PH 888-568-1230 | EM Sales@LANshack.com

Description

General

This QuickTreX® transceiver is a quad small form-factor pluggable module for serial optical data communications such as IEEE 802.3cd 400GBASE-SR8. The 400G QSFP-DD SR8 is a 8x 26.5625Gbd multi-mode fiber, hot pluggable optical transceiver. It is with the QSFP-DD 38-pin connector to allow hot plug capability. The internally ac coupled high speed serial I/O simplifies interfacing to external circuitry. A serial EEPROM in the transceiver allows the user to access transceiver digital diagnostic monitoring and configuration data via the 2-wire QSFP Management Interface.

Transmitter Section

The transmitter section uses Vertical Cavity Surface Emitted Lasers (VCSEL).In addition, this component is also class 1 laser that compliant with International Safety Standard IEC-60825-1:2014. It complies with EN60825-1:2014/A11:2021 and FDA 21 CFR1040.10 and 1040.11

Receiver Section

The receiver incorporates GaAs PIN photodiodes integrated with trans-impedance preamplifiers (TIA) and limiting post-amplifier ICs.

QDD-400G-SR8-S Compatible 400GBASE-SR8 QSFP-DD PAM4, 850nm, 100m	
MPO Type with DDM	**QT-MM4-M16-QSFPDD-400G-100M**

Features

- Single +3.3V Power Supply
- Compliant with QSFP-DD MSA
- Compatible with QSFP-DD CMIS rev 4.0
- Compliant with IEEE 802.3cd 400GBASE
- 8x26.5625Gbd electrical Interface
- Low power consumption
- Up to 100m with OM4 MMF
- Class 1 Laser International Safety Standard IEC-60825-1:2014 Compliant. Complies with EN60825-1:2014/A11:2021 and FDA 21 CFR 1040.10 and 1040.11
- Commercial Operation Temp.: 0 °C to +70 °C
- Single MPO 16 receptacle
- RoHS-6 Compliant and lead-free

Applications

- 400GBASE-SR8 400G Ethernet Links
- Data Center / Cloud application

Performance Specifications

Absolute Maximum Ratings					
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**
Supply Voltage	V_{CC}	-0.5	-	3.6	V
Storage Temperature	T_S	-40	-	85	°C
Storage Ambient Humidity	H_A	0	-	85	%
Lead Soldering Limits	T_{SOLD}	-	-	260/10	°C/sec

Recommended Operating Conditions and Power Supply Requirements					
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Units**
Operating Case Temperature	T_{OP}	0	-	70	°C
Supply Voltage	V_{CC}	3.13	3.3	3.47	V
Baud Rate(per channel) PAM4	BR	-	26.5625	-	Gbd
Operating Distance(@OM4 MMF)	L	-	100	-	m
Power Dissipation	PD	-	-	4	W

Optical Characteristics

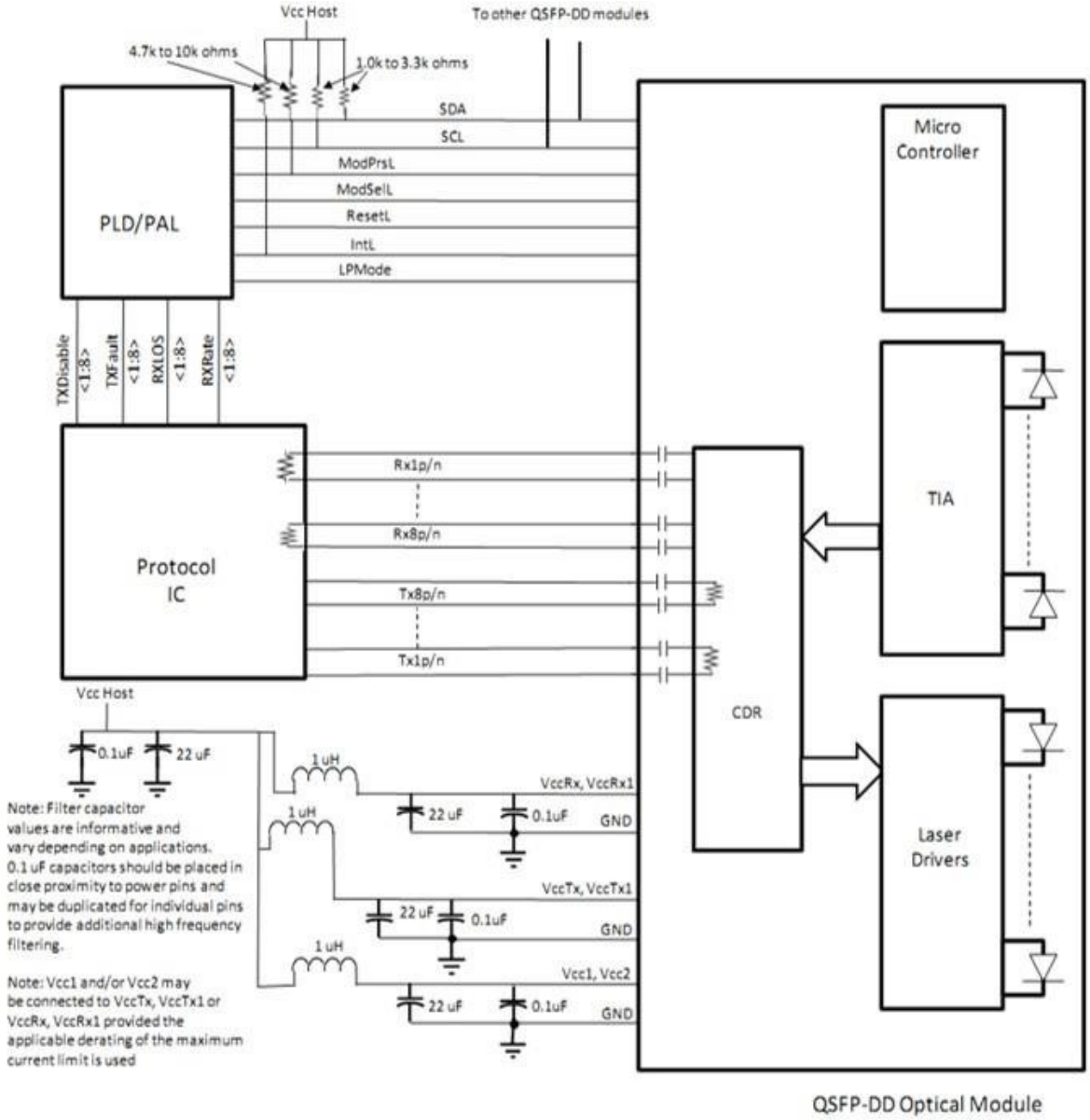
Transmitter Optical Characteristics					
Parameter	**Symbol**	**Min**	**Type**	**Max**	**Unit**
Average Launch Power, each Lane	$P_{O, AVG}$	-6.5	-	4	dBm
Optical Modulation Amplitude(OMA), each lane	$P_{O, OMA}$	-4.5	-	3	dBm
Center Wavelength	λ_C	840	850	860	nm
Spectral Width	$\Delta\lambda_{(RMS)}$	-	-	0.6	nm
Launch power in OMAouter minus TDECQ	$P_{O, TDECQ}$	-5.9	-	-	dBm
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane	-	-	-	4.5	dB
Extinction Ratio, each lane	ER	3	-	-	dB
Optical return loss tolerance	P_R	-	-	12	dB
Pout@TX Disable Asserted	P_{OFF}	-	-	-30	dBm
Receiver Optical Characteristics					
Parameter	**Symbol**	**Min**	**Type**	**Max**	**Unit**
Damage Threshold, each lane	THd	5	-	-	dBm
Average receive power, each lane	P_{in}	-8.4	-	4	dBm
Center Wavelength	λ_C	840	850	860	nm
Receiver Reflectance	R_R	-	-	-12	dB
Receiver Power(OMA), each lane	$P_{S,OMA}$	-	-	3	dBm
*Receiver Sensitivity(OMA), each lane	$Rs_{,OMA}$	Max(-6.5, SECQ 1.4)			dBm
Stressed Receiver Sensitivity(OMA), each lane	-	-	-	-3	dBm
LOS Asserted	P_A	-30	-	-	dBm.
LOS De-asserted	P_D	-	-	-9	dBm.
LOS Hysteresis	P_A-P_D	0.5	-	-	dB

*BER<2.4E-4 and PRBS 31Q.

Electrical Characteristics

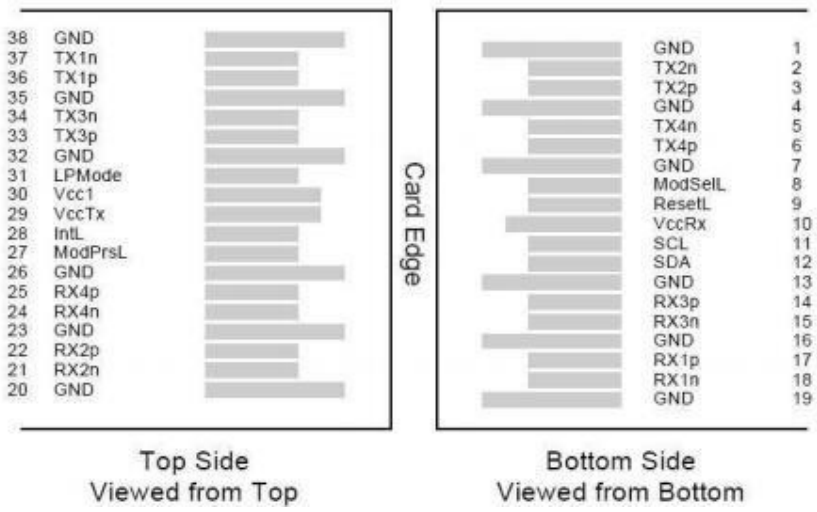
Parameter	**Symbol**	**Min**	**Type**	**Max**	**Unit**
Supply Voltage	V_{CC}	3.15	-	3.45	V
Power Dissipation	Pd	-	-	10	W
Transmitter(each Lane)					
Input different impedance	RIN	90	100	110	Ω
Single ended input voltage tolerance	V_{inT}	-0.3	-	4	V
Differential Input Voltage Amplitude	$V_{in,PP}$	-	-	900	mV
Receiver(each Lane)					
Bit error rate	BER	-	-	2.4E-4	
Output different impedance	R_{outR}	90	100	110	Ω
Single-ended output voltage	V_{outR}	-0.3	-	4	V
Differential Output Voltage Amplitude	$V_{out,PP}$	-	-	900	mV

Recommended Interface Circuit



QSFP-DD Optical Module

QSFP-DD Transceiver Electrical Pad Layout



Pinout Table

Pin	Symbol	Name/Description	Ref.
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	
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	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 Input	
34	Tx3n	Transmitter Inverted Data Output	
35	GND	Ground	1
36	Tx 1p	Transmitter Non-Inverted Data Input	
37	Tx 1n	Transmitter Inverted Data Output	
38	GND	Ground	1

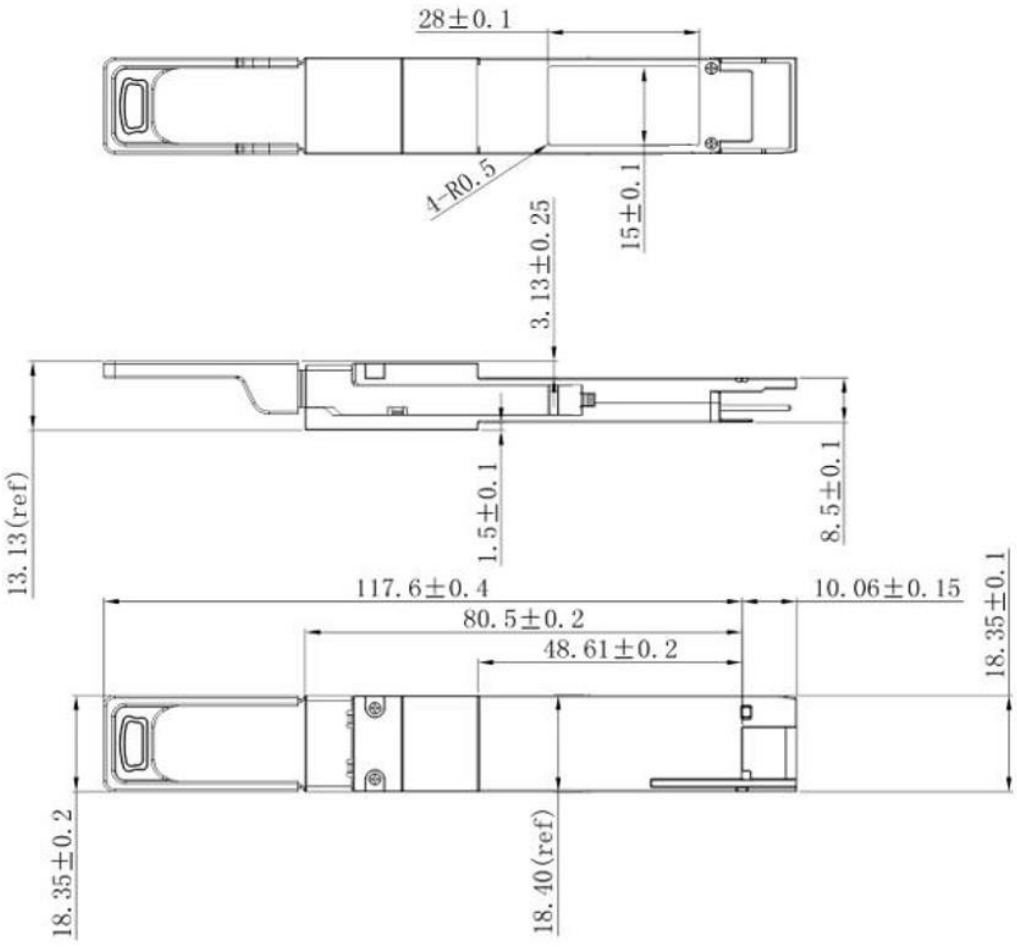
Notes:

1. Module ground pins GND are isolated from the module case and chassis ground within the module.
2. Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power supplies and shall be applied concurrently. Vcc Rx Vcc1 and Vcc Tx may be internally connected within the QSFP+ module in any combination.

Package Outline Drawing

MPO Type (SQ Series)

DIMENSIONS ARE IN MILLIMETERS (unit:mm)



Eye Safety

The transceiver is a class 1 laser product. It complies with EN60825-1:2014/A11:2021 and FDA 21 CFR 1040.10 and 1040.11. In order to meet laser safety requirements the transceiver shall be operated within the Absolute Maximum Ratings.

Caution

All adjustments have been done at the factory before the shipment of the devices. No maintenance and user serviceable part is required. Tampering with and modifying the performance of the device will result in voided product warranty.