

QSFP-40G-LR4L

40GBase QSFP+
CWDM4
2km Reach

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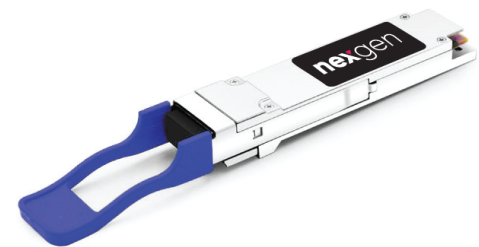


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Features

- Compliant with IEEE Std 802.3ba, 40G Ethernet LR4
- Compliant with QSFP+MSA
- Management interface specifications per SFF-8436
- 4 CWDM Lane Mux/Demux design
- 4 channels CWDM DFB
- 4 channels PIN photo detector
- Up to 41.25Gb/s aggregated bitrate
- Single +3.3V power supply
- Class 1 laser safety certified
- Commercial operating temperature: 0°C to +70°C
- Up to 2km on SMF without FEC
- RoHS Compliant



Applications

- 40GBASE Ethernet
- Data Center Interconnect

Part number	Product description
QSFP-40G-LR4L	40GBase SMF QSFP+ CWDM4 2km 0°C to 70°C LC Duplex DDM

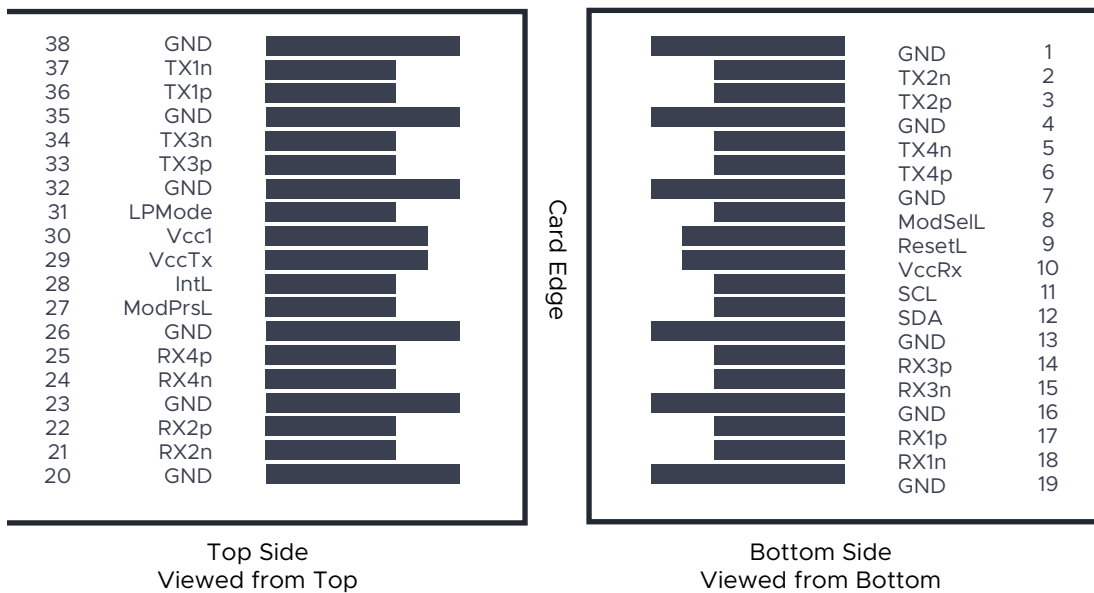
PIN Description

Pin		Function/Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2-	Transmitter Inverted Data Input	
3	Tx2+	Transmitter Non-Inverted Data output	
4	GND	Transmitter Ground (Common with Receiver Ground)	1
5	Tx4-	Transmitter Inverted Data Input	
6	Tx4+	Transmitter Non-Inverted Data output	
7	GND	Transmitter Ground (Common with Receiver Ground)	1
8	ModSelL	Module Select	2
9	ResetL	Module Reset	2
10	VccRx	3.3V Power Supply Receiver	
11	SCL	2-Wire serial Interface Clock	2
12	SDA	2-Wire serial Interface Data	2
13	GND	Transmitter Ground (Common with Receiver Ground)	1
14	Rx3+	Receiver Non-Inverted Data Output	
15	Rx3-	Receiver Inverted Data Output	
16	GND	Transmitter Ground (Common with Receiver Ground)	1
17	Rx1+	Receiver Non-Inverted Data Output	
18	Rx1-	Receiver Inverted Data Output	
19	GND	Transmitter Ground (Common with Receiver Ground)	1
20	GND	Transmitter Ground (Common with Receiver Ground)	1
21	Rx2-	Receiver Inverted Data Output	
22	Rx2+	Receiver Non-Inverted Data Output	
23	GND	Transmitter Ground (Common with Receiver Ground)	1
24	Rx4-	Receiver Inverted Data Output	1
25	Rx4+	Receiver Non-Inverted Data Output	
26	GND	Transmitter Ground (Common with Receiver 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	Transmitter Ground (Common with Receiver Ground)	1
33	Tx3+	Transmitter Non-Inverted Data Input	
34	Tx3-	Transmitter Inverted Data Output	
35	GND	Transmitter Ground (Common with Receiver Ground)	1
36	Tx1+	Transmitter Non-Inverted Data Input	
37	Tx1-	Transmitter Inverted Data Output	
38	GND	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7K Ω to 10K Ω pull-up resistor to VccHost.

Pin Assignment and Description



Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	TS	-40	85	°C
Relative Humidity	RH	5	95	%
Supply Voltage	VCC	-0.5	3.6	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	TC	0	25	70	°C
Supply Voltage	VCC	3.135	3.3	3.465	V
Data Rate per Channel	-	-	10.3125	-	Gb/s

Transceiver Electrical Characteristics

Parameter	Symbol	Typical	Maximum	Unit	Notes
Module Supply Current	I _{CC}	-	1.06	A	-
Power Dissipation	PD	-	3.5	W	-
Transmitter					
Input Differential Impedance	Z _{IN}	100	-	Ω	-
Differential Data Input Swing	V _{IN} , P-P	180	900	mVp-p	-
Receiver					
Output Differential Impedance	Z _O	100	-	Ω	-
Differential Data Output Swing	V _{OUT} , P-P	300	850	mVp-p	-

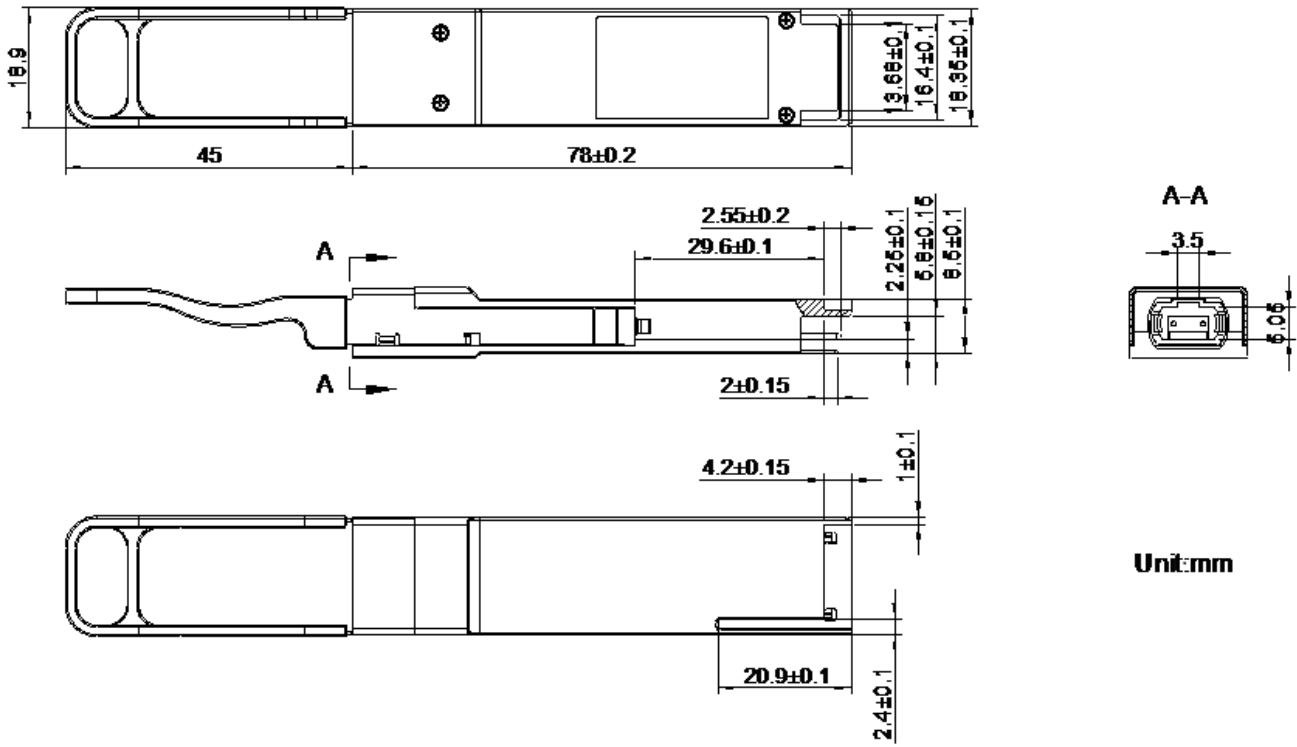
Transceivers Optical Characteristics

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Transmitter						
Center Wavelength Range	λ_0	1264.5	1271	1277.5	nm	-
	λ_1	1284.5	1291	1297.5	nm	-
	λ_2	1304.5	1311	1317.5	nm	-
	λ_3	1324.5	1331	1337.5	nm	-
Average Launch Power per Lane	P _o	-9	-	2.3	dBm	1
Extinction Ratio	EX	3.5	-	-	dB	2
Side Mode Suppression Ratio	SMSR	30	-	-	dB	-
Optical Return Loss Tolerance	ORLT	-	-	20	dB	-
Pout @TX - Disable Asserted per Lane	P _{off}	-	-	-30	dBm	-
Eye Mask Diagram		IEEE Std 802.3ba compatible				
Receiver						
Center Wavelength Range	λ_0	1264.5	1271	1277.5	nm	-
	λ_1	1284.5	1291	1297.5	nm	-
	λ_2	1304.5	1311	1317.5	nm	-
	λ_3	1324.5	1331	1337.5	nm	-
Receiver Sensitivity (OMA) per Lane	S	-	-	-10.5	dBm	3
Damage Threshold	P _{max}	3.3	-	-	dBm	-
LOS De-Assert	LOSD	-	-	-14	dBm	-
LOS Assert	LOSA	-28	-	-	dBm	-
LOS Hysteresis	-	0.5	-	-	dB	-

Notes:

1. The optical power is launched into SMF
2. Measured with a PRBS 2³¹-1 test pattern @ 10.3125Gbps.
3. Measured with PRBS 2³¹-1 test pattern, 10.3125Gb/s, BER < 1⁻¹⁰-12.

Mechanical specifications



Unit:mm

Revision history

Revision	Date	Author	Description
V1.0	16-03-2020	JGN	Initial Document

Note : Nexgen A/S reserves the right to change this document without notice.