WTQP40-PSM4-10

QSFP+ 40Gb/s PSM4 10km DDM Transceiver / PRODUCT FEATURES



1. Product Overview

The WTQP40-PSM4-10 QSFP+ PSM4 optical transceiver is intended for up to 10km reach service with four-lane 10.3125G data rate. It is based on 3.3V DC power supply and operates in the commercial temperature range. It is compliant with QSFP MSA 、SFF-8436 and IEEE802.3ba-2018. Digital diagnostic functions are available via I2C interface，and the control functions can be achieved by LVTTL interfaces on the host，mainly including Module Select(ModSelL)、Module Reset(ResetL)、 Low Power Mode(LPMode). The transceiver incorporates a four-laser array which is usually DFB、 four-PIN diode array、 an integrated four drivers and TIAs IC separately. The differential AC coupled Tx and Rx data interfaces are CML compatible. The device can operate in Class IV safely.

Features

- MPO-12 optical interface
- Maximum link length up to 10km
- Up to 10.3125Gb/s data links per lane
- +3.3 V power supply
- QSFP MSA compliant package
- Hot Pluggable
- High performance singal mode DML transmitter
- High sensitivity PIN/TIA optical receiver
- Single Mode operation
- BER < 1E-12@-12.6dBm（OMA）
- Case Operating temperature : 0 to 70ºC
- Data and Control Interfaces

Applications

- 40G BASE Ethernet
- Infiniband EDR interconnects
- Enterprise networking

2. Ordering Information

Package	Part NO.	Distance	Temperature Range
QSFP+	WTQP40-PSM4-10	10km	0~70 ºC

3. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units	Notes
Storage Temperature	Tstg	-40	+95	ºC	
Relative Humidity - Storage	RHS	0	95	%	
Relative Humidity - Operating	RHO	0	85	%	
Supply Voltage	VCC	-0.3	3.6	V	

4. Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Units	Notes
DC Supply Voltage	VCC	3.135	-	3.465	V	
Module Supply Current	Iin	-	-	1000	mA	

5. Recommended Operating Conditions

Parameter	Symbol	Min	Max	Units	Notes
Case Operating Temperature (Commercial)	TO	0	+70	ºC	

6. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Units	Notes
Case Operating Temperature	Tcase	0	-	+70	ºC	

7. Electrical Characteristics

Parameter	Symbol	Mi	Typ	Max	Units	Notes
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Differential Data input Swing	Vin	180	-	900	mV	
Tx Differential Input Impendence	Zin	90	100	110	Ω	
Tx Differential Output Impendence	Zout	45	50	55	Ω	
ResetL Disable Voltage	Vr	2.0	-	Vcc+0.3	V	
ResetL Enable Voltage	VrEN	0	-	0.8	V	
ModSelL Disable Voltage	Vm	2.0	-	Vcc+0.3	V	
ModSelL Enable Voltage	VmEN	0	-	0.8	V	

Parameter	Symbol	Mi	Typ	Max	Units	Notes
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Differential Data Output Swing	Vout	180	-	900	mV	
Rx Differential Output Impendence	Zout	90	100	110	Ω	
IntL Assert Voltage	VInt	VCC-0.5	-	VCC+0.3	V	
IntL De-assert Voltage	VDInt	0	-	+0.4	V	

8. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Notes
Signal Rate|Each Lane			10.3125±100ppm		Gbps	
Lane Wavelength	L0	1304.5	1311	1317.5	nm	
Lane Wavelength	L1	1304.5	1311	1317.5	nm	
Lane Wavelength	L2	1304.5	1311	1317.5	nm	
Lane Wavelength	L3	1304.5	1311	1317.5	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Launch Power|Each Lane	Pavg	-7		1	dBm	
Optical Modulation Amplitude|Each Lane	OMA	-8.2		2	dBm	1
Transmitter and dispersion penalty|Each Lane	TDP			3	dB	
Average launch power of OFF transmitter|Each Lane				-30	dBm	
Extinction Ratio	ER	3.5			dB	
Spectral Width|20dB				1	nm	
Transmitter Reflectance				-12	dB	
Optical return loss tolerance				20	dB	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Signal Speed Per Lane			10.3125±100ppm		Gbps	
Lane Wavelength	L0	1260		1350	nm	
Lane Wavelength	L1	1260		1350	nm	
Lane Wavelength	L2	1260		1350	nm	
Lane Wavelength	L3	1260		1350	nm	
Damage threshold|Each Lane	THd	2			dBm	1

Parameter	Symbol	Min	Typ	Max	Units	Notes
Average Receive Power|Each Lane		-13.6		1	dBm	
Receiver reflectance				-26	dB	
Sensitivity OMA|Each Lane[1]	Sen1			-12.6	dBm	2
Stressed Receiver Sensitivity (OMA), each Lane				-10.3	dBm	
LOS Assert	LOSA	-30	-		dBm	
LOS Deassert	LOSD			-13	dBm	
LOS Hysteresis	LOSH	0.5		5	dB	
Vertical Eye Closure Penalty	VECP	1.9			dB	3
Stressed Eye J2 Jitter	J2	0.3			UI	
Stressed Eye J4 Jitter	J4	0.47			UI	

9. Pin Descriptions

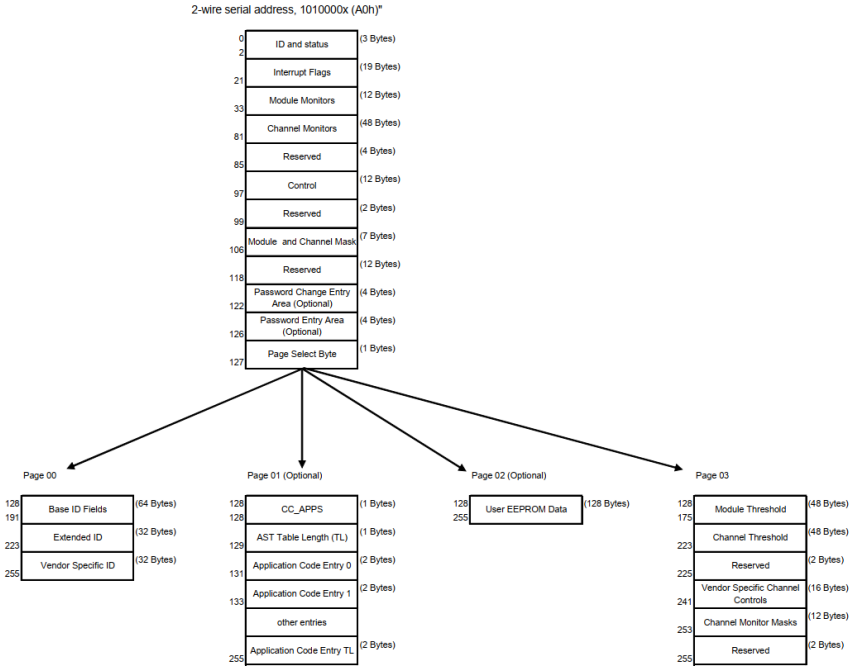
PIN	Symbol	Name/Description	Note
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data output	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data output	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	VccRx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

PIN	Symbol	Name/Description	Note
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3 V Power Supply transmitter	2
30	Vcc1	+3.3 V Power Supply	2
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data output	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data output	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

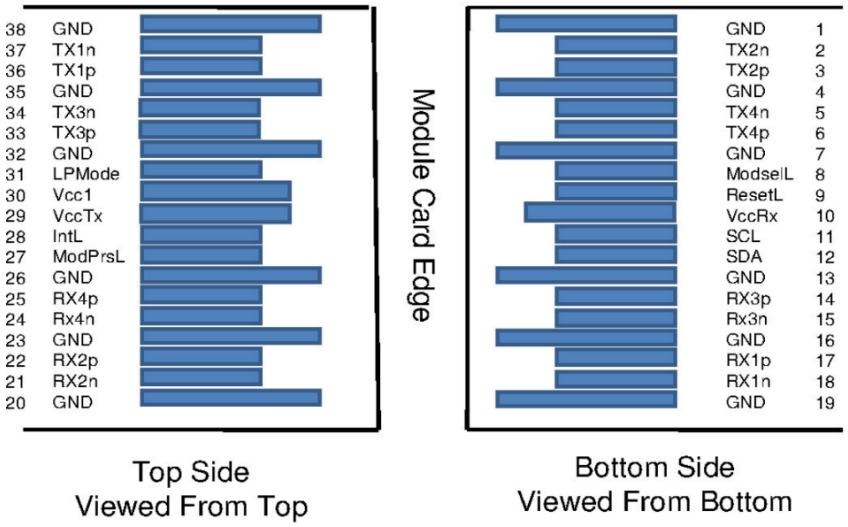
10. Additional Specifications

Parameter	Symbol	Spec	Units	Condition/Notes
Temperature	Te	+/-3	°C	
Voltage	VCC	+/-5%	V	
IBias	BIAS	+/-10%	mA	
Rx power	Rx-pwr	+/-3	dBm	
Tx power	Tx-pwr	+/-3	dBm	

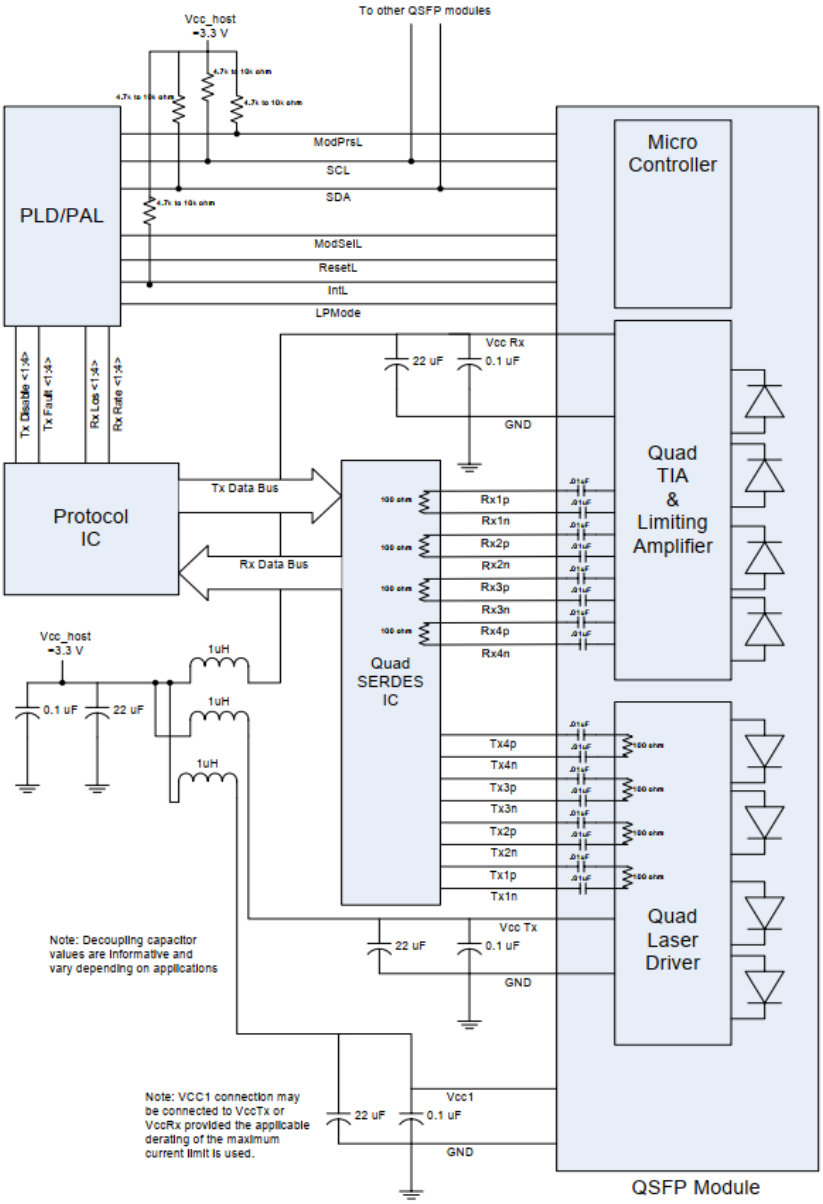
11. Digital Diagnostics Memory Map



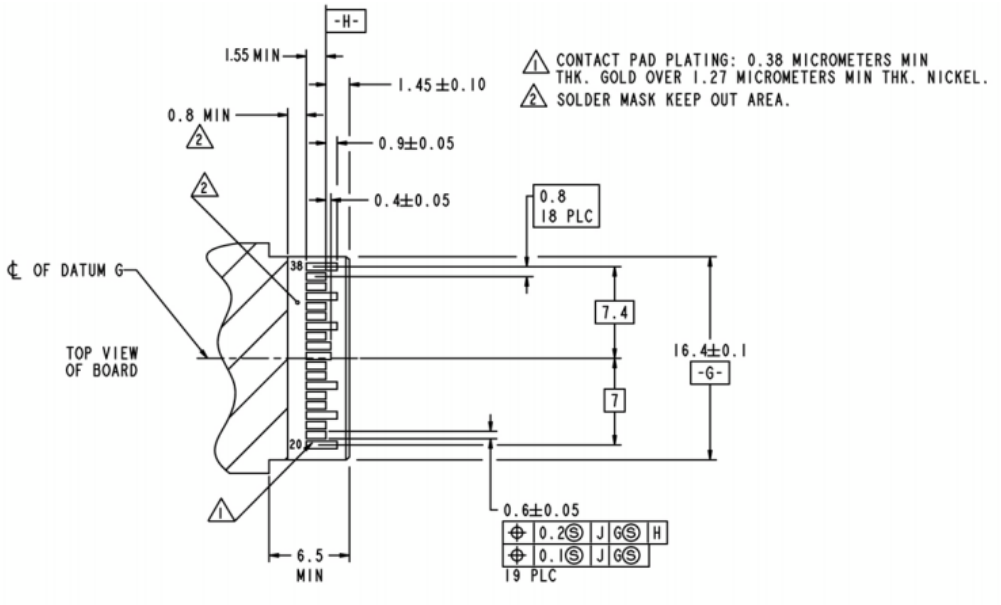
12. Pin Assignment



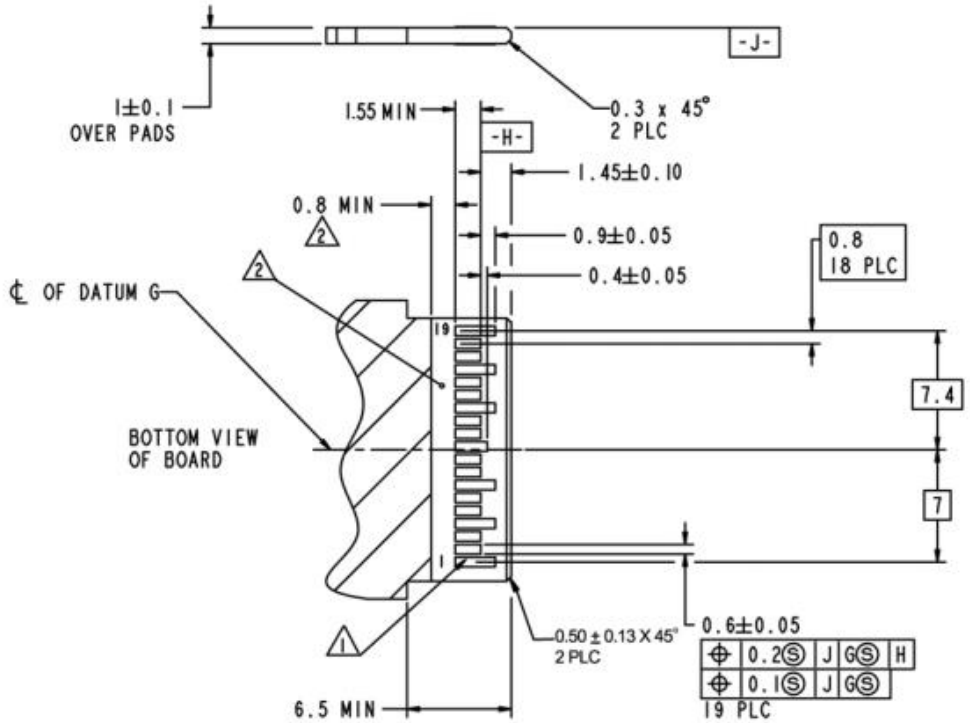
13. Electrical Interface



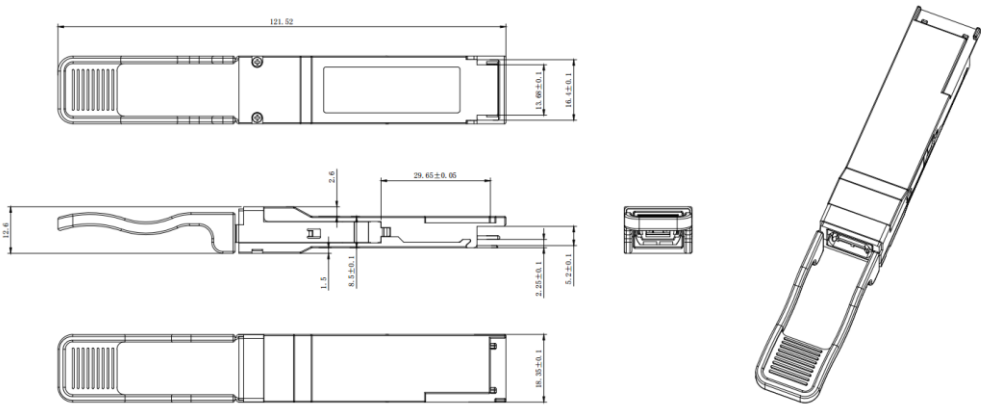
14. Recommended PCB Layout (Top View)



15. Mechanical Specifications



16. Mechanical Specifications



17. Revision History

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