

BO-QSFP+LR4-10

QSFP+ Series

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40Gbps QSFP+ LR4 Transceiver,
1310nm wavelength,10KM Reach

Features

- Hot-pluggable QSFP+ form factor
- Supports 41.25Gb/s bit rate
- Power dissipation <3.5W
- ROHS-6 compliant
- ambient temperature range of 0°C to 70°C
- + 3.3V power supply
- Up to 10km of Single Mode Fiber
- High performance 4×11.2G LAN WDM cooled transmitters
- High sensitivity 4×11.2G PIN receivers
- Duplex LC receptacles
- I2C management interface
- Compliant to IEEE 802.3bm
- Compliant to SFF-8636
- Compliant with RoHS-6
- Class 1 Laser



Applications

- 40G Ethernet
- Data center network
- Switch/Router

Ordering information

Part No.	Data Rate	Laser	Fiber Type	Distance	Optical Interface	Temp	DDM
BO-QSFP+LR4-10	41.25Gbps	DFB	SMF	10KM	LC	0~70°C	Y

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Description

BO-QSFP+LR4-10 transceiver is a high-performance, cost-effective module for serial fiber data communication applications up to 41.25Gb/s. It complies with the 40GBASE-LR4 transmission standard based on the IEEE P802.3ba standard and supports links up to 10 km. This module multiplexes four LWDM optical signals into a single channel for 40 Gb/s optical transmission. The center wavelengths of the four LWDM channels are 1295.56nm, 1300.05nm, 1304.58nm, and 1309.14 nm, respectively, which falls within the LWDM wavelength grid defined by ITU-T G.694.2. To minimize optical dispersion in long-haul systems, this module must be used with single-mode fiber (SMF).

Absolute Maximum Ratings

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

Table 2-Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	TS	-40	85	°C	
Operating Case Temperature	TOP	0	70	°C	
Power Supply Voltage	VCC	-0.3	3.6	V	
Relative Humidity (non-condensation)	RH	0	85	%	

Recommended Operating Conditions

Table 3-Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Note
Operating Case Temperature	TOP	0		70	°C	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Power Consumption	P			3.5	W	
Supply Current	Icc			1	A	
Total data rate	DR		41.25		Gb/s	
Data Rate,per Lane	DR	-	10.3125	-	Gb/s	

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Transmission Distance	TD			10	KM	Over SMF
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Optical Characteristics

Table 4-Optical Characteristics

Transmitter						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Signal Rate Each Lane		10.3125±100ppm			Gbps	
Lane Wavelength	L0	1264.5	1271	1277.5	nm	
	L1	1284.5	1291	1297.5	nm	
	L2	1304.5	1311	1317.5	nm	
	L3	1324.5	1331	1337.5	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Spectral width	SW			1.0	nm	
Average power, each lane(EOL)	TXP	-7		3	dBm	
Extinction Ratio	ER	3.5			dB	
Optical Modulation Amplitude	OMA	-4		3.5	dBm	
Launch Power in OMA minus TDP, each lane		-4.8			dBm	
Difference in Power between any two lanes				6.5	dB	

Receiver						
Parameter	Symbol	Min	Typ	Max	Units	Note
Signal Speed Per Lane		10.3125±100ppm			Gbps	
Lane Wavelength	L0	1264.5	1271	1277.5	nm	
	L1	1284.5	1291	1297.5	nm	

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	L2	1304.5	1311	1317.5	nm	
	L3	1324.5	1331	1337.5	nm	
Max Input power		2.3			dBm	
Sensitivity,each lane				-11.5	dBm	
Stressed Receiver Sensitivity(OMA、EOL) ,each lane				-9.6	dBm	
Receiver Reflectance				-26	dBm	
Rx_Loss assert	LOSA	-30			dBm	
Rx_LossDe_assert	LOSD			-14	dBm	
LOS Hysteresis		0.5			dB	
Rx LOS in signal or RSSI			RSSI		-	

Electrical Characteristics

The following electrical characteristics are defined over the recommended operating environment unless otherwise specified.

Table 5-Electrical Characteristics

Parameter	Symbol	Mi	Typ	Max	Units	Notes
Transmitter (Module Input)						
Signal Rate per lane		10.3125±100ppm			Gbps	
Differential Data input Swing	V _{in_pp}	190	-	900	mV	
Tx Differential Input Impendence	Z _{IN}	-	100	-	Ω	
Receiver (Module Output)						
Signal Rate per lane		10.3125±100ppm			Gbps	
Differential Data Output Swing	V _{OUT_pp}	300	-	900	mV	
Rx Differential Output Impendence	Z _{OUT}	-	100	-	Ω	

Digital Diagnostics

Table 6-Digital Diagnostics

Parameter	Symbol	Min	Max	Unit	Note
Temperature Monitor Absolute Error	DMI_Temp	-3	3	°C	Cover full operating temperature range
Supply Voltage Monitor Absolute Error	DMI_VCC	-0.1	0.1	V	Cover full operating temperature range
Channel RX Power Monitor Absolute Error	DMI_RX_Ch	-3	3	dB	
Channel Bias Current Monitor	DMI_Ibias_Ch	-10%	10%		
Channel TX Power Monitor Absolute Error	DMI_TX_Ch	-3	3	dB	

Edge connector and pinout description

The electrical pinout of the QSFP+ module is shown in Figure 1 below.

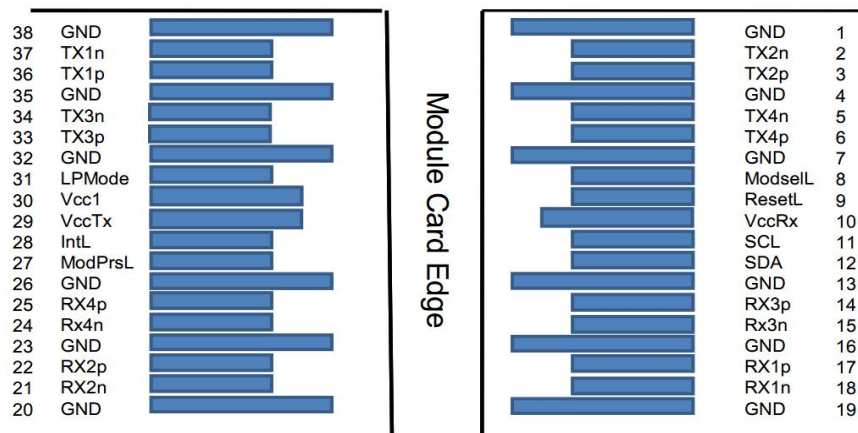


Figure 1. MSA compliant connector.

Pin	Name	Description	Notes
1	GND	Ground	
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	

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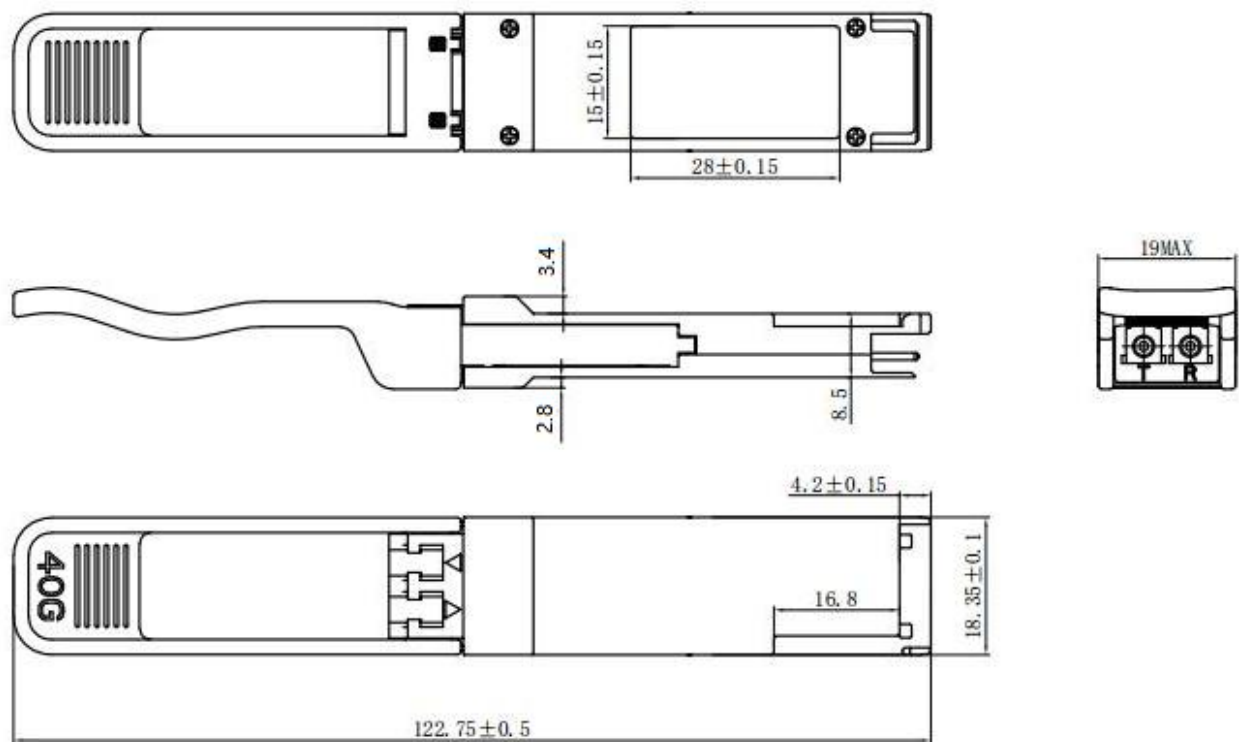
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted 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	

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29	VccTx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V 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	

Mechanical Dimension



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GUARANTEE:

1 year

Contact:

Address: 12A, Krasnolesya Street, Ekaterinburg 620010 Russian Federation

Tel: +7(343) 379-98-38

Fax: +7(343) 379-98-38

E-mail: info@nag.ru

Online shop: <http://shop.nag.ru>