QSFP+ 40G 850nm 150m MPO Transceiver

TQ8541J-CN Product Specification

FEATURES

- Typical data rate 10.3125Gbps per channel
- High Reliability 850nm VCSEL technology
- MPO connector receptacle
- Single +3.3V power supply
- Hot-pluggable
- International Class1 laser safety certified
- Operating temperature range: 0 ~ +70℃
- RoHS Compliant
- Support Digital Diagnostic Monitoring interface
- Max reach 150m on 50/125μm MMF

APPLICATIONS

- 40GB Ethernet links
- Infiniband QDR, DDR and SDR
- 40G Telecom connections

ORDERING INFORMATION

Part Number	From Factor	Data Rate（Gbps）	Media	Distance (km)	Wavelength (nm)	Temperature (℃)
TQ8541J-CN	QSFP+	41.25	SMF	0.15	850	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	ºC	
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	ºC	
Supply Voltage	VCC3	3.13	3.3	3.47	V	
Supply Current	ICC3	-	-	450	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	
Average Launch Power, each lane	PO	-7.6	-	1	dBm	
Extinction Ratio	ER	3	-	-	dB	
Transmitter and Dispersion Penalty	TDP	-	-	3.5	dB	
Center Wavelength Range	λ c	840	850	860	nm	
Spectrum Width	Δ λ	-	-	3.5	nm	
Tx Disable Voltage	VOH	VCC-0.5	-	VCC	V	LVTTL
	VOL	0	-	0.4	V	LVTTL
Optical Power at Tx Disable	Ptxdis	-	-	-30	dBm	
Receiver						
Rx Differential Output Amplitude	Vout p-p	500	-	800	mV	
Receiver Optical Wavelength	λ c	840	850	860	nm	
Receiver Sensitivity,each lane	Sen	-	-	-9.9	dBm	Note 1
Receiver Overload	OL	2.4	-	-	dBm	
LOS Voltage	Normal	2	-	Vcc	V	LVTTL
	Fault	0	-	0.8	V	LVTTL

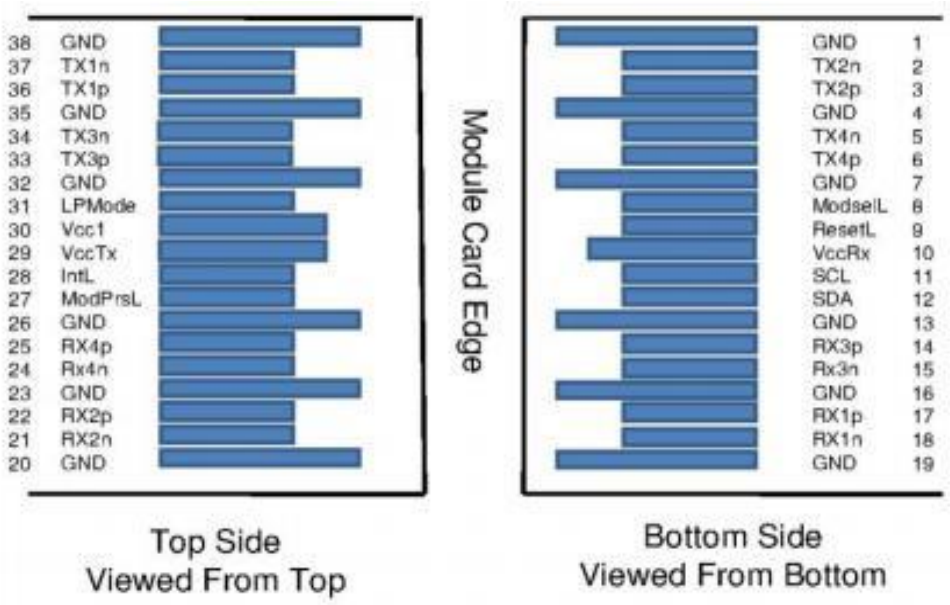
Parameter	Symbol	Min	Typ	Max	Unit.	Note
LOS Assert Level	LOSA	-30	-	-	dBm	
LOS De-Assert Level	LOSD	-	-	-12	dBm	
LOS Hysteresis	LOSH	0.5		6	dB	

Notes:
1.Measured with 2^31-1 NRZ Pattern. BER≤1E-12@10Gpbs, ER=3dB

Digital Diagnostic Functions

Parameter	Symbol	Min.	Max.	Unit	Notes
Temperature	DDMI_Temp	-3	3	℃	1LSB=1/256℃
Supply Voltage	DDMI_V_{CC}	-3%	3%	V	1LSB=0.1mV
Bias Current	DDMI_I_{bias}	-10%	10%	mA	1LSB=2uA
TX Optical Power	DDMI_TX	-3	+3	dB	1LSB=0.1uW
RX Optical Power	DDMI_RX	-3	+3	dB	1LSB=0.1uW

PIN DIAGRAM



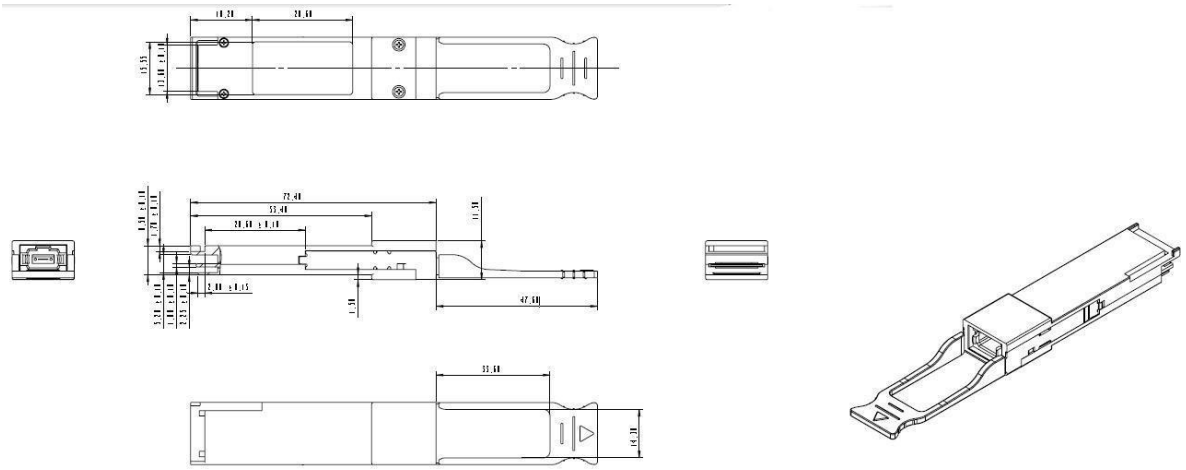
PIN DESCRIPTIONS

Pin	Symbol	Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	TX2N	Transmitter Inverted Data Input	
3	TX2P	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	TX4N	Transmitter Inverted Data Input	
6	TX4P	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3 V Power supply receiver	2
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	1
17	RX1P	Receiver Non-Inverted Data Output	
18	RX1N	Receiver Inverted Data Output	
19	GND	Ground	1

20	GND	Ground	1
21	RX2N	Receiver Inverted Data Output	
22	RX2P	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	RX4N	Receiver Inverted Data Output	1
25	RX4P	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+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 Input	
34	TX3N	Transmitter Inverted Data input	
35	GND	Ground	1
36	TX1P	Transmitter Non-Inverted Data Input	
37	TX1N	Transmitter Inverted Data input	
38	GND	Ground	1

Notes:
1. All Ground (GND) are common within the QSFP+ module and all module voltages are referenced to this potential unless noted otherwise. Connect these directly to the host board signal common ground plane.
2. VccRx, Vcc1 and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. The connector pins are each rated for a maximum current of 500mA.

MECHANICAL SPECIFICATION



LABEL DIAGRAM

Optowire

TQ8541J-CN

QSFP+ 40G 850nm 150m MPO

Class 1 Laser

MADE IN CHINA

S/N: ?????????

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