

QSFP+ 40G 1310nm 10km PSM4 MPO

TQ1341L-CN Product Specification

FEATURES

- Hot-pluggable QSFP+ form factor
- Supports 41.25Gb/s aggregate bit rates
- Low power dissipation <3.5W
- Commercial case temperature range of 0°C to 70°C
- Maximum link length of 10km on SMF
- Full duplex 4 channel 1310nm parallel module
- DDM function implemented
- Single MPO receptacle
- Single 3.3V power supply
- RoHS compliant (lead free)

APPLICATIONS

- 40G Ethernet
- Infiniband QDR and DDR interconnects

ORDERING INFORMATION

Part Number	Form Factor	Data Rate (Gbps)	Media	Distance (km)	Wavelength (nm)	Temperature (°C)
TQ1341L-CN	QSFP+	41.25	SMF	10	1310	0~70

ABSOLUTE MAXIMUM RATINGS

Exceeding the limits below may damage the transceiver permanently.

Parameter	Symbol	Min	Typ	Max	Unit.	Note
Storage Temperature	TSTG	-40	-	85	°C	
Operating Relative Humidity	RH	5	-	95	%	
Supply Voltage	VCC	-0.3	-	3.6	V	

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Unit.	Note
Operating Case Temperature	Tc	0	-	70	°C	
Supply Voltage	VCC3	3.13	3.3	3.47	V	
Supply Current	ICC3	-	-	1060	mA	+3.3V Supply
Data Rate	DR	-	10.3125	-	Gbps	

ELECTRICAL and OPTICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit.	Note
Transmitter						
Tx Differential Input Amplitude	Vin p-p	300	-	1100	mV	
Input Differential Impedance	Zin	90	100	110	Ω	
Center Wavelength Range	AC	1270	1310	1350	nm	
Side-Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Launch power, each lane	Pavg	-7	-	2.3	dBm	
Outer Optical Modulation Amplitude, each lane	Poma	-4	-	3.5	dBm	
Extinction ratio, each lane	ER	3.5	-	-	dB	
Relative Intensity Noise	RIN	-	-	-128	dB/Hz	
Optical Return Loss Tolerance	Tol	-	-	20	dB	
Transmitter Reflectance	Rt	-	-	-12	dBm	
Average Launch Power of OFF transmitter each lane	Poff	-	-	-30	dBm	
Receiver						
Rx Differential Output Amplitude	Vout p-p	300	-	850	mV	
Receiver Optical Wavelength	AC	1270	1310	1350	nm	
Damage threshold	Rdam	3			dBm	
Average Receive Power, each lane	Pin	-13.7	-	2.3	dBm	
Receiver Power, each lane		-	-	2.3	dBm	
Stressed Receiver Sensitivity (OMA), each lane	Sens			-10.3	dBm	
Receiver Sensitivity(OMA), each lane	Sen			-12.6	dBm	Note 1
LOS Assert Level	LOSA	-30	-	-	dBm	
LOS De-Assert Level	LOSD	-	-	-14	dBm	
LOS Hysteresis	LOSH	0.5			dB	

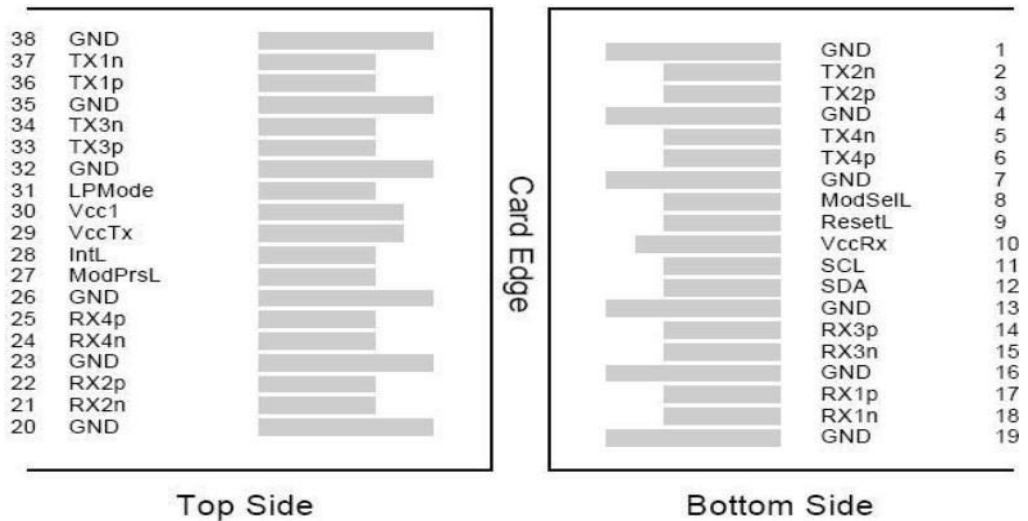
Notes:.

1. Measured with a test pattern of PRBS 2³¹-1 at Pre-fec BER 1E-12.

Digital Diagnostic Functions

Parameter	Symbol	Min.	Max.	Unit	Repeatability	Notes
Temperature	DDMI_Temp	-3	3	°C	± 1°C	1LSB=1/256°C
Supply Voltage	DDMI_VCC	-3%	3%	V	± 1 %	1LSB=0.1mV
Bias Current	DDMI_Ibias	-10%	10%	mA	± 5 %	1LSB=2uA
TX Optical Power	DDMI_TX	-3	+3	dB	± 0.5 dB	1LSB=0.1uW
RX Optical Power	DDMI_RX	-3	+3	dB	± 1.5 dB	1LSB=0.1uW

PIN DIAGRAM



PIN DESCRIPTIONS

Pin	Logic	Symbol	Name/Description	Notes
1		GND	Transmitter Ground (Common with Receiver Ground)	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Transmitter Ground (Common with Receiver Ground)	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Transmitter Ground (Common with Receiver Ground)	1
8	LVTTL-I	ModSelL	Module Select	2
9	LVTTL-I	ResetL	Module Reset	2
10		VccRx	3.3V Power Supply Receiver	
11	LVC MOS-I/O	SCL	2-Wire serial Interface Clock	2
12	LVC MOS-I/O	SDA	2-Wire serial Interface Data	2
13		GND	Transmitter Ground (Common with Receiver Ground)	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Transmitter Ground (Common with Receiver Ground)	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Transmitter Ground (Common with Receiver Ground)	1
20		GND	Transmitter Ground (Common with Receiver Ground)	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Transmitter Ground (Common with Receiver Ground)	1
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Transmitter Ground (Common with Receiver Ground)	1
27	LVTTL-O	ModPrsl	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	3.3V power supply transmitter	
30		Vcc1	3.3V power supply	
31	LVTTL-I	LPMODE	Low Power Mode	2
32		GND	Transmitter Ground (Common with Receiver Ground)	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Transmitter Ground (Common with Receiver Ground)	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Transmitter Ground (Common with Receiver Ground)	1

