PRODUCT SPECIFICATION

Part No.:	QSFP28-100G-PSM4	
Description:	100G QSFP28 PSM4 Transceiver, SMF 1310nm 500m	
Release Date	**Rev.**	**Revision Change Description**
2017/06/17	A0	New Release
2020/11/26	A1	Template Update
2022/04/28	A2	BER Spec changed from BER<10^{-12} to BER<$5x10^{-5}$

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Features

- ✧ Supports line rates from 103.125 Gbps to 111.81 Gbps
- ✧ Digital Diagnostics Monitoring Interface
- ✧ Up to 500m transmission over SMF
- ✧ Hot-pluggable QSFP28 form factor
- ✧ No external reference clock required
- ✧ MPO receptacle
- ✧ Commercial operating case temperature range: 0~ 70ºC
- ✧ RoHS-6 compliant
- ✧ Power dissipation < 3.5 W

Application

- ✧ 100G Ethernet
- ✧ Data center
- ✧ InfiniBand EDR

Standard

- ✧ QSFP28 MSA
- ✧ SFF-8636

Specification:

Absolute Maximum Ratings				
Parameter	**Symbol**	**Min**	**Max**	**Unit**
Storage Ambient Temperature	T_{STG}	-40	85	℃
Operating Humidity	H_O	0	85	%
Power Supply Voltage	Vcc	-0.5	3.6	V
Signal Input Voltage		Vcc-0.3	Vcc +0.3	V

Recommended Operating Conditions					
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**
Operating Case Temperature	Tc	0		70	℃
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Power Supply Current	ICC			1060	mA
Data Rate,each Lane			25.78125		Gbps
Fiber Length 9/125μm core SMF		-	0.5	-	km

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Optical transmitter Characteristics						
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Launched Power (avg.) Per Lane	Pavg	-6.0		2.0	dBm	
Total Output. Power	Pout			9.5	dBm	
Wavelength Range	λ0	1260	1310	1355	nm	
Spectral Width(-20dB)	Δλ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	3.5			dB	
Transmitter OFF Output Power	POff			-30	dBm	
Differential Line Input Impedance	RIN			-128	Ohm	
Output Eye Mask definition {X1，X2，X3，Y1，Y2，Y3}	{0.31,0.4,0.45,0.34,0.38,0.4}					
Output Eye Diagram	Compliant with ITU-T G.957 eye mask and IEEE802.3ae eye mask					

Optical receiver Characteristics						
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Receiver Wavelength Range		1260		1355	nm	
Average Receiver Power Per Lane				3.5	dBm	
Receiver Sensitivity Per Lane	S			-10.2	dBm	1

Optical Power Input Overload		P_{in-max}	4.5			dBm	
LOS	Optical De-assert	Pd			-12	dBm	
	Optical Assert	Pa	-18				
Receiver Reflectance		Rr			-26	dB	

Notes:

1. Measured with a PRBS 2^{31}-1 test pattern, @25.78Gb/s, BER<5x10-^{5}

Pin Definition

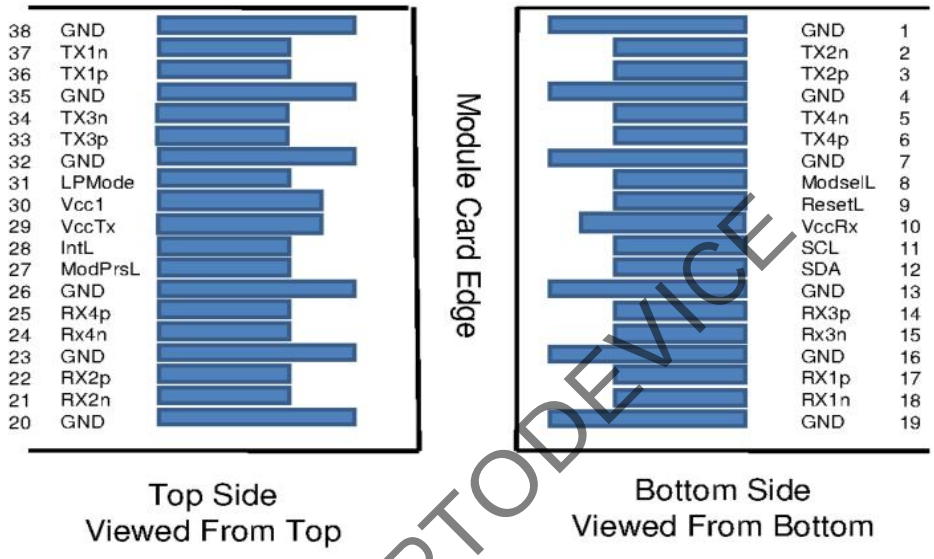


Figure1 QSFP MSA-compliant 38-pin connector

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Pin	Symbol	Name/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

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Table 1: QSFP28 Module PIN Definition

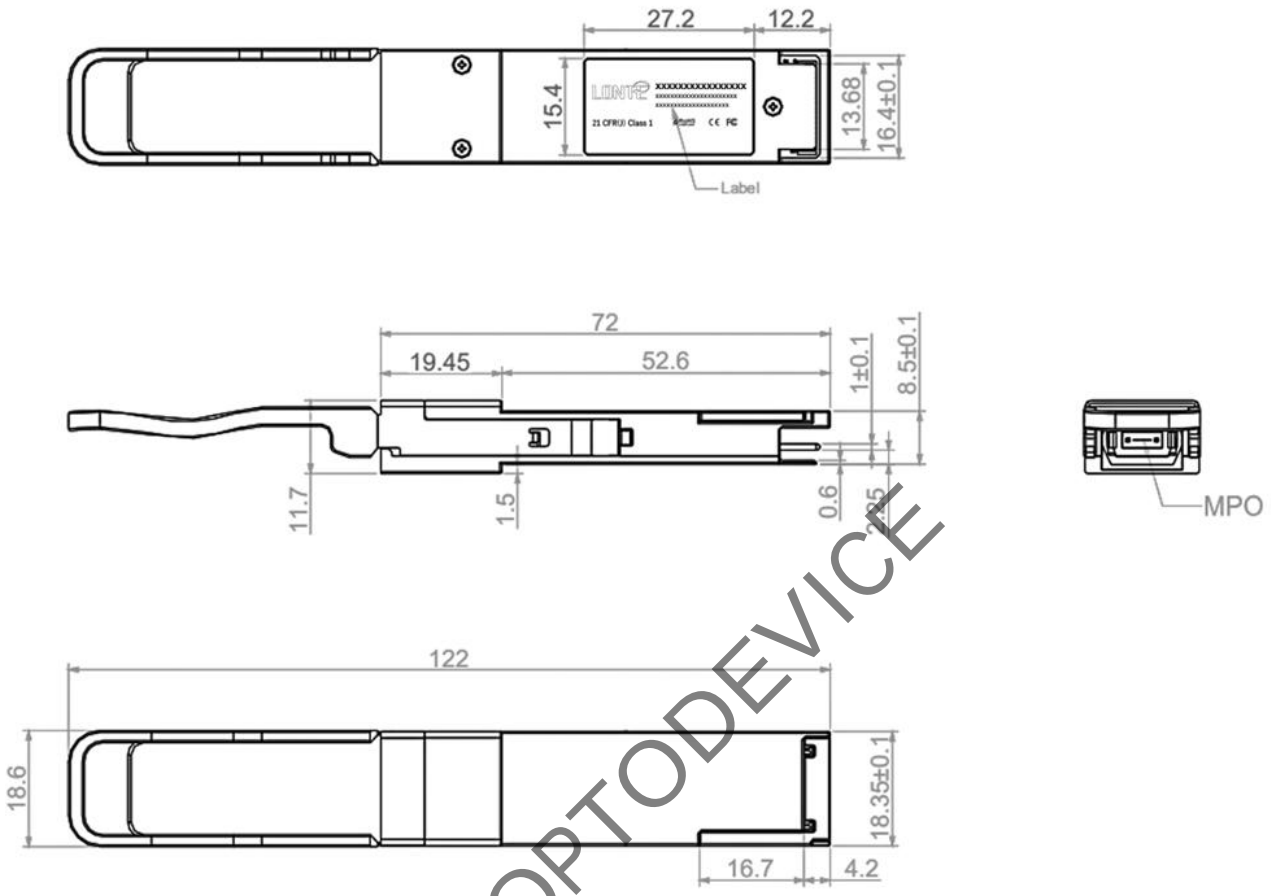
Notes：

1. GND is the symbol for signal and supply (power) common for QSFP28 modules. All are common within the QSFP28 module and all module voltages are referenced to this potential unless otherwise noted. 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. Recommended host board power supply filtering is shown in Figure 3 below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP28 transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

Package Outline

Dimensions are in millimeters. All dimensions are ±0.2mm unless otherwise specified. (Unit: mm)



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Regulatory Compliance

Feature	Test	Method
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1(>1000V for SFI pins, >2000Vfor other pins.)
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	Class 2(>4.0kV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B FCC Class B CENELEC EN55022 VCCI Class 1	Comply with standard
Immunity	IEC61000-4-3	Comply with standard
Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1,2	Compatible with Class I laser Product

Ordering information

Part. No	Specifications								
	Pack	Rate (Gbps)	Tx (nm)	Po (dBm)	RX	Sen (dBm)	Temp (℃)	Reach (KM)	DDM
QSFP28-100G-PSM4	QSFP28	100G	DFB 1310	-6.0~2.0	PIN	<-10.2	0~70	0.5	Y

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