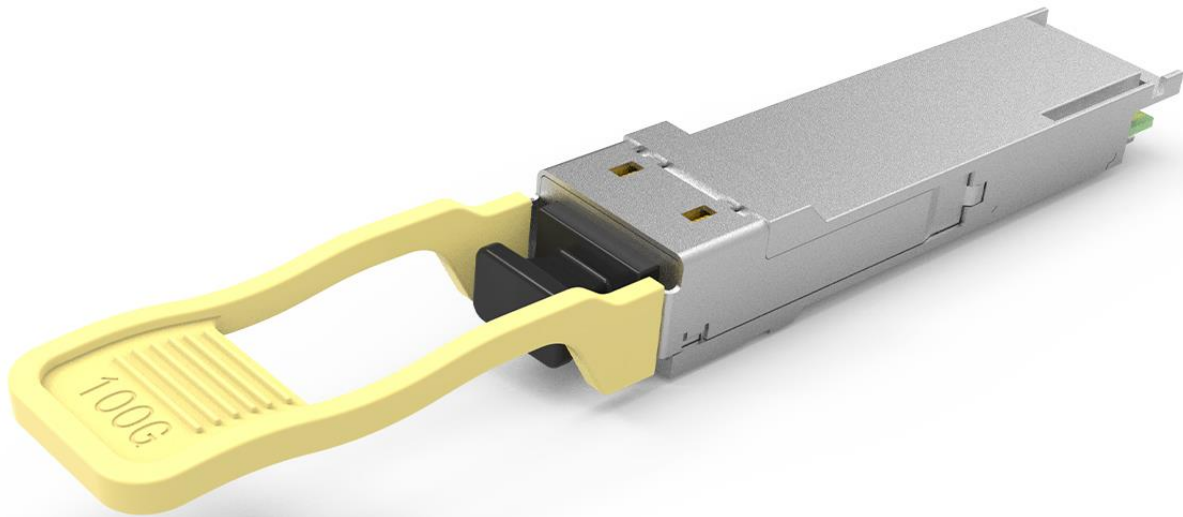


Product Datasheet

100G QSFP28 SR4 Transceiver



Application

- Data center & Networking Equipment
- Servers/Storage Devices
- High Performance Computing (HPC)
- Switches/Routers
- Telecom Central Offices (CO)
- Test and Measurement Equipment

Features

- Compliant to QSFP28 MSA
- SFF-8636 Specification
- Wide Operating Temperature(0°C~70°C)
- 4x25Gbps and 4x27.95Gbps 850nm VCSEL-based Transmitter
- RoHS compliant

1.0 Product Specification

1.1 Absolute Maximum Ratings (TC=25°C, unless otherwise noted)

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings will cause permanent damage and/or adversely affect device reliability.

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Storage Temperature	TS	-40	-	+85	°C	
Maximum Supply Voltage	Vcc	-0.5	-	3.6	V	
Operating Relative Humidity	RH	0	-	+85	%	No condensation

1.2 General Specifications (TC=25°C, Unless Otherwise Noted)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0		70	°C	C-Temp
		-40		85	°C	I-Temp
Power Supply Voltage	Vcc	3.15	3.3	3.45	V	
Power Consumption				3.5	W	
Lane Baud Rate	BR _{LANE}		25.78125		Gbps	
			27.9525		Gbps	
Bit Error Ratio	BER			1E-12		
Data Speed Tolerance	ΔDR	-100	-	+100	ppm	
Operating Distance	D			70	m	@ OM3 MMF
				100	m	@ OM4 MMF

1.3 Transmitter Characteristics (TC=25°C, Unless Otherwise Noted)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Center Wavelength	λ	840	850	860	nm	
RMS Spectral Width	RSM			0.6	nm	
Average launch power, each lane	Pf	-8.4		2.4	dBm	
Optical Modulation Amplitude (OMA), each lane	Tx OMA	-6.4		3	dBm	
Average launch power of OFF transmitter, each lane				-30	dBm	
Extinction ratio	ER	3			dB	

Optical return loss tolerance				12	dB	
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1.4 General Specifications (TC=25°C, Unless Otherwise Noted)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Center wavelength	λ	840	850	860	nm	
Damage threshold		3.4			dBm	
Receiver sensitivity (OMA)	S _{OMA}			-7.2	dB	BER@5E-5
Receiver reflectance				-12	dB	
LOS Assert	LOS _A	-30			dBm	
LOS De-Assert	LOS _D			-10.5	dBm	
LOS Hysteresis	LOSH	0.5			dB	

1.5 PIN Descriptions

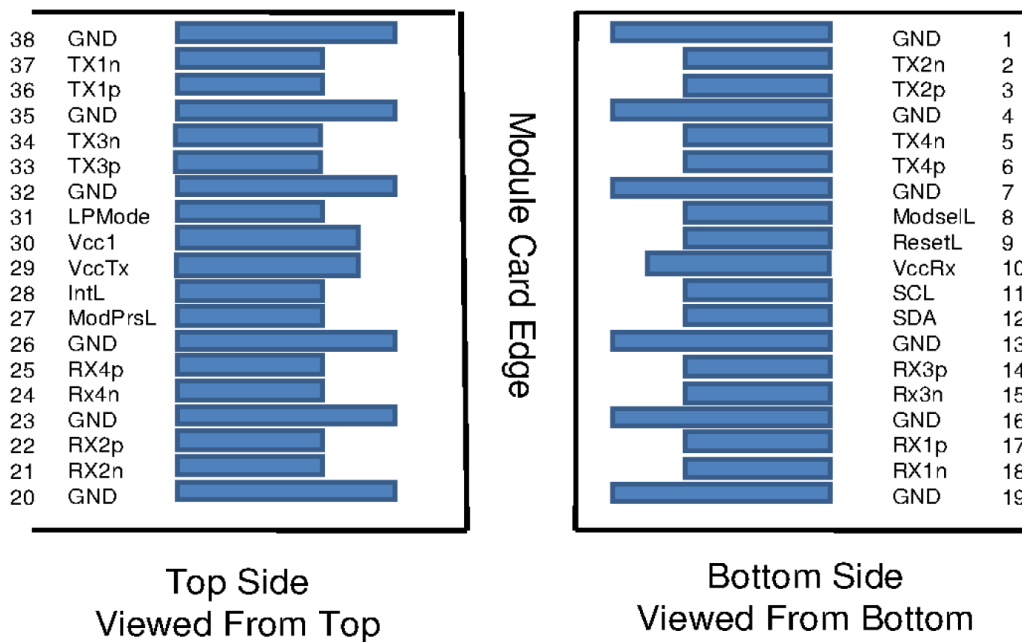


Figure 1 – Pin Definitions

PIN	Logic	Symbol	Name/Description
1		GND	Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data output
4		GND	Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data output
7		GND	Ground
8	LVTTL-I	ModSelL	Module Select

9	LVTTTL-I	ResetL	Module Reset
10		VccRx	+ 3.3V Power Supply Receiver
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data
13		GND	Ground
14	CML-O	Rx3p	Receiver Non-Inverted Data Output
15	CML-O	Rx3n	Receiver Inverted Data Output
16		GND	Ground
17	CML-O	Rx1p	Receiver Non-Inverted Data Output
18	CML-O	Rx1n	Receiver Inverted Data Output
19		GND	Ground
20		GND	Ground
21	CML-O	Rx2n	Receiver Inverted Data Output
22	CML-O	Rx2p	Receiver Non-Inverted Data Output
23		GND	Ground
24	CML-O	Rx4n	Receiver Inverted Data Output
25	CML-O	Rx4p	Receiver Non-Inverted Data Output
26		GND	Ground
27	LVTTTL-O	ModPrsL	Module Present
28	LVTTTL-O	IntL	Interrupt
29		VccTx	+3.3 V Power Supply transmitter
30		Vcc1	+3.3 V Power Supply
31	LVTTTL-I	LPMODE	Low Power Mode
32		GND	Ground
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input
34	CML-I	Tx3n	Transmitter Inverted Data Output
35		GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input
37	CML-I	Tx1n	Transmitter Inverted Data Output
38		GND	Ground

1.6 Mechanical Specifications

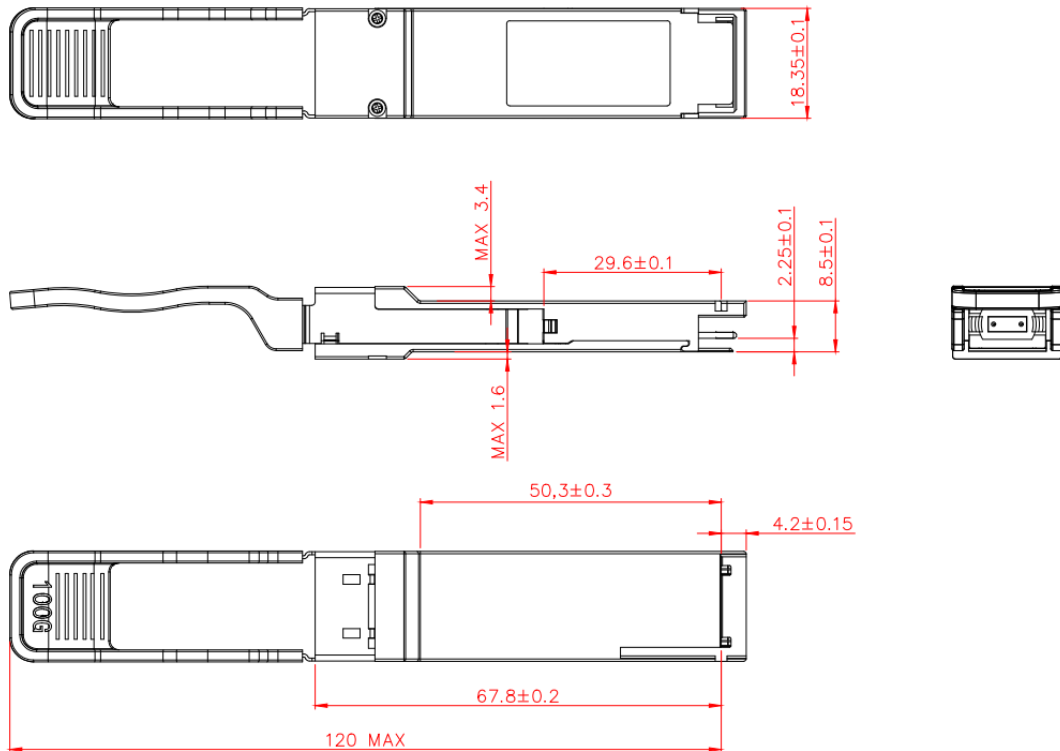


Figure 2 - Mechanical Specifications

1.7 Digital Diagnostics Monitor Accuracy

Parameter	Symbol	Accuracy	Units	Notes
Transceiver Case Temperature	DMI_TEMP	±5	°C	Over operating temp
Supply voltage monitor absolute error	DMI_VCC	±3	%	Full operating range
Channel Bias current monitor	DMI_IBIAS	±10	%	Per channel
Channel RX power monitor absolute error	DMI_RX	±3	dB	Per channel
Channel TX power monitor absolute error	DMI_TX	±3	dB	Per channel

2.0 Product Information

Data Rate	Factor		Optical	Wavelength	Reach
100G	QSFP28	SR4	MPO	850nm	100m/300m

ESD Safety Cautions

This transceiver is specified as ESD threshold 1KV for high speed data pins based on Human Body Model per ANSI/ESDA/JEDECJS-001. The units are subjected to 15kV air discharges during operation and 8kV direct contact discharges to the case. However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

Important Notice

The performance figures, data, and any illustrative material presented in this datasheet are typical and must be explicitly confirmed in writing by ZHAOLONG before they are deemed applicable to any specific order or contract.

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3.0 Revision Record

Rev.	Comments	Author	Date
A01	Initial Release	Koko Sun	10/01/2023