QSFP28-100G-B80

Optical SFP Module

100Gbps QSFP28 Transceiver, Bi-di, 1273/1309nm, 80KM

Features

- Support line rates from 103.125 Gb/s to 112.2 Gb/s.
- Built-in 100G PAM4 DSP
- LAN WDM EML laser and PIN receiver with SOA
- Built-in 4-channel CDR in TX and RX
- LC BIDI single receptacle
- Up to 80km reach for SMF
- Hot-pluggable QSFP28 form factor
- Digital Diagnostics Monitoring Interface
- Power dissipation < 5.5 W
- Compatible with RoHS
- Commercial operating case temperature: 0 to +70° C

Application

- 100G Ethernet
- Data center
- Infiniband QDR
- Fiber channel

Standard

- 100G Lambda MSA
- QSFP MSA compliant
- Compliant to SFF-8636

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Power Supply Voltage	Vcc	0	3.6	V
Damage Threshold	THd		6.5	dBm
Storage Temperature	Ts	-20	+85	°C
Operating Humidity	-	5	85	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	0		70	°C
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Date Rate per Channel			25.78125	28.05	Gbps
Fiber Length 9/125μm core SMF		-	-	80	km

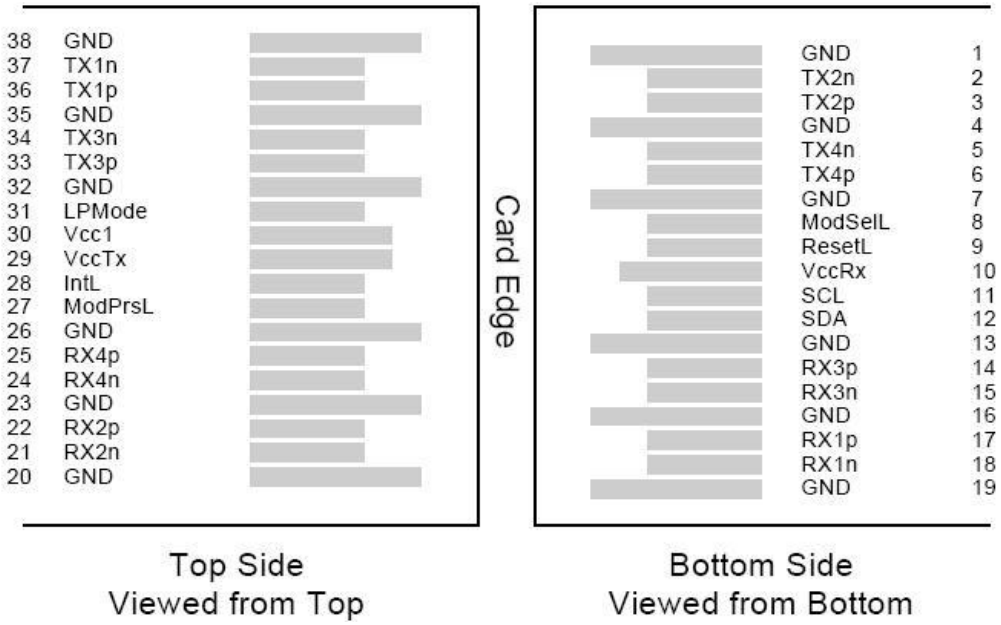
Optical and Electrical Characteristics

Optical transmitter Characteristics						
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Launched Power	Pt	8		10.5	dBm	
Average launch power each lane	Pavg	2		4.5	dBm	
Wavelength Range	λc	1272.55 1276.89 1281.25 1285.65	1273.55 1277.89 1282.26 1286.66	1274.54 1278.89 1283.27 1287.68	nm	1273/1309
		1294.53 1299.02 1303.54 1308.09	1295.56 1300.05 1304.58 1309.14	1296.59 1301.09 1305.63 1310.09	nm	1309/1273
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	6			dB	
Transmitter OFF Output Power	POff			-30	dBm	
Difference in Launch Power between any Two Lanes (OMA)	Ptx,diff			3.6	dB	
Transmitter reflectance	RT			-12	dB	
Optical Return Loss Tolerance	TOL			-20	dB	
Transmitter eye mask {X1, X2, X3, Y1, Y2, Y3}	{0.25, 0.4, 0.45, 0.25, 0.28, 0.4}					
Optical receiver Characteristics						
Parameter	**Symbol**	**Min**	**Typical**	**Max**	**Unit**	**Notes**
Receiver Wavelength Range	λc	1294.53 1299.02 1303.54 1308.09	1295.56 1300.05 1304.58 1309.14	1296.59 1301.09 1305.63 1310.09	nm	1273/1309
		1272.55 1276.89 1281.25 1285.65	1273.55 1277.89 1282.26 1286.66	1274.54 1278.89 1283.27 1287.68	nm	1309/1273
Average Receive Power each Lane	Rpow	-30		-7	dBm	
Receive Power (OMA) each Lane	Rovl			-7	dBm	
Receiver sensitivity Average each lane	SEN1			-22	dBm	@25.78125Gbps, ER=8.2dB, BER=<1E-12, PRBS=2^{31}- 1

						NRZ
	SEN2			-21	dBm	@28.05Gbps, ER=8.2dB, BER=<1E-12, PRBS=2^{31}- 1 NRZ
	SEN3			-28	dBm	@25.78125Gbps, ER=8.2dB, BER=<5E-5, PRBS=2^{31}- 1 NRZ
	SEN4			-27	dBm	@28.05Gbps, ER=8.2dB, BER=<5E-5, PRBS=2^{31}- 1 NRZ
LOS Assert	LOSA	-40			dBm	
LOS Deassert	LOSD			-29	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Pin Definitions

Pin Diagram



QSFP MSA-compliant 38-pin connector

Pin	Symbol	Name/Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	TX2N	Transmitter Inverted Data Input	
3	TX2P	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	TX4N	Transmitter Inverted Data Input	
6	TX4P	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3 V Power supply receiver	2
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	RX3P	Transmitter Inverted Data Input	
15	RX3N	Transmitter Non-Inverted Data Input	
16	GND	Ground	1

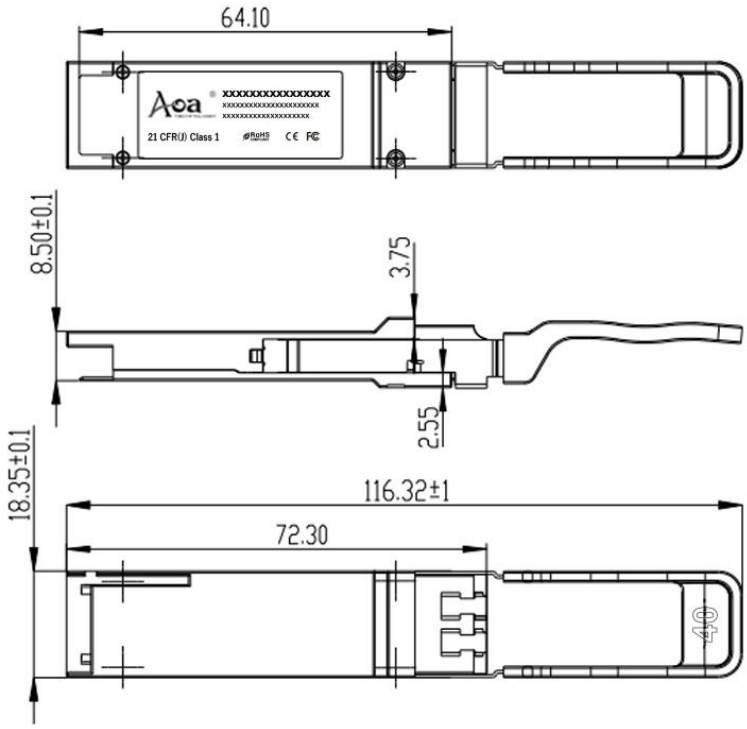
17	RX1P	Transmitter Inverted Data Input	
18	RX1N	Transmitter Non-Inverted Data Input	
19	GND	Ground	1
20	GND	Ground	1
21	RX2N	Transmitter Inverted Data Input	
22	RX2P	Transmitter Non-Inverted Data Input	
23	GND	Ground	1
24	RX4N	Transmitter Inverted Data Input	1
25	RX4P	Transmitter Non-Inverted Data Input	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3 V Power supply transmitter	2
30	Vcc1	+3.3 V Power Supply	2
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	TX3P	Transmitter Inverted Data Input	
34	TX3N	Transmitter Non-Inverted Data Input	
35	GND	Ground	1
36	TX1P	Transmitter Inverted Data Input	
37	TX1N	Transmitter Non-Inverted Data Input	
38	GND	Ground	1

QSFP Module PIN Definition

Notes：

1. GND is the symbol for signal and supply (power) common for QSFP28 modules. All are common within the QSFP28 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 the receiving and transmission power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown in Figure 3 below. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP28 transceiver module in any combination. The connector pins are each rated for a maximum current of 500mA.

Mechanical Dimensions



Ordering information

Part. No	Specifications								
	Pack	Rate (Gbps)	Tx (nm)	Po (dBm)	RX	Sen (dBm)	Temp (℃)	Reach (km)	DDM
QSFP28-100G-B80 Tx1273nm/Rx1309nm	QSFP28	100G	EML 1273nm	8.0~10.5	PIN	<-30	0~70	80	Y
QSFP28-100G-B80 Tx1309nm/Rx1273nm	QSFP28	100G	EML 1309nm	8.0~10.5	PIN	<-30	0~70	80	Y

For further information, please visit our website https://www.aoatech.com