

QSFP28-100GB-SR4-LP-OPC

MSA and TAA 100GBase-SR4 QSFP28 Transceiver Low Power (MMF, 850nm, 100m, MPO, DOM, 0 to 70C)

Features

- Up to 28.05 Gbps data rate per channel
- Compliant with QSFP28 MSA
- High Reliability 850nm VCSEL technology
- Digital diagnostic SFF-8636 compliant
- Compliant to IEEE 802.3bm
- Standard 12-lane with MPO connector
- Power Dissipation:
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- RoHS Compliant and lead-free



Applications:

- 100GBase Ethernet
- Access and Enterprise

Product Description

This MSA compliant QSFP28 transceiver provides 100GBase-SR4 throughput up to 100m over OM4 multi-mode fiber (MMF) using a wavelength of 850nm via an MPO connector. It can operate at temperatures between 0 and 70C. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{cc}	-0.3		4	V	
Storage Temperature	T _{stg}	-40		85	°C	
Case Operating Temperature	T _c	0		70	°C	Without Air Flow
Relative Humidity	RH	5		95	%	
Signal Input Voltage		V _{cc} -0.3		V _{cc} +0.3	V	
Data Rate	BR		25.78125	28.05	Gbps	Each Channel
Transmission Distance	TD			100	m	1

Notes:

1. OM4, or 70m on OM3.
2. 100GBase-SR4 and ITU-T OTU4 have different register settings not auto-negotiation.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{cc}	3.14	3.3	3.46	V	
Power Supply Current	I _{cc}			600	mA	
Transmitter						
Input Differential Impedance	R _{IN}		100		Ω	1
Differential Data Input Swing	V _{IN,pp}	180		1000	mV	
Single-Ended Input Voltage Tolerance	V _{IN}	-0.3		4.0	V	
Receiver						
Differential Data Output Swing	V _{OUT,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 100Ω differential termination.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_C	840		860	nm	
Average Launch Power Per Lane		-8.4		2.4	dBm	
Spectral Width (RMS)	σ			0.6	nm	
Optical Extinction Ratio	ER	2			dB	
Optical Return Loss Tolerance	ORLT			12	dB	
Output Eye Mask	Compliant with IEEE 802.3bm					1
Receiver						
Receiver Wavelength	λ	840		860	nm	
Rx Sensitivity Per Lane	RSENS			-10.3	dBm	2
LOS De-Assert	LOSD	-30			dBm	
LOS Assert	LOSA			-12	dBm	
Input Saturation Power (Overload)	Psat	2.4			dBm	
Receiver Reflectance				-12	dB	

Notes:

1. Hit ratio 1.5×10^{-5} hits per sample.
2. Measured with a PRBS $2^{31}-1$ test pattern, @25.78Gbps, and $BER < 5.0 \times 10^{-5}$.

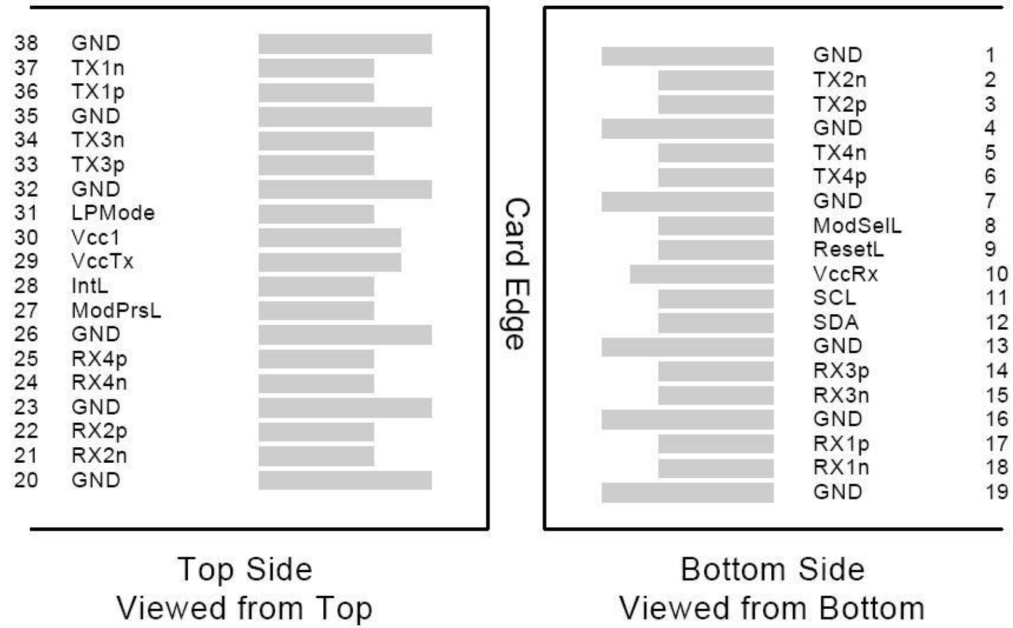
Pin Descriptions

Pin	Logic	Symbol	Name/Descriptions	Ref.
1		GND	Module Ground.	1
2	CML-I	Tx2-	Transmitter Inverted Data Input.	
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.	
4		GND	Module Ground.	1
5	CML-I	Tx4-	Transmitter Inverted Data Input.	
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.	
7		GND	Module Ground.	1
8	LVTTL-I	MODSEIL	Module Select.	2
9	LVTTL-I	ResetL	Module Reset.	2
10		VccRx	+3.3V Receiver Power Supply.	
11	LVC MOS-I	SCL	2-Wire Serial Interface Clock.	2
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data.	2
13		GND	Module Ground.	1
14	CML-O	Rx3+	Receiver Non-Inverted Data Output.	
15	CML-O	Rx3-	Receiver Inverted Data Output.	
16		GND	Module Ground.	1
17	CML-O	Rx1+	Receiver Non-Inverted Data Output	
18	CML-O	Rx1-	Receiver Inverted Data Output.	
19		GND	Module Ground.	1
20		GND	Module Ground.	1
21	CML-O	Rx2-	Receiver Inverted Data Output.	
22	CML-O	Rx2+	Receiver Non-Inverted Data Output.	
23		GND	Module Ground.	1
24	CML-O	Rx4-	Receiver Inverted Data Output.	
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.	
26		GND	Module Ground.	1
27	LVTTL-O	ModPrsL	Module Present. Internally pulled down to GND.	
28	LVTTL-O	IntL	Interrupt output should be pulled up on the host board.	2
29		VccTx	+3.3V Transmitter Power Supply.	
30		Vcc1	+3.3V Power Supply.	
31	LVTTL-I	LPMODE	Low-Power Mode.	2
32		GND	Module Ground.	1
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.	
34	CML-I	Tx3-	Transmitter Inverted Data Input.	
35		GND	Module Ground.	1
36	CML-I	Tx1+	Transmitter Non-Inverted Data Input.	
37	CML-I	Tx1-	Transmitter Inverted Data Input.	
38		GND	Module Ground.	1

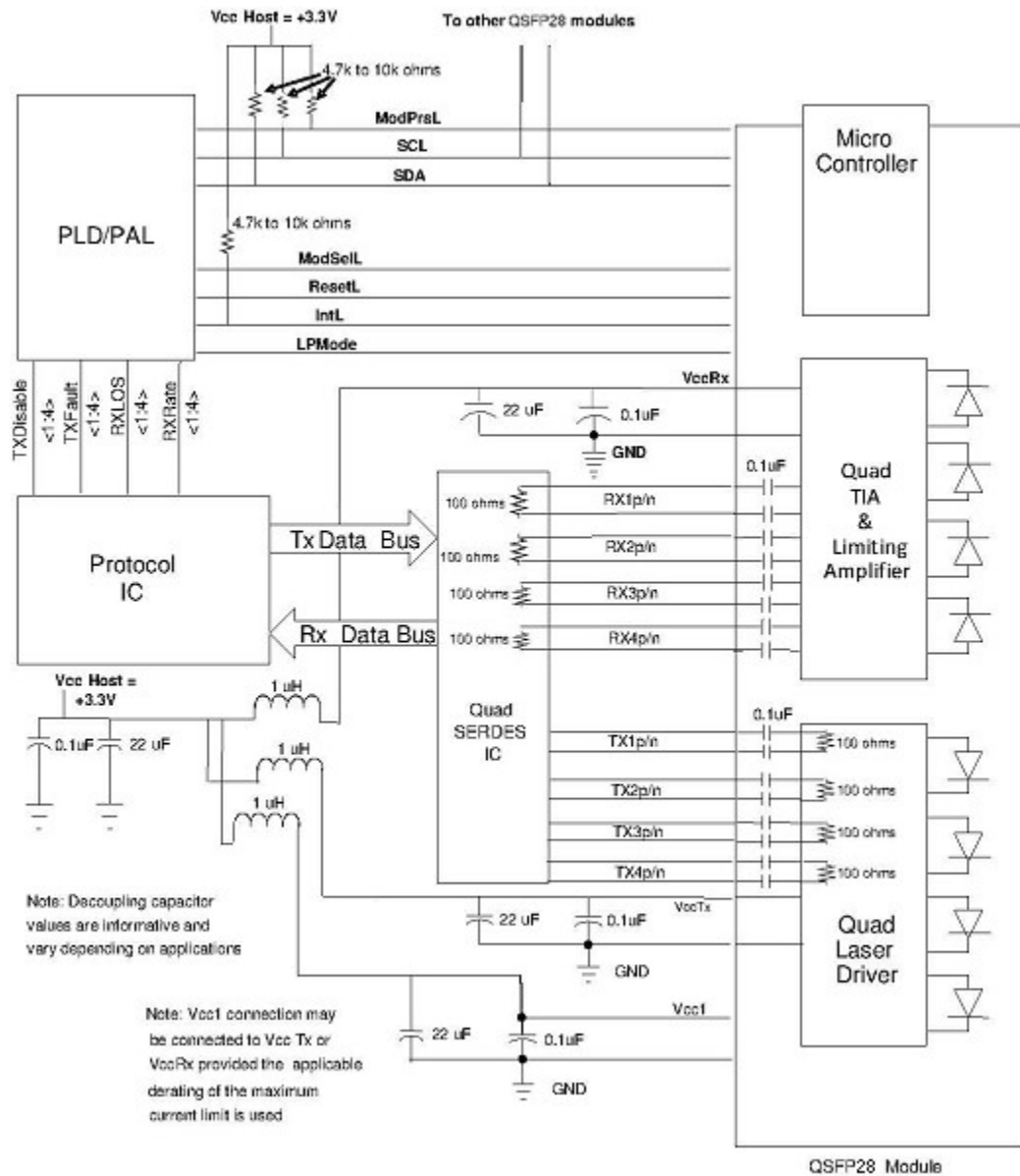
Notes:

- 1. Module circuit ground is isolated from module chassis ground within the module.
- 2. Open collector. Should be pulled up with 4.7kΩ-10kΩ on the host board to a voltage between 3.15V and 3.6V.

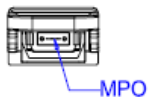
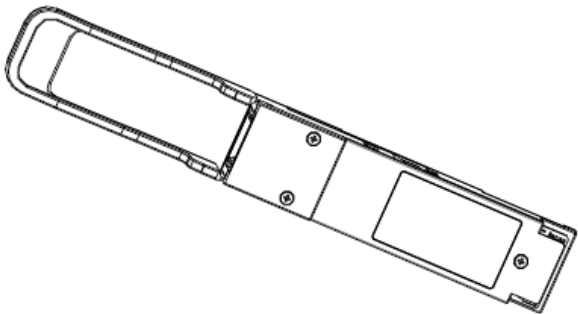
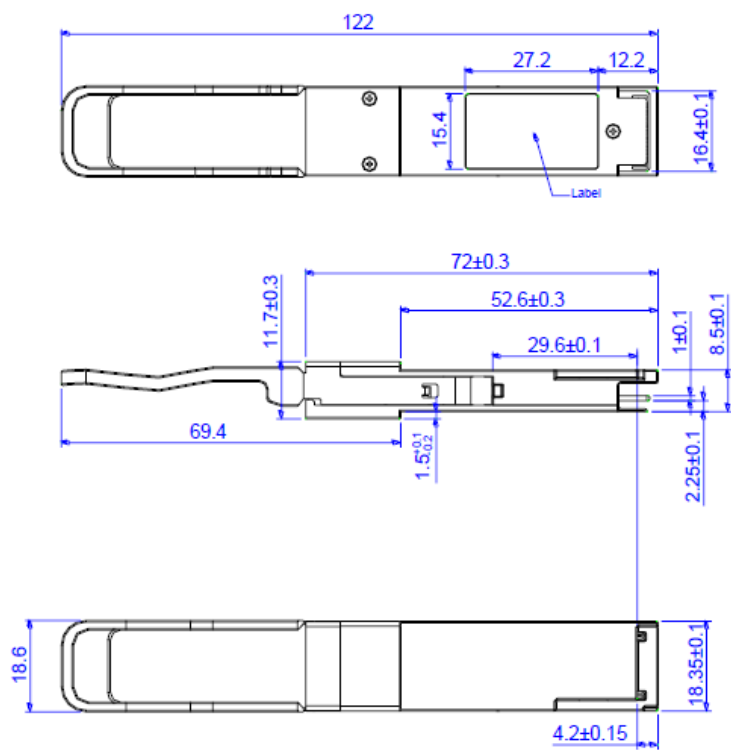
Electrical Pin-Out Details



Transceiver Interface Block Diagram



Mechanical Specifications



Units in mm

