WTQ40L1L

40G QSFP+ Transceiver 1310 SMF 10km LC

Part Number
WTQ40L1L



1. Product Overview

The QSFP+ LR4 transceivers are high-performance, cost-effective modules supporting data rate of 40Gbps and 10km transmission distance with SMF.

The transceiver consists of three sections: 4 inputs channels (ch) of 10Gb/s electrical data to 4 CWDM optical signals, and multiplexes them into a single channel for 40Gb/s optical transmission; on the receiver side, the module optically de-multiplexes a 40Gb/s input into 4 CWDM channels signals, and converts them to 4 channel output electrical data; and MCU control unit. All modules satisfy class I laser safety requirements.

The transceivers are compatible with 40GBASE-LR4 of IEEE802.3ba standard and SFF-8436 specification.

Features

- Compliant with 40G Ethernet IEEE802.3ba and 40GBASE-LR4 Standard
- 4 CWDM lanes MUX/DEMUX design
- 11.3Gbps
- LC connector
- Hot-pluggable
- Up to 10km transmission speed
- ROHS compliant
- Voltage 3.3V+
- With Digital Diagnostic Monitoring
- Operating case temperature: 0 to 70°C

Applications

- 40GBASE-LR4 Ethernet
- Switch, router and HBAs
- Data Center Interconnect
- InfiniBand QDR
- 40G Campus Link

2. Ordering Information

Part Number	Product Description
WTQ40L1L	4 CWDM channels, 40Gbps, LC, 10km, 0°C~+70°C, with DDM

3. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	4.5	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	85	%

4. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0		+70	°C	
Power Supply Voltage	Vcc	3.135	3.30	3.465	V	
Power Dissipation	Pm			3.5	W	
Data Rate			10.3125	11.3	Gbps	

5. Optical Parameters

Parameter	Symbol	Symbol	Min	Typical	Max	Unit	Notes
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Centre Wavelength	Centre Wavelength	L0	1264.5	1271	1277.5	nm	
Centre Wavelength	Centre Wavelength	L1	1284.5	1291	1297.5	nm	
Centre Wavelength	Centre Wavelength	L2	1304.5	1311	1317.5	nm	
Centre Wavelength	Centre Wavelength	L3	1324.5	1331	1337.5	nm	
-20dB Spectral Width	-20dB Spectral Width	Δλ			1	nm	
Side-mode Suppression Ratio	Side-mode Suppression Ratio	SMSR	30	-		dB	
Total Average Launch Power	Total Average Launch Power	PT			8.3	dBm	
Average launch power, each lane	Average launch power, each lane	Pout	-7		2.3	dBm	
Extinction Ratio	Extinction Ratio	ER	3.5			dB	
Average launch power of OFF transmitter, each lane	Average launch power of OFF transmitter, each lane	Poff			-30	dBm	
Relative Intensity Noise	Relative Intensity Noise	Rin			-128	dB/Hz	12dB reflection
Transmitter Reflectance	Transmitter Reflectance	RT			-12	dB	
Data Input Swing Differential	Data Input Swing Differential	VIN	190		700	mV	
Input Differential Impedance	Input Differential Impedance	ZIN	90	100	110	Ω	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver

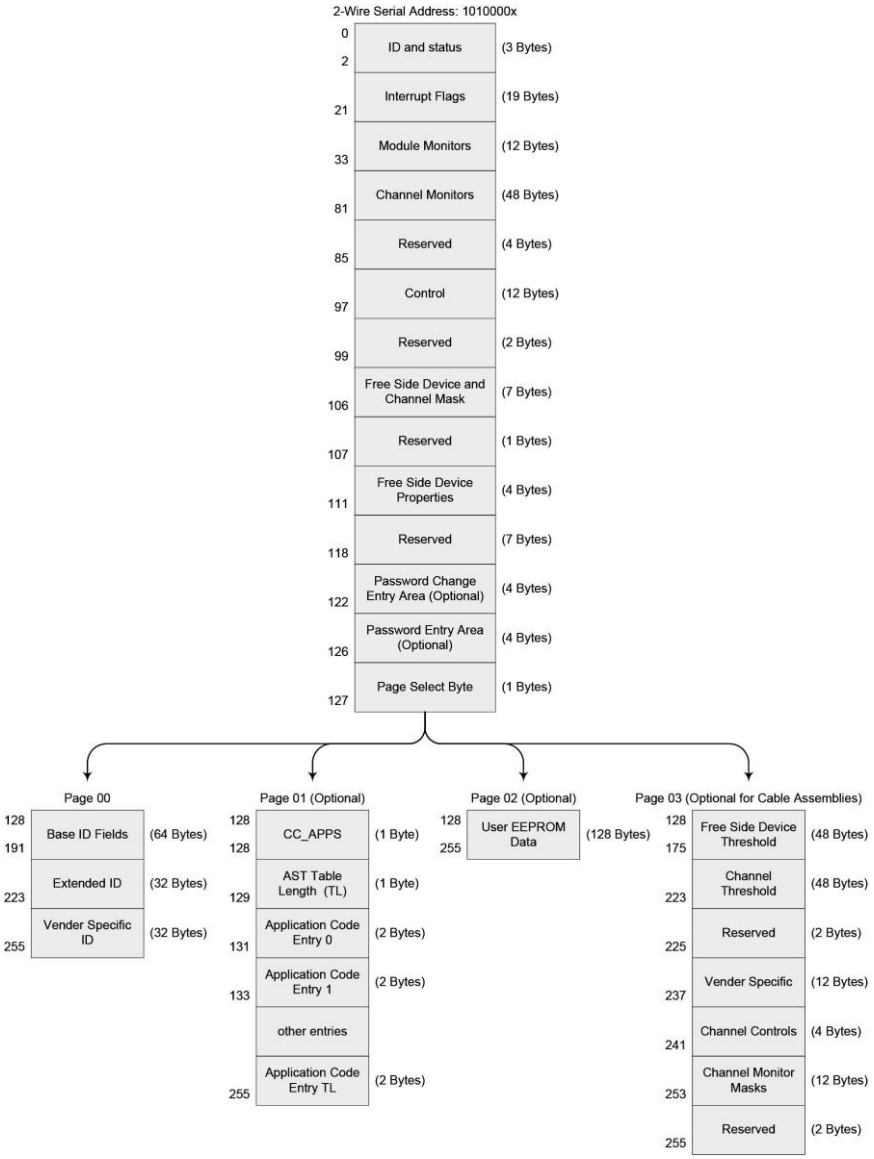
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Centre Wavelength	Centre Wavelength	L3	1324.5	1331	1337.5	nm	
Damage threshold	Damage threshold	THd	3.3			dBm	
Average power at receiver input, each lane	Average power at receiver input, each lane		-13.7		2.3	dBm	
LOS De-Assert	LOS De-Assert	LOSD			-15	dBm	
LOS Assert	LOS Assert	LOSA	-30			dBm	
LOS Hysteresis	LOS Hysteresis		0.5			dB	
Receive Electrical 3 dB upper Cutoff Frequency, each Lane	Receive Electrical 3 dB upper Cutoff Frequency, each Lane	Fc			11.3	GHz	

6. Pin Descriptions

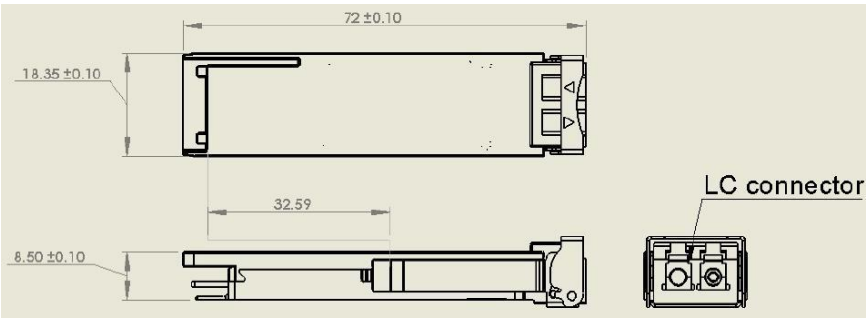
PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	2
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	1

PIN	Logic	Symbol	Name/Description	Note
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTL-I	LPMode	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

7. Technical Figure 1



8. Technical Figure 2



9. Revision History

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