QSFP28-100G-BX40-xxxxx-BEH

100GBase QSFP28
BIDI LWDM
40km on SMF

Datasheet | product specifications

ESD threshold 1kV for SFI pins and 2kV for all other electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114A (HBM). However, normal ESD precautions are still required during the handling of this module.

Class 1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

Features

- EML laser
- APD receiver
- Up to 40km on 9/125um SMF
- Power dissipation <4.5W
- Case Operating Temperature 0°C to 70 °C

Applications

- 100 Gigabit Ethernet
- Data Center

Compliances

- Compliant with industry standards 100G-ER1-40 MSA
- Compliant with SFF-8679 MSA hardware specification
- Compliant with SFF-8636
- Compliant with SFF-8661
- RoHS compliant

Overview

Part Number	Transmitter	Output Power	Receiver	Sensitivity	Reach	Temp.
QSFP28-100G-BX40-L10L9-BEH	EML	4.7 to 7.9 dBm	APD receiver	<-13.8 dBm (OMA) <-14 dBm (Pave)	40km	0°C to 70°C
QSFP28-100G-BX40-L9L10-BEH	EML	4.7 to 7.9 dBm	APD receiver	<-13.8 dBm (OMA) <-14 dBm (Pave)	40km	0°C to 70°C

Ordering Information

Part Number	Product Description
QSFP28-100G-BX40-L10L9-BEH	100GBase-ER SMF QSFP28 PAM4 BIDI LWDM Tx: 1309.14(L10)/Rx: 1304.58nm(L9) 40km 0°C to 70°C LC Simplex DDM
QSFP28-100G-BX40-L9L10-BEH	100GBase-ER SMF QSFP28 PAM4 BIDI LWDM Tx: 1304.58nm(L9)/Rx: 1309.14(L10) 40km 0°C to 70°C LC Simplex DDM

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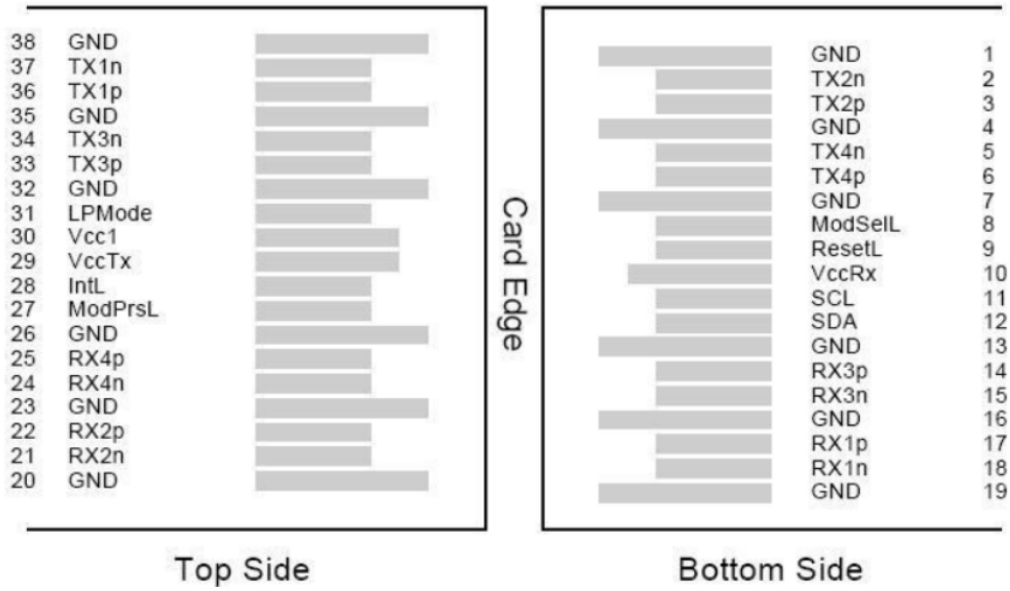
PIN Description

PIN	Symbol	Name - Description	Notes	PIN	Symbol	Name - Description	Notes
1	GND	Ground	1	20	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input		21	GND	Receiver Inverted Data Output	
3	Tx2p	Transmitter Non-Inverted Data Input		22	Rx2n	Receiver Non-Inverted Data Output	
4	GND	Ground	1	23	Rx2p	Ground	1
5	Tx4n	Transmitter Inverted Data Input		24	GND	Receiver Inverted Data Output	
6	Tx4p	Transmitter Non-Inverted Data Input		25	Rx4n	Receiver Non-Inverted Data Output	
7	GND	Ground	1	26	Rx4p	Ground	1
8	ModSelL	Module Select	2	27	ModPrsL	Module Present	
9	ResetL	Module Reset	2	28	IntL/Rx-LOSL	Interrupt.Optionally configurable as RxLOSL via the management interface(SFF-8636).	2
10	VccRx	+3.3V Power Supply Receiver		29	VccTx	+3.3V Power Supply Transmitter	
11	SCL	2-wire Serial Interface Clock	2	30	Vcc1	+3.3V Power Supply	
12	SDA	2-wire Serial Interface Data	2	31	LPMode	Low Power Mode	2
13	GND	Ground	1	32	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output		33	Tx3p	Transmitter Non-Inverted Data Input	
15	Rx3n	Receiver Inverted Data Output		34	Tx3n	Transmitter Inverted Data Input	
16	GND	Ground	1	35	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output		36	Tx1p	Transmitter Non-Inverted Data Input	
18	Rx1n	Receiver Inverted Data Output		37	Tx1n	Transmitter Inverted Data Input	
19	GND	Groundt	1	38	GND	Ground	1

Notes:
1. GND is the symbol for signal and supply (power) common for the module. All are common within the 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. VccRx, Vcc1 and VccTx are applied concurrently and may be internally connected within the module in any combination. Vcc contacts in SFF-8662 and SFF-8672 each have a steady state current rating of 1 A.



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Absolute Maximum Ratings

Parameters	Symbols	Min	Typ	Max	Unit	Notes
Storage Temperature	Ts	-40	-	85	°C	
Relative Humidity	RH	15	-	85	%	1
Operating Case Temperature	Ts	0	-	70	°C	

Notes:
1. Non-condensing.

Recommended Operating Conditions

Parameters	Symbols	Min	Typ	Max	Unit	Notes
Data Rate	BR	-	53.125±100ppm	-	GBd	
Link Distance	Top	-	-	40	km	
Power Supply Voltage	Vcc	3.13	3.3	3.47	V	
Module Supply Current	Icc	-	-	1435	mA	
Power Consumption	Po	-	-	4.5	W	

Optical & Electrical Characteristics

Parameters	Symbols	Min	Typ	Max	Unit	Notes
Transmitter						
Center Wavelength (L10L9)	λ1	1308.61	1309.14	1309.66	nm	
Center Wavelength (L9L10)	λ2	1304.06	1304.58	1305.1	nm	
Input Differential Impedance	ZIN	90	100	110	Ω	
Differential Data Input Swing	VIN, p-p	180	-	900	mVP-P	
Output Differential Impedance	ZIN	90	100	110	Ω	
Differential Data Output Swing	VIN, p-p	300	-	900	mVP-P	
Average Launch Power	Po	1.7	-	7.1	dBm	
Launch Power OMA	Poma	4.7 3.3 + TDECQ	-	7.9	dBm dBm	TDECQ < 1.4 dB 1.4 dB ≤TDECQ≤ TDECQ (max)
Extinction Ratio	ER	5	-	-	dB	
Optical Module Amplitude (OMA)	TxOMA	0.5	-	6.5	dBm	
Transmitter and Dispersion Penalty	TDP	-	-	3.9	dB	
Optical Return Loss Tolerance	TOL	-	-	15	dB	
RIN15 OMA	RIN	-	-	-136	dB/Hz	

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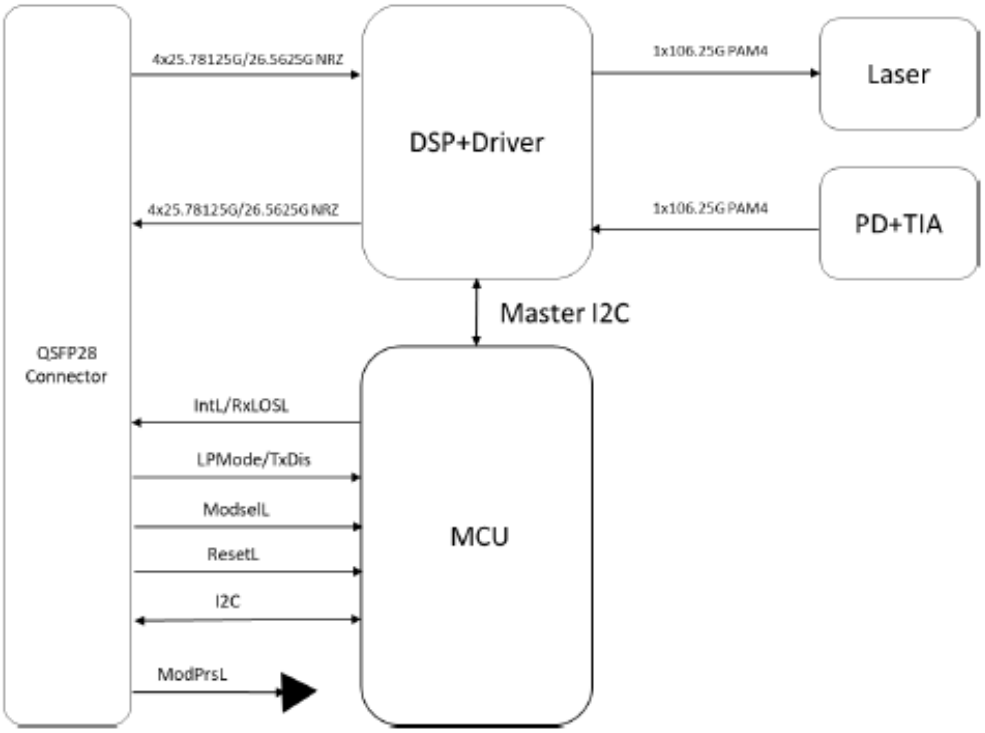
Parameters	Symbols	Min	Typ	Max	Unit	Notes
Receiver						
Receive Power (Pave)	-	-16	-	-3.4	dBm	
Receiver Sensitivity (OMA)	SOMA	-	-	-13.8 -15.2 + TECQ	dBm	TECQ < 1.4dB 1.4 ≤ TECQ ≤ 3.9 dB
Receiver Sensitivity (Pave)	SPave	-	-	-14 -15.4 + TECQ	dBm	TECQ < 1.4dB 1.4 ≤ TECQ ≤ 3.9 dB
Receiver Reflectance	-	-	-	-26	dB	
LOS Assert	LOSA	-24	-	-	dBm	
LOS De-Assert	LOSD	-	-	-16	dBm	
LOS Hysteresis	LOSH	0.5	-	-	dB	

Block Diagram



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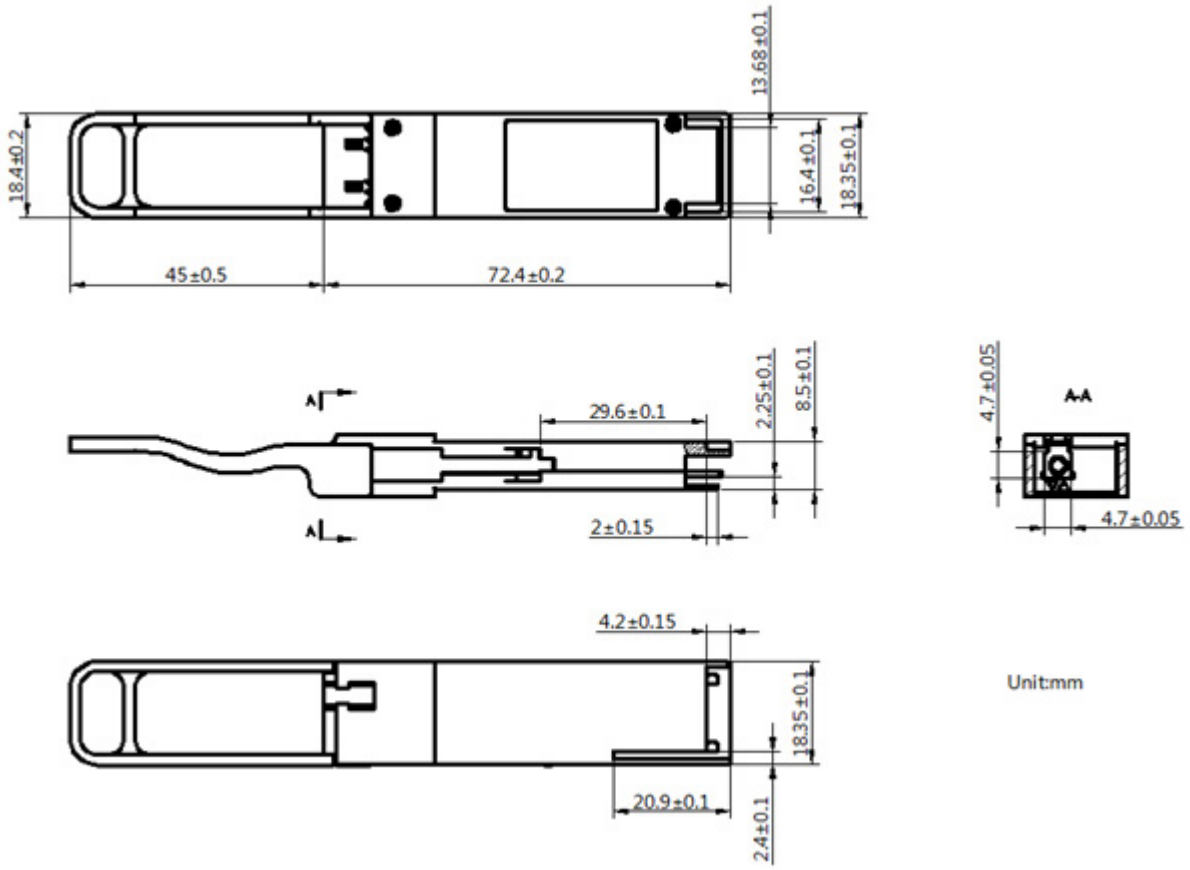
Mechanical Dimensions



Revision History

Revision	Doc. #	Date	Author	Description
V1.0	DT000054 & DT000055	04/03/2023	SHN	Initial Document

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