

QSFP28-100G-SR4

Optical SFP Module

100Gbps QSFP28 SR4 Transceiver, MM, 850nm, 100m



Features

- Transmission data rate up to 26Gbps per channel
- High Reliability 850nm VCSEL technology
- Single MTP/MPO connector receptacle
- Maximum link length of 100m links on OM3 MM fiber
- Hot Pluggable QSFP28 form factor
- Digital Diagnostics Monitoring Interface
- Power Consumption < 2.0W
- Single +3.3V power supply
- Compatible with RoHS
- Commercial operating case temperature: 0 to +70° C

Application

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

Standard

- Compliant with IEEE 802.3bm
- Compliant with QSFP28 MSA
- Compliant with SFF-8436

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.3	4	V
Signal Input Voltage		Vcc-0.3	Vcc +0.3	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	95	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	0		70	°C
Power Supply Voltage	Vcc	3.135	3.3	3.465	V
Power Supply Current	Icc			750	mA
Data Rate,each Lane			25.78125		Gbps
Fiber Length 50/125µm core OM3 MMF		-	100	-	m

Optical and Electrical Characteristics

Optical Transmitter Characteristics						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Average Launch Power each lane	Pavg	-8.4		2.4	dBm	
Transmitter and Dispersion Penalty each lane	TDP			4.3	dB	
Wavelength Assignment	λ_0	840	850	860	nm	
Spectral Width(-20dB)	$\Delta\lambda$			0.6	nm	
Extinction Ratio	ER	2			dB	
Optical Return Loss Tolerance	ORL			12	dBm	
Output Eye Diagram	Compliant with IEEE802.3bm eye mask					
Optical Receiver Characteristics						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Rx Sensitivity per lane	S			-10.3	dBm	1
Receiver Wavelength	λ_0	840	850	860	nm	
Optical Power Input Overload	Pin-max	2.4			dBm	
LOS	Optical De-assert	Pd	-30		dBm	
	Optical Assert	Pa		-12		
Receiver Reflectance	Rr			-12	dB	

Notes:

1. Measured with a PRBS $2^{31}-1$ test pattern, @25.78Gb/s, BER<10⁻¹².

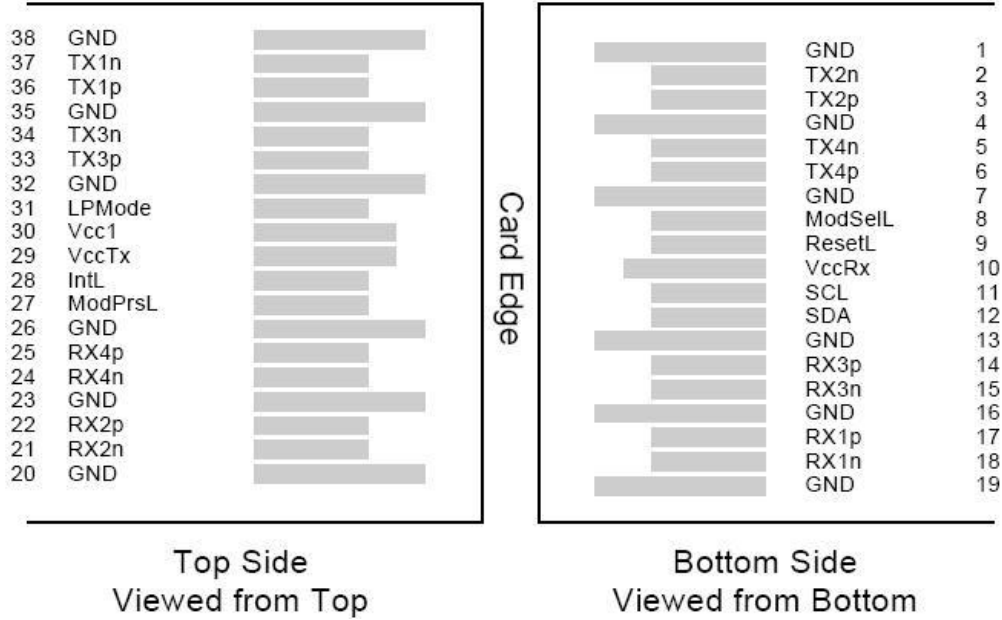
Electrical Characteristics						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Supply Voltage	Vcc	3.14	3.3	3.46	mV	
Supply Current	Icc			750	mV	
Input differential impedance	Rin		100		Ω	1
Differential data input swing	Vin,pp	180		1000	mV	
Single ended input voltage tolerance	VinT	-0.3		4.0	V	
Differential data output swing	Vout,pp	300		850	mV	2
Single ended output voltage		-0.3		4.0	V	

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Into 100 Ω ohms differential termination.

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	

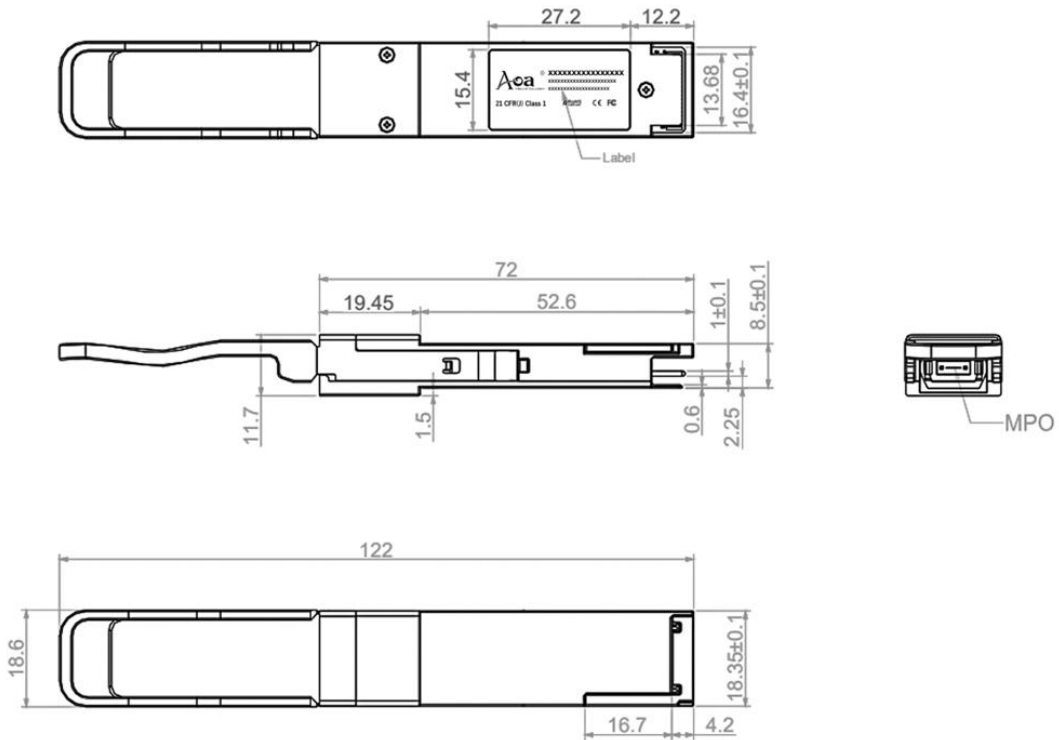
18	RX1N	Transmitter Non-Inverted Data Input	
19	GND	Ground	1
20	GND	Ground	1
21	RX2N	Transmitter Inverted Data Input	
22	RX2P	Transmitter Non-Inverted Data Input	
23	GND	Ground	1
24	RX4N	Transmitter Inverted Data Input	1
25	RX4P	Transmitter Non-Inverted Data Input	
26	GND	Ground	1
27	ModPrsL	Module Present	
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 (°C)	Reach (km)	DDM
QSFP28-100G-SR4	QSFP28	100G	DFB	-8.4~2.4	PIN	<-10.3	0~70	100M	Y



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