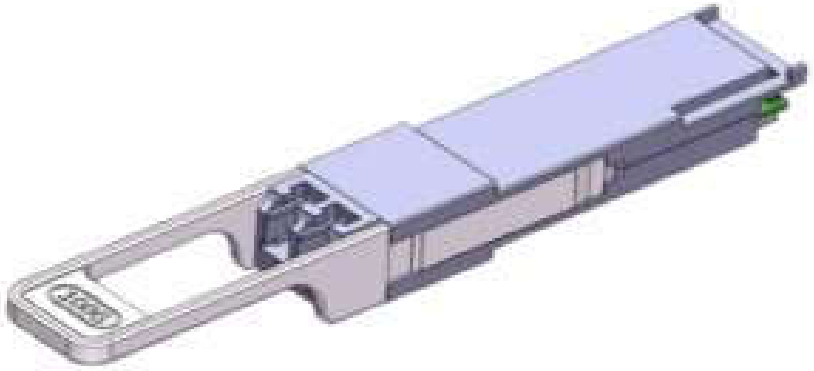
SNR-QSFP+Cxx-10

Single λ 40G PAM4 QSFP+ Transceiver

RoHS Compliant



Features

- Single wavelength 40GE transmission
- Fixed wavelengths on CWDM Grid
- Single 3.3V Power Supply and Power dissipation < 3.5W
- Up to 10km over SMF
- RoHS-6 compliant (lead-free)
- Commercial case temperature range of 0°C to 70°C
- 4x10G XLAUI Interface at host side
- Duplex LC receptacles
- I2C interface with integrated Digital Diagnostic Monitoring
- Safety Certification: TUV/UL/FDA*Note1
- RoHS Compliant

Applications

- CWDM 40GBASE-LR

Ordering Information

Part No.	Data Rate	Fiber	Distance *(note3)	Interface	Temp.	DDMI
SNR-QSFP+Cxx-10	42.5Gbps	SMF	10km	LC	0~+70℃	Yes

Note1: For the latest certification information, please check with NAG.

*The product image is only for reference purpose.

Product Description

SNR-QSFP+Cxx-10 – 40G single λ PAM4 QSFP+ transceiver modules are designed for 40 Gigabit Ethernet links over 10Km single mode fiber. Digital diagnostics functions are available via an I2C interface, as specified by the QSFP+MSA.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	Ts	-40	+85	°C
Supply Voltage	Vcc	-0.5	3.6	V
Operating Relative Humidity	RH	5	85	%

*Exceeding any one of these values may destroy the device immediately.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating case temperature	Tc	0		70	°C
Power supply voltage	Vcc	3.135	3.3	3.465	V
Power dissipation	P_D		3	3.5	W

Performance Specifications - Electrical

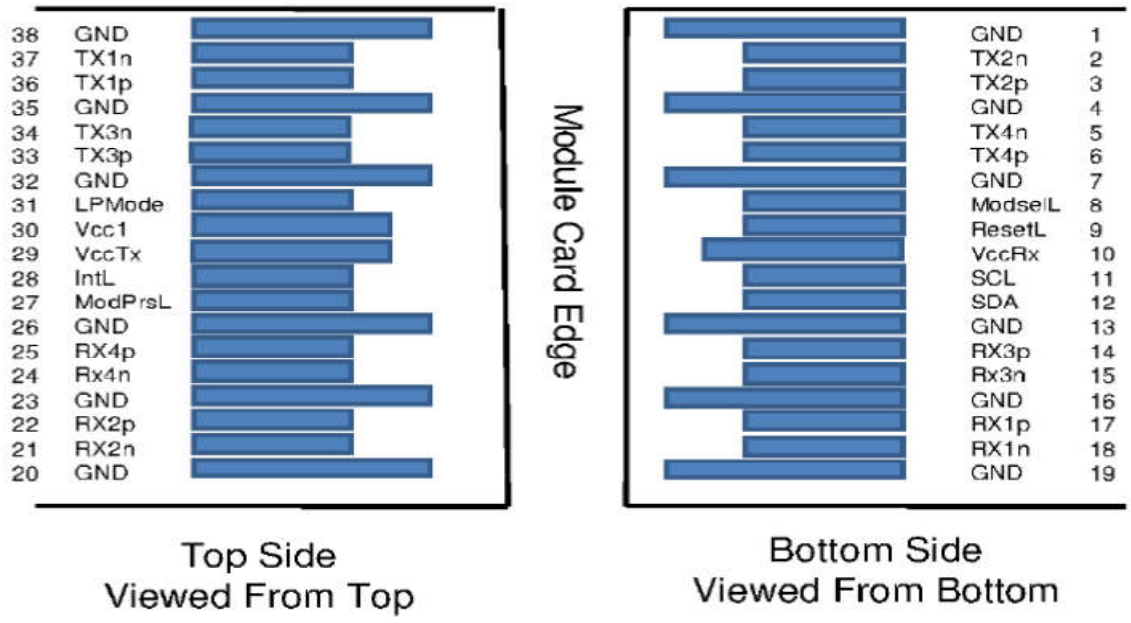
Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Data Rate per Lane	BR_{avg}		10.3125		Gbps	
Data Rate Variation		-100		+100	ppm	
Input Swing (Differential)	V_{in}	250		800	mVpp	AC coupled
Input Impedance (Differential)	Z_{in}	85	100	115	Ohm	
Receiver						
Data Rate per Lane	BR_{avg}		10.3125		Gbps	
Output Swing (Differential)	V_{out}	450			mVpp	AC coupled
Output Impedance (Differential)	Z_{out}	85	100	115	Ohm	
Low Speed Signals						
LPMode, Reset, ModSel	VIL	-0.3		0.8	V	
	VIH	2		V_{cc}+0.3		
ModPrs, Int	VOL	0		0.4	V	IOL = 2.0mA
	VOH	V_{cc}-0.5		V_{cc}+0.3		
SCL, SDA	VIL	-0.3		0.3*V_{cc}	V	
	VIH	0.7*V_{cc}		V_{cc}+0.3		
SCL, SDA	VOL	0		0.4	V	IOL_{max} = 3.0mA
	VOH	V_{cc}-0.5		V_{cc}+0.3		

Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate(1)	BR_{avg}		42.5		Gbps
Transmitter					
Center Wavelength	λ_C		1271 1291 1311 1331		nm
Center Wavelength Stability		λ_C-6.5		λ_C+6.5	nm
Average Output Power	P_0	-1		4	dBm
Optical Output Power, Tx: OFF)	P_{off}			-30	dBm
Receiver					
Operating Wavelength		1260		1570	nm
Receiver Sensitivity (Avg Power)(2)	Rx_{sens}		-10		dBm
Receiver Overload (Avg Power)	Rx_{sat}	4			dBm
Optical Return Loss	ORL	-27			dB
LOS Assert	LOSA	TBD			dBm
LOS De-Assert	LOSD			TBD	dBm
LOS Hysteresis		0.5	1.0		dB

Notes :
(1) With KP4 FEC.
(2) Rx sensitivity is for pre-FEC BER < 1E-5 without dispersion.

QSFP Transceiver Electrical Pad Layout



Top Side
Viewed From Top

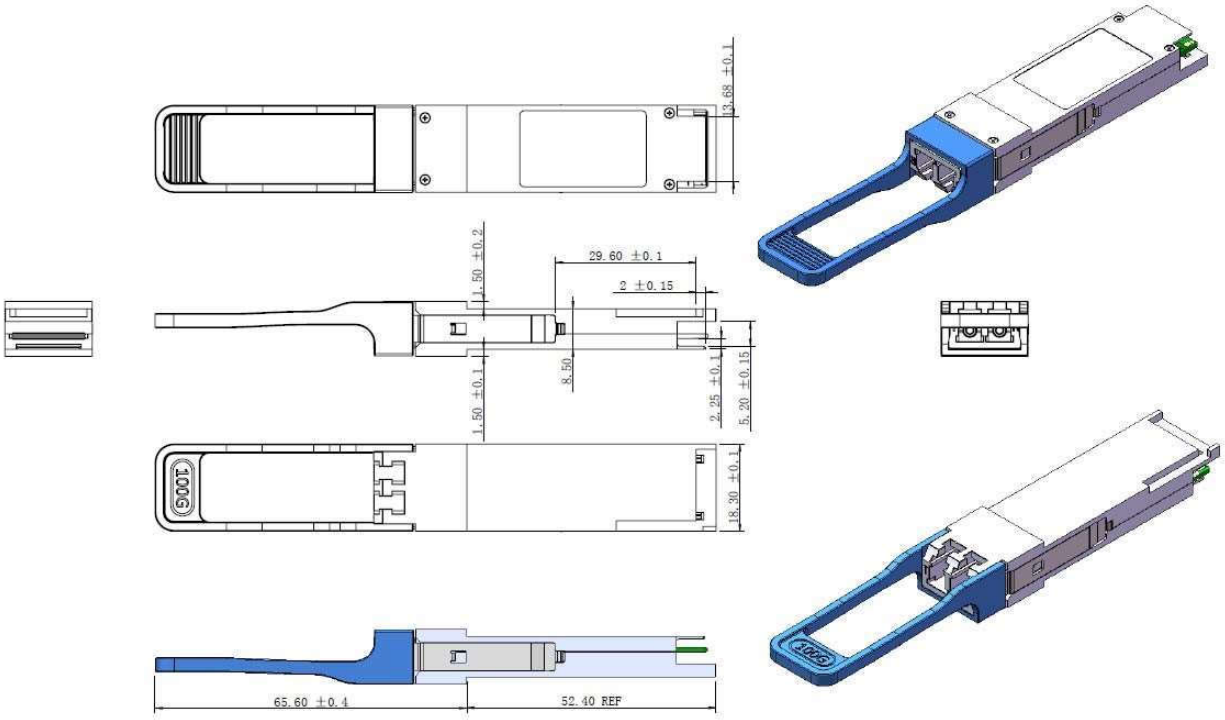
Bottom Side
Viewed From Bottom

Pin Arrangement and Definition

Pin	Logic	Symbol	Description	Plug Sequence	Notes
1		GND	Ground	1	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	3	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	3	
4		GND	Ground	1	1
5	CML-I	NC		3	
6	CML-I	NC		3	
7		GND	Ground	1	1
8	LVTTL-I	ModSelL	Module Select	3	
9	LVTTL-I	ResetL	Module Reset	3	
10		VccRx	+3.3V Power Supply Receiver	2	2
11	LVCMOS- I/O	SCL	2-wire serial interface clock	3	
12	LVCMOS- I/O	SDA	2-wire serial interface data	3	
13		GND	Ground	1	1
14	CML-O	NC		3	
15	CML-O	NC		3	
16		GND	Ground	1	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	3	
18	CML-O	Rx1n	Receiver Inverted Data Output	3	
19		GND	Ground	1	1
20		GND	Ground	1	1
21	CML-O	Rx2n	Receiver Inverted Data Output	3	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	3	
23		GND	Ground	1	1
24	CML-O	NC		3	
25	CML-O	NC		3	
26		GND	Ground	1	1
27	LVTTL-O	ModPrsL	Module Present	3	
28	LVTTL-O	IntL	Interrupt	3	
29		VccTx	+3.3V Power supply transmitter	2	2
30		Vcc1	+3.3V Power supply	2	2
31	LVTTL-I	LPMode	Low Power Mode	3	
32		GND	Ground	1	1
33	CML-I	NC		3	
34	CML-I	NC		3	
35		GND	Ground	1	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	3	
37	CML-I	Tx1n	Transmitter Inverted Data Input	3	
38		GND	Ground	1	1

1: GND is the symbol for signal and supply (power) common for the QSFP+ module. All are commonwithin 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: Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power supplies and shall be applied concurrently. Requirements defined for the host side of the Host Edge Card Connector are listed in Table 6. Refer to QSFP-MSA to get recommended host board power supply filtering. Vcc Rx Vcc1 and Vcc Tx may be internally connected within the QSFP+ Module in any combination. The connector pins are each rated for a maximum current of 500mA.

Mechanical Specifications



GUARANTEE:

Contact:

Address: Russian Federation, Ekaterinburg, Predelnaya st. 57/2
Tel: +7(343) 379-98-38

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

E-mail: info@nag.ru

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