

Product Specification Datasheet

TNQ5858XM-CD100

QSFP56 200G SR4 Optical Transceiver



The Trustnuo QSFP56 200G SR4 is a 4x 53.125Gbps multi-mode fiber, hot pluggable optical transceiver.

The module integrates four parallel lanes with baud rate at 26.5625GBd each lane. It can transmit up to 70m on fiber OM3 fiber and 100m on OM4 fiber with FEC.

Features

- Compliant with 200G-SR4 optical specifications
- 4x53.125Gb/s electrical interface (200GAUI-4)
- Reach up to 70m on MMF(OM3)
- Reach up to 100m on MMF(OM4)
- Single +3.3V power supply
- Case temperature range: 0 ~ +70°C
- Maximum power consumption 4W
- Single MPO12 connector
- RoHS complaint

Applications

- 200G BASE-SR4 Ethernet links
- Data centers

Standards

- IEEE 802.3cd
- SFF 8679
- CMIS4.0 or SFF8636

Rev	Date	Modified by	Description
A	Jan 20, 2020	Jason	Initial Release
B	Aug 8, 2021	Eric	Update spec
C	Feb 9, 2022	Eric	Update drawing

1. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Power Supply Voltage	Vcc	-0.3	3.6	V
Input Voltage	Vin	-0.3	Vcc+0.3	V
Storage Temperature	Tst	-40	85	°C
Case Operating Temperature	Top	0	70	°C
Humidity(non-condensing)	RH	10	85	%
Receiver Damage Threshold, each lane	Pin	5		dBm
Maximum Power Consumption	Pmax		4	W

2. Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0	-	70	°C	Without air flow
Power Supply Voltage	VCC	3.135	3.3	3.465	V	

3. Transmitter characteristics

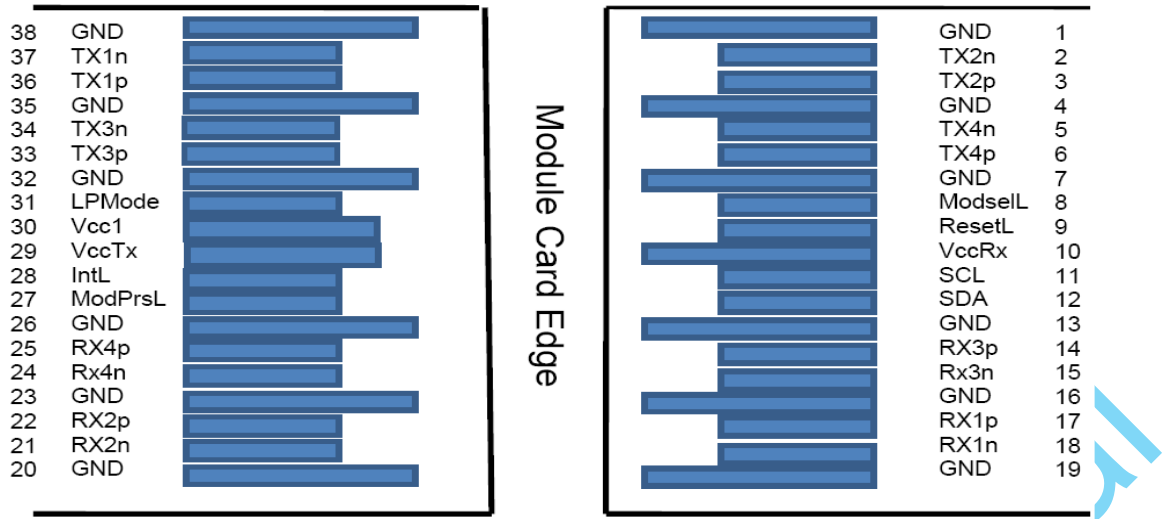
Parameter	Min	Typical	Max	Unit
Signaling Rate, each lane (range)	26.5625±100ppm			GBd
Center Wavelength Range	840		860	nm
Modulation Format	PAM4			
RMS spectral width			0.6	nm
Average launch power, each lane	-6.5		4	dBm
Outer Optical Modulation Amplitude (OMA _{outer}), each lane	-4.5		3	dBm
Launch power in OMA _{outer} minus TDECQ	-5.9			dBm
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane			4.5	dB
Extinction ratio, each lane	3			dB
Optical return loss tolerance			12	dB
Encircled flux	≥86% at 19um ≤30% at 4.5um			

4. Receiver characteristics

Parameter	Min	Typical	Max	Unit
Signaling Rate, each lane (range)	26.5625±100ppm			GBd
Center Wavelength Range	840		860	nm
Modulation Format	PAM4			
Average receive power, each lane	-8.4		4	dBm
Receive power, each lane (OMA _{outer})			3	dBm
Receiver reflectance			-12	dB
Stressed receiver sensitivity (OMA _{outer}), each lane			-3.4	dBm
Receiver sensitivity (OMA _{outer}), each lane	Max(-6.5, SECQ-7.9)			dBm
Stressed eye closure for PAM4 (SECQ), lane under test		4.5		dB
SECQ – 10log10(Ceq) (max), lane under test			4.5	dB

5. QSFP56 Connector and Pinout Description

The electrical interface to the transceiver is a 38 pins edge connector. The 38 pins provide high speed data, low speed monitoring and control signals, I2C communication, power and ground connectivity. The top and bottom views of the connector are provided below, as well as a table outlining the contact numbering, symbol and full description.



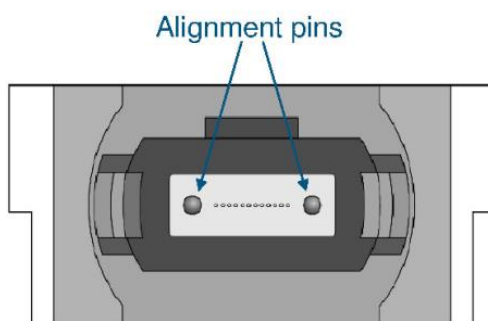
Top Side
Viewed From Top

Bottom Side
Viewed From Bottom

Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
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
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground

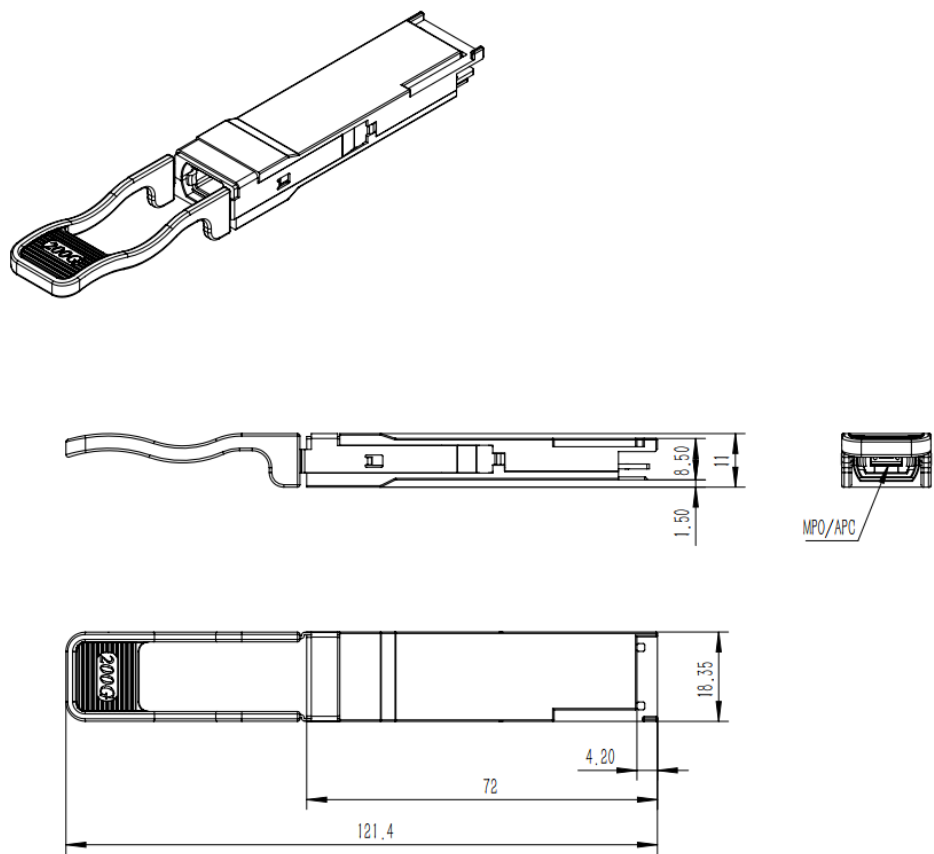
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output
22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc1	+3.3 V Power Supply
31	LPMODE	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

6. Optical interface



Transmit Channels: 1 2 3 4
 Unused positions: x x x x
 Receive Channels: 4 3 2 1

7. Mechanical Specifications



8. Order information

Part Number	Description
TNQ5858XM-CD100	QSFP56 200G SR4 Optical Transceiver

XX: customized; 01 means TRUSTNUO standard product