QSFP-40G-LR4-I

40GBase QSFP+
CWDM4
10km Reach

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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
- Up to 10km on SMF without FEC
- Class 1 laser safety certified
- Power dissipation <3.5W (-40~85°C)
- RoHS Compliant

Applications

- 40GBASE-LR4 Ethernet
- Data Center Interconnect

Part number	Product description
QSFP-40G-LR4-I	40GBase SMF QSFP+ CWDM4 10km -40°C to 85°C LC Duplex DDM

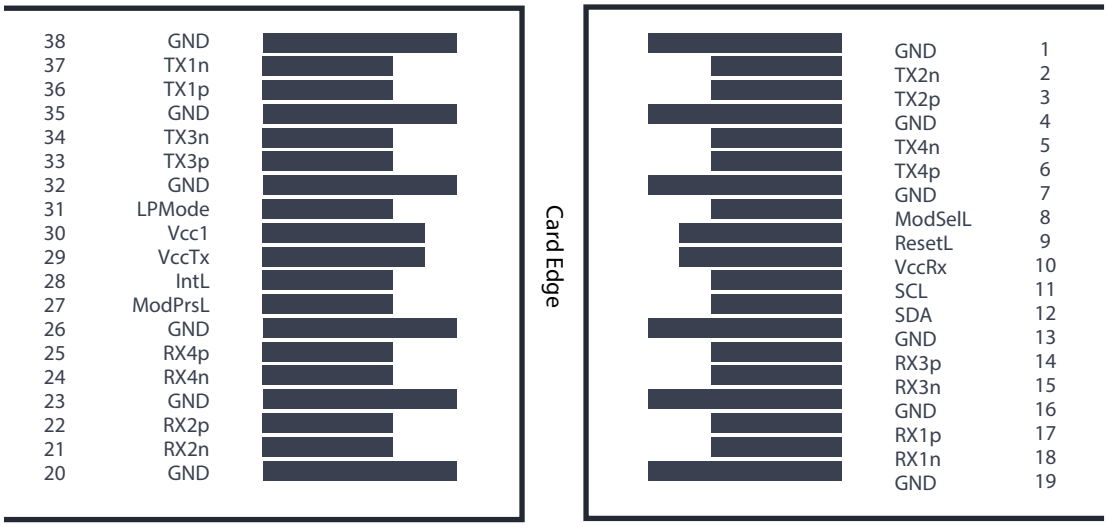
PIN Description

Pin		Function/Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2 -	Tran smitter 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 (C ommon 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 Inve rted 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 4.7KΩ to 10KΩ pull-up resistor to VccHost.

Pin Assignment and Description



Top Side
Viewed from Top

Bottom Side
Viewed from Bottom

Absolute Maximum Ratings

Parameter	Min	Typ	Max	Unit	Notes
Maximum Supply Voltage	0	-	3.6	V	-
Storage Temperature	-40	-	+85	°C	-
Relative Humidity	0	-	85	%	1

Notes:
1. Non-condensing.

Recommend Operation Conditions

Parameter	Min	Typ	Max	Unit	Notes
Power Supply Voltage	3.15	3.3	3.45	V	-
Power Supply Current (ind.)	-	-	1000	mA	-
Case Operating Temperature (ind.)	-40	-	+85	°C	-

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Notes
Transmitter					
Input differential impedance	-	100	-	Ω	1
Differential data input swing	190	-	700	mV	-
Receiver					
Output Differential Impedance	-	100	-	Ω	1
Differential Data Output Swing	300	-	850	mV	2
Data Output Rise Time	28	-	-	ps	-
Data Output Fall Time	28	-	-	ps	-

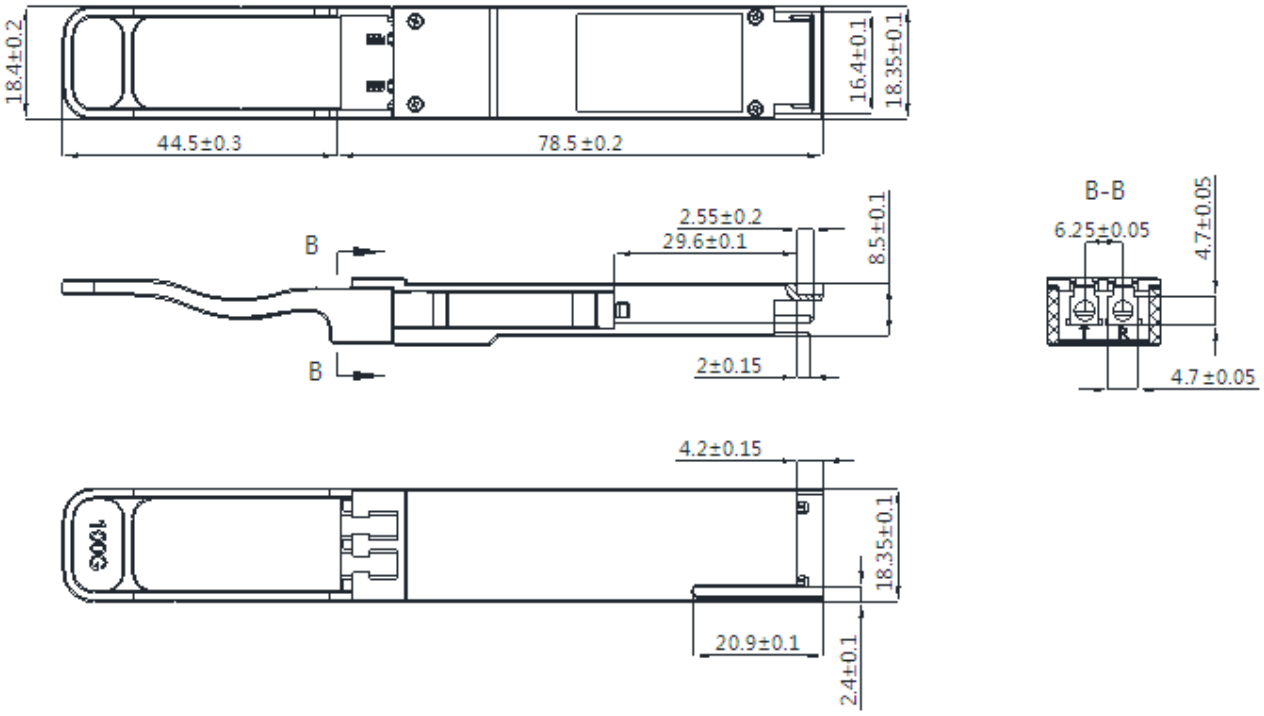
Notes:
1. AC coupled
2. into 100Ω differential termination

Optical Characteristics

Parameter	Min	Typ	Max	Unit	Notes
Transmitter					
Optical Center Wavelength λ0	1264.5	1271	1277.5	nm	-
Optical Center Wavelength λ1	1284.5	1291	1297.5	nm	-
Optical Center Wavelength λ2	1304.5	1311	1317.5	nm	-
Optical Center Wavelength λ3	1324.5	1331	1337.5	nm	-
Average Output Power per lane	-7.0	-	2.3	dBm	1
Exctinction Ratio	3.5	-	-	dB	2
Spectral Width (-20dB)	-	-	1.0	nm	-
Side Mode Suppression Ration	30	-	-	dB	-
Data Rate per lane	-	10.3125	-	Gb/s	-
Receiver					
Optical Center Wavelength	1264.5	-	1337.5	nm	-
Receiver Sensitivity per lane (OMA)	-	-	-11.5	dBm	2
Damage Treshold	3.3	-	-	dBm	2
LOS Assert	-28	-	-	dBm	-
LOS De-Assert	-	-	-15	dBm	-
LOS Hysteresis	0.5	-	6	dB	-

Notes:
1. The optical power is launched into SMF.
2. Measured with PRBS $2^{31}-1$ @ 10.3125Gb/s, BER 10^{-12}

Mechanical specifications



Units : 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.