter reflectance	dB			-12	
Dispersion Tolerance	ps/nm	-100		100	Residual dispersion (RD) after DCM, and at worst ONSR

6. Optical Parameters

Parameter	Unit	Min.	Typical	Max.	Notes
Receive Rate	Gbps		55.04318		55.04318*2λ
Center Wavelength	nm	See Wavelength Table	See Wavelength Table	See Wavelength Table	
Receiver reflectance	dB			-26	
Sensitivity	dBm			-7.2	Pre-FEC BER 2E-4
Required OSNR	dB	31			

Parameter	Unit	Min.	Typical	Max.	Notes
LOS Assert	dBm	-26			
LOS De-assert	dBm			-11	
LOS Hysteresis	dB	1			
RSSI Accuracy	dB	-3		3	

7. Optical Parameters

NO	Pin	Definition	Description	Note
1	1	GND	Ground	1
2	2	Tx2n	Transmitter Inverted Data Input	
3	3	Tx2p	Transmitter Non-Inverted Data Input	
4	4	GND	Ground	1
5	5	Tx4n	Transmitter Inverted Data Input	
6	6	Tx4p	Transmitter Non-Inverted Data Input	
7	7	GND	Ground	1
8	8	ModSelL	Module Select	
9	9	ResetL	Module Reset	
10	10	VccRx	+3.3V Power Supply Receiver	2
11	11	SCL	2-Wire Serial Interface Clock	
12	12	SDA	2-Wire Serial Interface Data	
13	13	GND	Ground	1
14	14	Rx3p	Receiver Non-Inverted Data Output	
15	15	Rx3n	Receiver Inverted Data Output	
16	16	GND	Ground	1
17	17	Rx1p	Receiver Non-Inverted Data Output	
18	18	Rx1n	Receiver Inverted Data Output	
19	19	GND	Ground	1
20	20	GND	Ground	1
21	21	Rx2n	Receiver Inverted Data Output	
22	22	Rx2p	Receiver Non-Inverted Data Output	
23	23	GND	Ground	1
24	24	Rx4n	Receiver Inverted Data Output	

NO	Pin	Definition	Description	Note
25	25	Rx4p	Receiver Non-Inverted Data Output	
26	26	GND	Ground	1
27	27	ModPrsL	Module Present	
28	28	IntL	Interrupt	
29	29	VccTx	+3.3 V Power Supply transmitter	2
30	30	Vcc1	+3.3 V Power Supply	2
31	31	LPMode	Low Power Mode	
32	32	GND	Ground	1
33	33	Tx3p	Transmitter Non-Inverted Data Input	
34	34	Tx3n	Transmitter Inverted Data Input	
35	35	GND	Ground	1
36	36	Tx1p	Transmitter Non-Inverted Data Input	
37	37	Tx1n	Transmitter Inverted Data Input	
38	38	GND	Ground	1

8. Electrical Characteristics

Parameter	Comment	Min.	Typical	Max.	Unit
Signaling Rate, each lane		Typ -100 ppm	25.7813	Typ +100 ppm	Gb/s
DC Common Mode Output Voltage		-350	---	2850	mV
Differential Return Loss	See template1	---	---	---	dB
Common to Differential Mode Conversion Return Loss	See template2	---	---	---	dB
Differential Termination Mismatch	At 1 MHz	---	---	10	%

9. Electrical Characteristics

Parameter	Comment	Min.	Typical	Max.	Unit
Signaling Rate, each lane		Typ - 100ppm	25.7813	Typ + 100ppm	Gb/s
Common-Mode AC Output Voltage		---	---	17.5	mV
Differential pk-pk output voltage swing		---	---	900	mVpp

Parameter	Comment	Min.	Typical	Max.	Unit
Eye Width	EW15 at 10-15 probability; PRBS 29-1	0.57	---	---	UI
Eye Height Differential	EH15 at 10-15 probability; PRBS 29-1	228	---	---	mV
Vertical Eye Closure		---	---	5.5	dB
Differential Output Return Loss	See template1	---	---	---	dB
Common to Differential Mode Conversion Return Loss	See template2	---	---	---	dB
Differential Termination Mismatch		---	---	10	%
Transition Time (20% to 80%)		12	---	---	ps
DC Common Mode Voltage3		-350	---	2850	mV

10. Additional Specifications

Product Code	TX1	TX1	TX1	TX2	TX2	TX2
Product Code	Ch.No.	Frequency (THz)	Center Wavelength(nm)	Ch. No.	Frequency (THz)	Center Wavelength(nm)
WTQ2D13080C0CN1	C13	191.30	1567.13	C14	191.40	1566.31
WTQ2D14080C0CN1	C13+	191.35	1566.72	C14+	191.45	1565.90
WTQ2D15080C0CN1	C15	191.50	1565.50	C16	191.60	1564.68
WTQ2D16080C0CN1	C15+	191.55	1565.09	C16+	191.65	1564.27
WTQ2D17080C0CN1	C17	191.70	1563.86	C18	191.80	1563.05
WTQ2D18080C0CN1	C17+	191.75	1563.45	C18+	191.85	1562.64
WTQ2D19080C0CN1	C19	191.90	1562.23	C20	192.00	1561.42
WTQ2D20080C0CN1	C19+	191.95	1561.83	C20+	192.05	1561.01
WTQ2D21080C0CN1	C21	192.10	1560.61	C22	192.20	1559.79
WTQ2D22080C0CN1	C21+	192.15	1560.20	C22+	192.25	1559.39
WTQ2D23080C0CN1	C23	192.30	1558.98	C24	192.40	1558.17
WTQ2D24080C0CN1	C23+	192.35	1558.58	C24+	192.45	1557.77
WTQ2D25080C0CN1	C25	192.50	1557.36	C26	192.60	1556.55
WTQ2D26080C0CN1	C25+	192.55	1556.96	C26+	192.65	1556.15
WTQ2D27080C0CN1	C27	192.70	1555.75	C28	192.80	1554.94
WTQ2D28080C0CN1	C27+	192.75	1555.34	C28+	192.85	1554.54
WTQ2D29080C0CN1	C29	192.90	1554.13	C30	193.00	1553.33
WTQ2D30080C0CN1	C29+	192.95	1553.73	C30+	193.05	1552.93
WTQ2D31080C0CN1	C31	193.10	1552.52	C32	193.20	1551.72
WTQ2D32080C0CN1	C31+	193.15	1552.12	C32+	193.25	1551.32
WTQ2D33080C0CN1	C33	193.30	1550.92	C34	193.40	1550.12

Product Code	TX1	TX1	TX1	TX2	TX2	TX2
WTQ2D34080C0CN1	C33+	193.35	1550.52	C34+	193.45	1549.72
WTQ2D35080C0CN1	C35	193.50	1549.32	C36	193.60	1548.51
WTQ2D36080C0CN1	C35+	193.55	1548.91	C36+	193.65	1548.11
WTQ2D37080C0CN1	C37	193.70	1547.72	C38	193.80	1546.92
WTQ2D38080C0CN1	C37+	193.75	1547.32	C38+	193.85	1546.52
WTQ2D39080C0CN1	C39	193.90	1546.12	C40	194.00	1545.32
WTQ2D40080C0CN1	C39+	193.95	1545.72	C40+	194.05	1544.92
WTQ2D41080C0CN1	C41	194.10	1544.53	C42	194.20	1543.73
WTQ2D42080C0CN1	C41+	194.15	1544.13	C42+	194.25	1543.33
WTQ2D43080C0CN1	C43	194.30	1542.94	C44	194.40	1542.14
WTQ2D44080C0CN1	C43+	194.35	1542.54	C44+	194.45	1541.75
WTQ2D45080C0CN1	C45	194.50	1541.35	C46	194.60	1540.56
WTQ2D46080C0CN1	C45+	194.55	1540.95	C46+	194.65	1540.16
WTQ2D47080C0CN1	C47	194.70	1539.77	C48	194.80	1538.98
WTQ2D48080C0CN1	C47+	194.75	1539.37	C48+	194.85	1538.58
WTQ2D49080C0CN1	C49	194.90	1538.19	C50	195.00	1537.40
WTQ2D50080C0CN1	C49+	194.95	1537.79	C50+	195.05	1537.00
WTQ2D51080C0CN1	C51	195.10	1536.61	C52	195.20	1535.82
WTQ2D52080C0CN1	C51+	195.15	1536.22	C52+	195.25	1535.43
WTQ2D53080C0CN1	C53	195.30	1535.04	C54	195.40	1534.25
WTQ2D54080C0CN1	C53+	195.35	1534.64	C54+	195.45	1533.86
WTQ2D55080C0CN1	C55	195.50	1533.47	C56	195.60	1532.68
WTQ2D56080C0CN1	C55+	195.55	1533.07	C56+	195.65	1532.29
WTQ2D57080C0CN1	C57	195.70	1531.90	C58	195.80	1531.12
WTQ2D58080C0CN1	C57+	195.75	1531.51	C58+	195.85	1530.72
WTQ2D59080C0CN1	C59	195.90	1530.33	C60	196.00	1529.55
WTQ2D60080C0CN1	C59+	195.95	1529.94	C60+	196.05	1529.16

11. Additional Specifications

Parameters	Unit	Requirements	Note
temperature	℃	+/-3	
voltage	V	+/-5%	
Ibias	mA	+/-10%	
Rx power	dB	+/-3.0	
Tx power	dB	+/-3.0	

12. Additional Specifications

Parameters	Unit	Requirements	Description
Temp low warning	℃	0	Min. case temperature
Temp high warning	℃	70	Max. case temperature
Voltage low warning	V	3.135	-5% Vcc target
Voltage high warning	V	3.465	+5% Vcc target
Tx power low warning	dBm	-1	Min. optical power in DS.
Tx power high warning	dBm	7	Max. optical power in DS.
Rx power low warning	dBm	-8.4	Sensitivity
Rx power high warning	dBm	4.2	Overload
Temp low alarm	℃	-10	Warning-10℃
Temp high alarm	℃	+80	Warning+10℃
Voltage low alarm	V	2.97	-10% Vcc target
Voltage high alarm	V	3.63	+10% Vcc target
Tx power low alarm	dBm	-4	Warning -3dB
Tx power high alarm	dBm	10	Warning +3dB
Rx power low alarm	dBm	-11.4	Warning -3dB
Rx power high alarm	dBm	7.2	Warning +3dB

13. Revision History

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