



QSFP28-100GB-SR4-40M-MX-SKY

Mellanox® Compatible 100GBase-SR4 QSFP28 Transceiver (MMF, 850nm, 40m w/Reduced FEC, MPO, DOM)

Product Description

This Mellanox® compatible QSFP28 transceiver provides 100GBase-SR4 throughput up to 40m w/reduced FEC over OM4 multi-mode fiber (MMF) using a wavelength of 850nm via an MPO connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Mellanox®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

Features:

- Compliant with IEEE Std 802.3bm, 100G BASE SR4 Ethernet
- Management interface specifications per SFF-8636
- Compliant with QSFP28 MSA
- 4 channels 850nm VCSEL array
- 4 channels PIN photo detector array
- Single MPO connector receptacle
- Class 1 laser safety certified
- Up to 103.1Gb/s data rates
- RoHS Compliant and Lead-Free
- Commercial Temperature: 0 to 70 Celsius



Applications:

- 100GBase Ethernet
- Access and Enterprise

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 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.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{CC}	-0.5		4	V	
Storage Temperature	T _{stg}	-40		85	°C	
Case Operating Temperature	T _c	0	25	70	°C	
Relative Humidity	RH	5		95	%	
Data Rate	BR		25.78125		Gbps	
Transmission Distance	TD			40	m	1
Transmission Distance	TD			100	m	2

Notes:

1. On OM4 MMF without host FEC. Or up to 30m on OM3 MMF without host FEC.
2. On OM4 MMF with host Clause 91 (RS) FEC. Or up to 70m on OM3 MMF with host Clause 91 (RS) FEC.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V	
Power Supply Current	I _{CC}			750	mA	
Power Dissipation	P _D			2.5	W	
Transmitter						
Input Differential Impedance	Z _{IN}		100		Ω	
Differential Data Input Swing	V _{IN, P-P}	180		900	mV _{P-P}	
Receiver						
Output Differential Impedance	Z _O		100		Ω	
Differential Data Output Swing	V _{OUT, P-P}	300		850	mV _{P-P}	1
Transition Time (20% to 80%)	T _r ,T _f	12			ps	

Notes:

1. Internally AC coupled but requires an external 100Ω differential load termination.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_C	840	850	860	nm	
Optical Launch Power	Po	-4.5		+2.4	dBm	1
Transmit OMA per Lane	OMA	-4.5		+3	dBm	
Extinction Ratio	EX	2			dB	2
Spectral Width (RMS)	$\Delta\lambda$			0.6	nm	
TDEC per Lane	TDEC			4.3	dB	
Optical Return Loss Tolerance	ORLT			12	dB	
Eye Diagram	IEEE Std 802.3bm compatible					
Receiver						
Receiver Wavelength	λ	840	850	860	nm	
Average Receiver Sensitivity (Pavg)	S			-7	dBm	3
Receiver Overload (Pavg)	POL	2.4			dBm	
Damage Threshold	POL	3.4			dBm	
Optical Reflectance	ORL			-12	dB	
LOS De-Assert	LOSD			-11	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5		5	dB	

Notes:

1. The optical power is launched into OM3 MMF.
2. Measured with a PRBS $2^{31}-1$ test pattern @25.78125Gbps.
3. Measured with PRBS $2^{31}-1$ test pattern, 25.78125Gb/s, BER<1E-12.

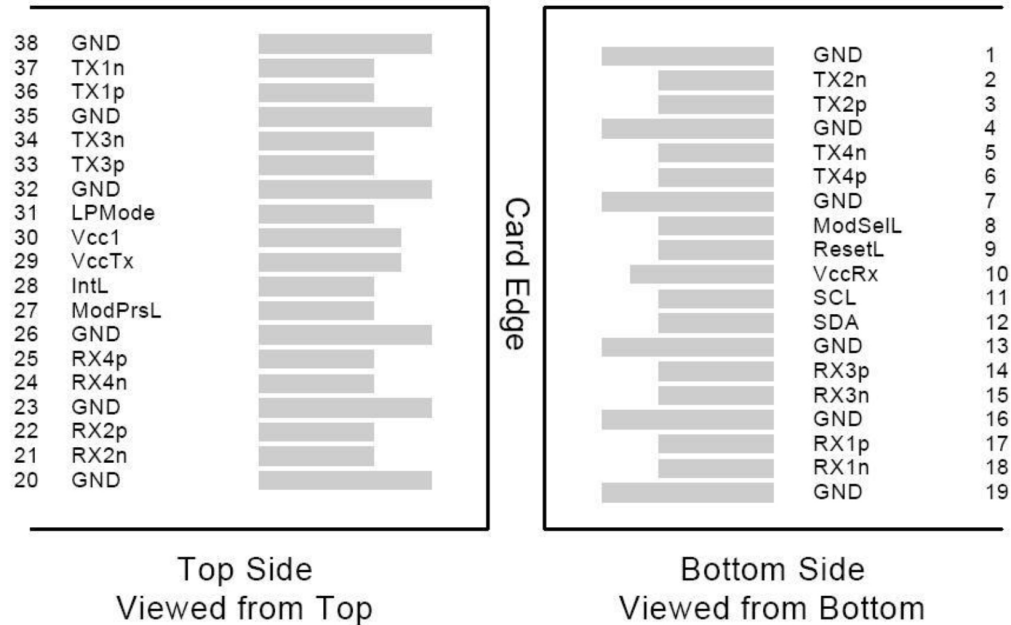
Pin Descriptions

Pin	Logic	Symbol	Name/Descriptions	Ref.
1		GND	Transmitter Ground. (Common with Receiver Ground.)	1
2	CML-I	Tx2-	Transmitter Inverted Data Input.	
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.	
4		GND	Transmitter Ground. (Common with Receiver Ground.)	1
5	CML-I	Tx4-	Transmitter Inverted Data Input.	
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.	
7		GND	Transmitter Ground. (Common with Receiver 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	Transmitter Ground. (Common with Receiver Ground.)	1
14	CML-O	Rx3+	Receiver Non-Inverted Data Output.	
15	CML-O	Rx3-	Receiver Inverted Data Output.	
16		GND	Transmitter Ground. (Common with Receiver Ground.)	1
17	CML-O	Rx1+	Receiver Non-Inverted Data Output	
18	CML-O	Rx1-	Receiver Inverted Data Output.	
19		GND	Transmitter Ground. (Common with Receiver Ground.)	1
20		GND	Transmitter Ground. (Common with Receiver Ground.)	1
21	CML-O	Rx2-	Receiver Inverted Data Output.	
22	CML-O	Rx2+	Receiver Non-Inverted Data Output.	
23		GND	Transmitter Ground. (Common with Receiver Ground.)	1
24	CML-O	Rx4-	Receiver Inverted Data Output.	
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.	
26		GND	Transmitter Ground. (Common with Receiver 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	Transmitter Ground. (Common with Receiver Ground.)	1
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.	
34	CML-I	Tx3-	Transmitter Inverted Data Input.	
35		GND	Transmitter Ground. (Common with Receiver Ground.)	1
36	CML-I	Tx1+	Transmitter Non-Inverted Data Input.	
37	CML-I	Tx1-	Transmitter Inverted Data Input.	
38		GND	Transmitter Ground. (Common with Receiver Ground.)	1

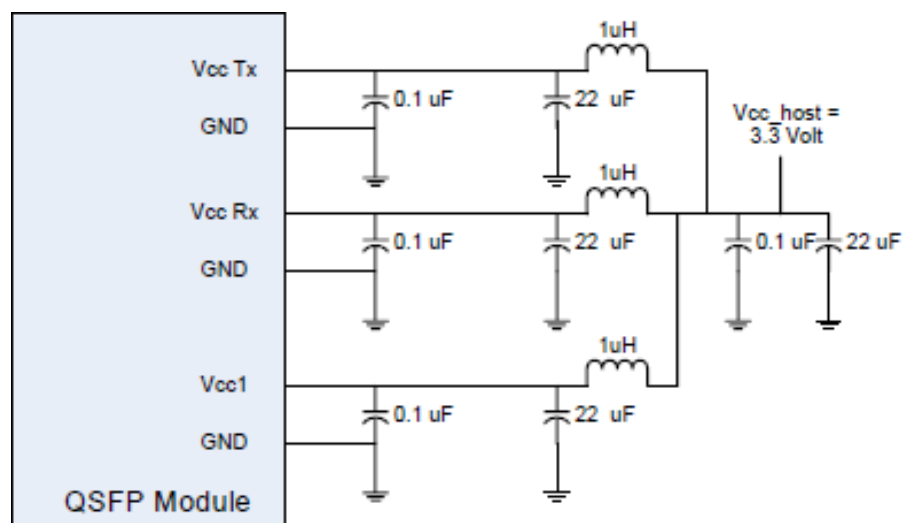
Notes:

1. The module signal grounds are isolated from the module case.
2. This is open collector/drain output that on the host board requires a 4.7K Ω to 10K Ω pull-up resistor to VccHost.

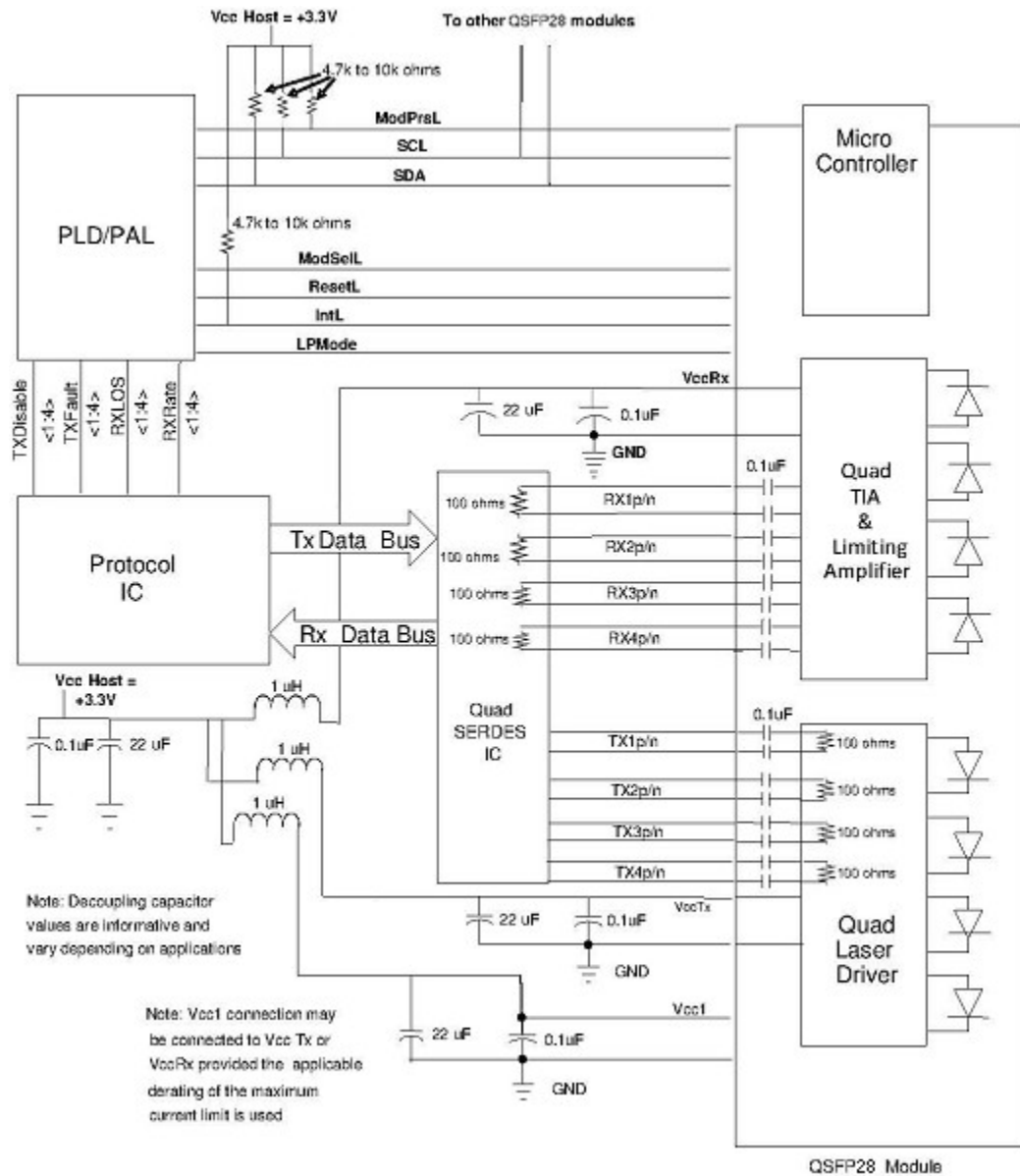
Electrical Pin-Out Details



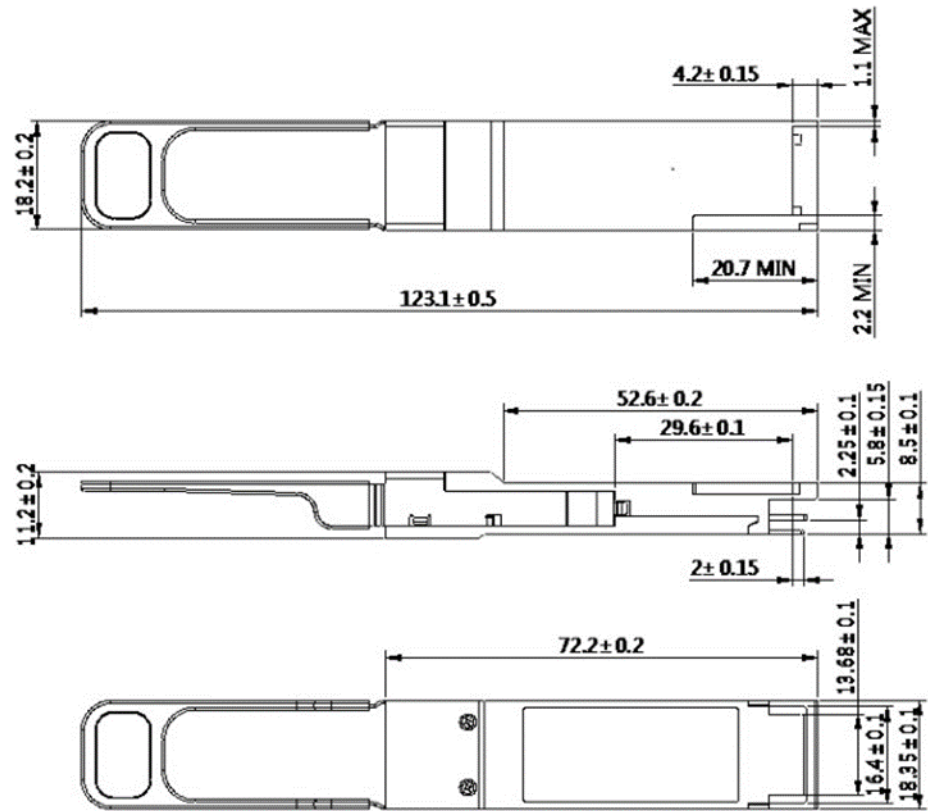
Recommended Host Board Power Supply Filter Network



Transceiver Interface Block Diagram



Mechanical Specifications



About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

