

QSFP28-100G-4WDM-40-I

100GBase QSFP28
LWDM4
30km - 40km (FEC) Reach

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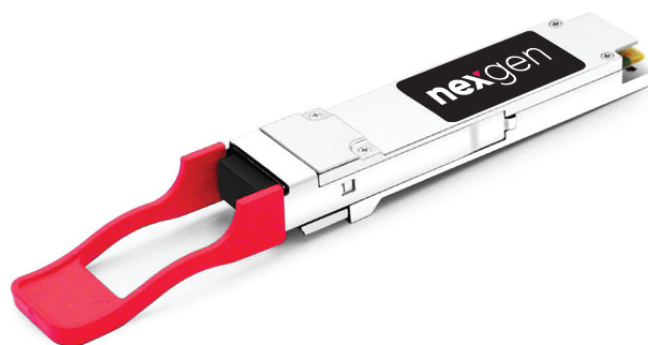


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Features

- Compliant with 100G Ethernet ER4 Lite
- Compliant with QSFP28 MSA
- 4 cooled 25Gb/s channels LAN WDM EML TOSA
- 4 channels APD photo detector
- Single +3.3V power supply
- Power consumption less than 5.5W
- Industrial operating temperature: -40°C to +85°C
- Up to 30km on SMF without FEC/ 40km with FEC
- Duplex LC connector
- RoHS 6/6 Compliant



Applications

- 100GBASE-ER4 Ethernet links
- Data center

Part number	Product description
QSFP28-100G-4WDM-40-I	100GBase SMF QSFP28 LWDM4 40km with FEC -40°C to 85°C LC Duplex DDM

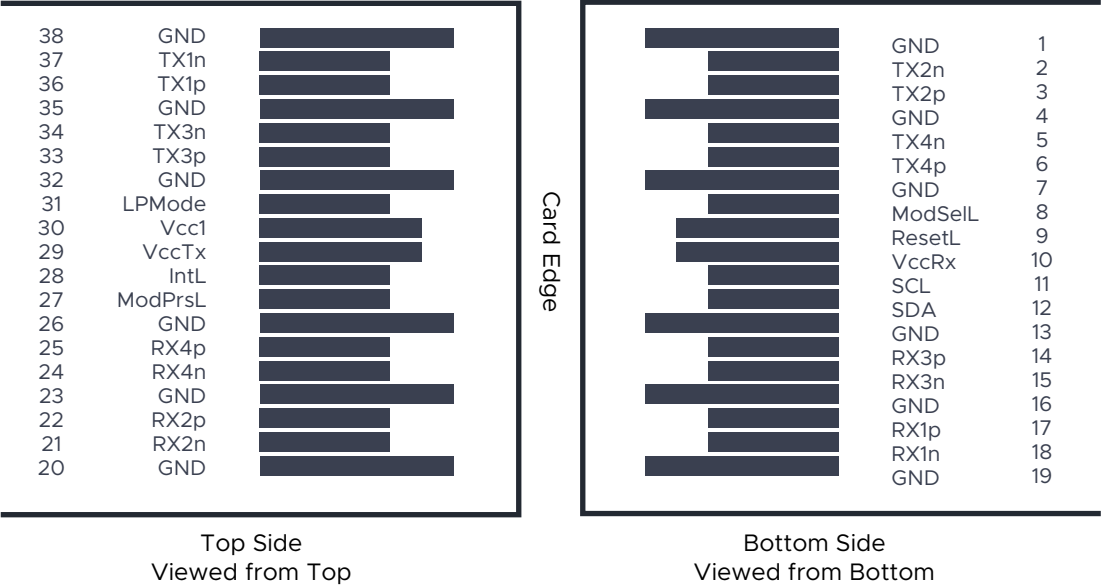
PIN Description

Pin		Function/Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2-	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	Min	Max	Units	Notes
Storage Temperature	Ts	-40	85	°C	
Power Supply Voltage	Vcc	-0.5	4.0	V	
Relative Humidity (non-condensation)	RH	5	95	%	

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Units
Operating Case Temperature	TC	-40	25	85	°C
Supply Voltage	VCC	3.135	3.3	3.465	V
Data Rate per Channel	-	-	25.78125		Gb/s

Transceiver Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Units	Notes
Module Supply Current	Icc	-	-	1600	mA	-
Power Dissipation	PD	-	-	5500	mW	-
Transmitter						
Single-ended Input Voltage Tolerance	-	-0.3	-	4.0	V	-
Input Differential Impedance	ZIN	-	100	-	Ω	-
Differential Data Input Swing	VIN, P-P	190	-	700	mVP-P	-
AC Common Mode Input Voltage Tolerance	-	15	-	-	mV	-
Differential Input Voltage Swing Threshold	-	-	50	-	mVpp	-
Receiver						
Single-ended Output Voltage	-	-0.3	-	4.0	V	-
Output Differential Impedance	ZO	90	100	110	Ω	-
Differential Data Output Swing	VOOUT, P-P	300	-	850	mVP-P	-
AC Common Mode Output Voltage	-	-	-	7.5	mV	-

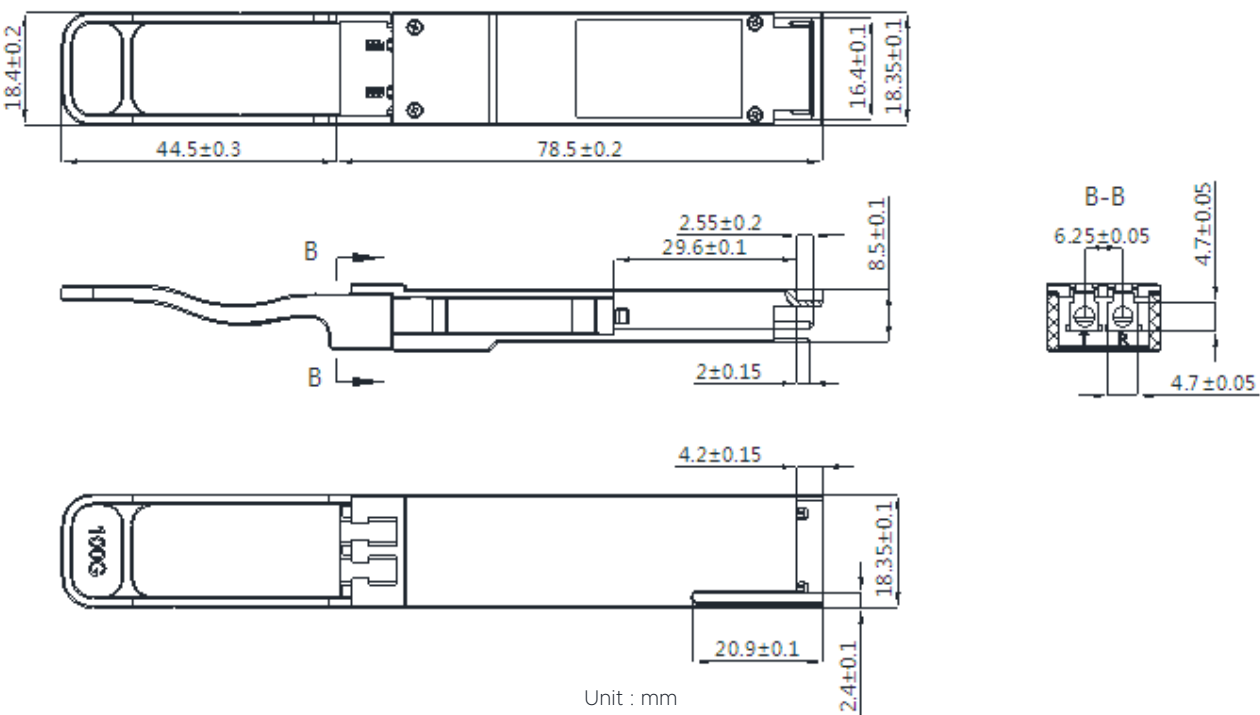
Transceiver Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Units	Notes
Transmitter						
Launch Optical Power per lane	Po	-2.9	-	+2.9	dBm	1
Total Launch Optical Power	Po	-	-	+8.9	dBm	1
Center Wavelength Range	L1	1294.53	1295.56	1296.59	nm	-
	L2	1299.02	1300.05	1301.09	nm	-
	L3	1303.54	1304.58	1305.63	nm	-
	L4	1308.09	1309.14	1310.19	nm	-
Extinction Ratio	EX	8.0	-	-	dB	2
Spectral width(-20dB)	$\Delta\lambda$	-	-	1	nm	-
Side Mode Suppression Ratio	SMSR	30	-	-	dB	-
Optical Return Loss Tolerance	ORLT	-	-	20	dB	-
Pout @TX -Disable Asserted	Poff	-	-	-30	dBm	1
Eye Mask {X1, X2, X3, Y1, Y2, Y3}		{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}				
Receiver						
Center Wavelength	L1	1294.53	1295.56	1296.59	nm	-
	L2	1299.02	1300.05	1301.09	nm	-
	L3	1303.54	1304.58	1305.63	nm	-
	L4	1308.09	1309.14	1310.19	nm	-
Sensitivity per Channel (OMA)	S	-	-	-16.6	dBm	3
Sensitivity per Channel (OMA)	S	-	-	-20.5	dBm	4
Overload (each channel)	POL	-4.9	-	-	dBm	3
Damage Threshold(each channel)	Pdamage	-3.9	-	-	dBm	-
Receiver Reflectance	Rf	-	-	-26	dB	-
LOS De-Assert	LOSD	-	-	-21.0	dBm	-
LOS Assert	LOSA	-26.0	-	-	dBm	-
LOS Hysteresis	-	0.5	-	-	dB	-

Notes:

1. The optical power is launched into SMF
2. Measured with a PRBS 2E31-1 test pattern @25.78125Gbps
3. Measured with PRBS 2E31-1 test pattern @25.78125Gb/s, BER 1.0E-12;
4. Measured with PRBS 2E31-1 test pattern @25.78125Gb/s, BER 5.0E-5.

Mechanical specifications



Revision history

Revision	Date	Author	Description
V1.1	21-05-2021	JGN	Initial Document

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