

TITLE 100G QSFP28 SR4 Transceiver	DOC No. RFD-20231218009-001	
	REVISION : 01	AUTHORIZED BY : Andy Yang
	DATE : 2023.12.19	CLASSIFICATION : CONFIDENTIAL

1. PRODUCT FEATURES

- ✓ Compliant with QSFP+ MSA Specification
- ✓ Wide Operating Temperature(0°C~70°C)
- ✓ 4x25Gbps 850nm VCSEL-based Transmitter
- ✓ Maximum Link Length of 100m via OM4 Multimode Fiber(MMF)

2. APPLICABLE DOCUMENTS AND SPECIFICATIONS

- 100GBASE-SR4 100G Ethernet
- Data Center Backbone

3. PRODUCT DESCRIPTION

3.1 PRODUCT NAME

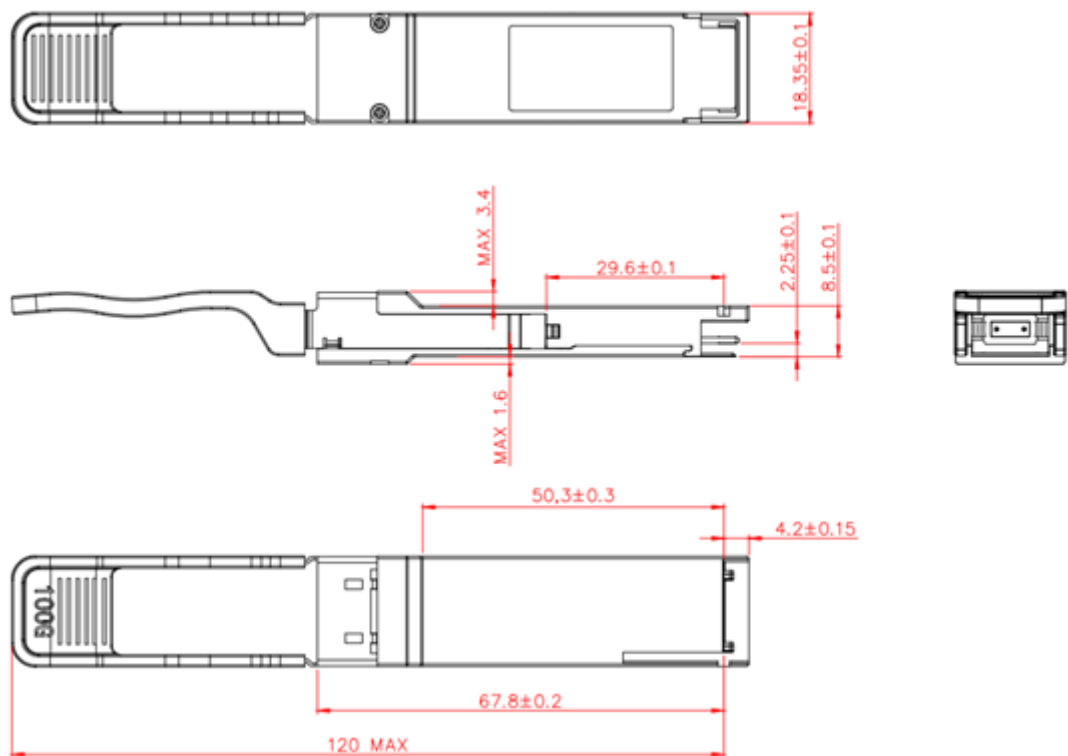
100G QSFP28 SR4 Transceiver

JPC P/N	Wavelength (nm)	Distance	Media	Power (dBm)	Sen. (dBm)	Connector	Tem.
P59**0ERCAS1-1	850	100m	MMF	-8.4 ~2.4	-7.2	MPO	C

Note-1 : ** Indicates the customer code.

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3.2 DIMENSIONS,MATERIALS,PLATINGS AND MARKING



Unit is millimeter. All dimensions are mm

4. Absolute Maximum Ratings & Recommended Operating Conditions

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Storage Temperature	T _s	-40	+85	°C	
Relative Humidity(Non-condensing)	RH	0	85	%	

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Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Operating Case Temperature	TC	0		70	°C	
Power Supply Voltage	V _{CC}	3.135		3.465	V	
Signaling Rate each Channel		-	25.78125	-	Gbps	
Supply Noise Rejection				100	mV	
Receiver Differential Data Output			100		Ohm	
Power Consumption				3.5	W	
Supply Current	I _{CC}			1050	mA	
Link distance on OM3 MMF	d			70	m	
Link distance on OM4 MMF	d			100	m	

Transmitter Operating Characteristic

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Signaling rate, each lane (range)	GBb		25.78125		GBb	
Average Output Power per lane	P _{OUT}	-8.4		2.4	dBm	
Extinction Ratio	ER	3			dB	
Center Wavelength Range	λ _c	840		860	nm	
RMS Spectral Width	Δλ	-	-	0.6	nm	
Average Launch power Tx_off	P _{off}	-		-30	dBm	
Optical Modulation Amplitude (OMA), each lane	TxOMA	-6.4		3	dBm	
Optical return loss tolerance				12	dB	

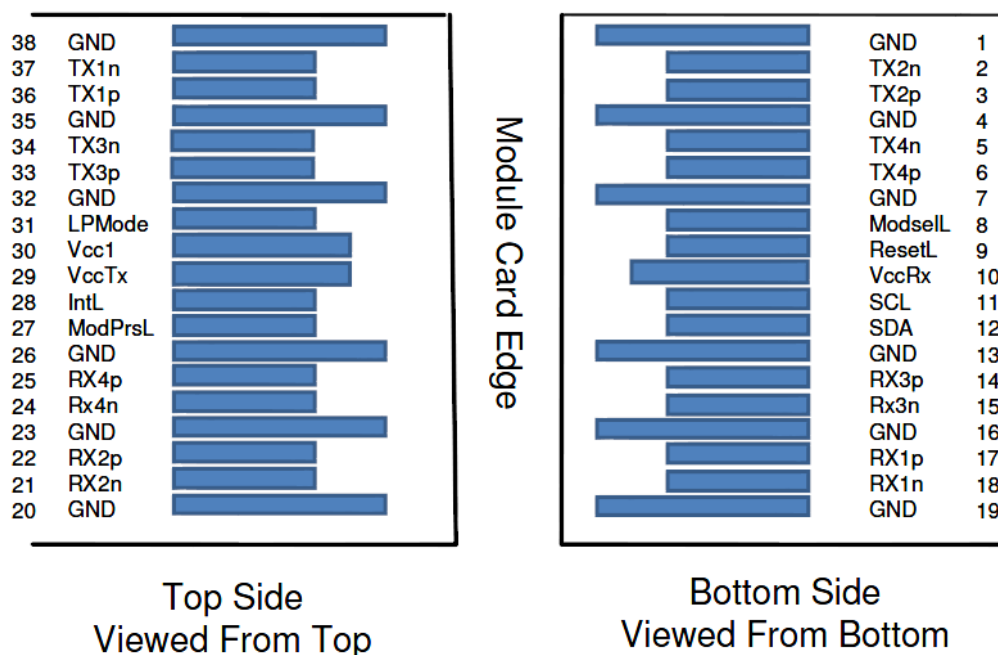
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Receiver Operating Characteristic

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Signaling rate, each lane (range)	GBb		25.78125		GBb	
Center Wavelength Range	λ_c	840	-	860	nm	
Damage threshold		3.4			dBm	
Average power at receiver input, each lane		-10.3		2.4	dBm	
Receive power, each lane (OMA)				3	dBm	
Receiver sensitivity (OMA) (BER@5e-5)	S_{OMA}			-7.2	dBm	
Receiver Reflectance	Rfl			-12	dBm	
LOS Assert	P_A	-30	-	-	dBm	
LOS De-Assert	P_D	-	-	-10.5	dBm	
LOS Hysteresis	$P_D - P_A$	0.5			dB	

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5. Applications Note :



Pin Definitions

Pin Assignment

Pin	Logic	Name/Description	Note
1	GND	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	2
9	ResetL	Module Reset	2
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	2
12	SDA	2-wire serial interface data	2

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13	GND	Ground	1
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	2
29	VccTx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power supply	
31	LPMODE	Low Power Mode	2
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] GND is the symbol for signal and supply (power) common for the QSFP28 module. All are common within the QSFP+ 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 receiver and transmitter power supplies and shall be applied concurrently. Recommended host board power supply filtering is shown. VccRx, Vcc1 and VccTx may be internally connected within the QSFP28 Module in any combination. The connector pins are each rated for a maximum current of 500 mA.

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Digital Diagnostic Function

The following characteristics are defined over recommended operating conditions

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	deg.C
Internally measured transceiver supply voltage	+/-3	%
Measured Tx bias current	+/-10	%
Measured Tx output power	+/-3	dB
Measured Rx received average optical power	+/-3	dB

6. Modification History

Rev.	Comments	Date	Originator	Approval
01	Preliminary Draft	2023/12/19	Andy Yang	Mike Sun

JPC connectivity

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