



Q2813002C0PN000

MSA Compliant 100GBase-PSM4 QSFP28 Transceiver (SMF, 1310nm, 2km, MPO, DOM, No FEC)

Product Description

This Industry Standard QSFP28 transceiver provides 100GBase-PSM4 throughput up to 2km over single-mode fiber (SMF) using a wavelength of 1310nm via an MPO connector. It is guaranteed to be 100% compatible with the equivalent Industry Standard transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow 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 to IEEE 802.3bm
- Compliant with MSA 100G PSM4 Specifications
- 4 Parallel Lanes Design
- Single 3.3V Power Supply
- 4-Channel PIN Photo Detector
- Up to 25.78125Gbps Per Channel Data Links
- Class 1 Laser Safety Certified
- Up to 2km on SMF with No FEC
- RoHS Compliant and Lead-Free
- Commercial Temperature: 0 to 70 Celsius



Applications:

- 100GBase Ethernet

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	

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}			1060	mA	
Power Dissipation	P _{DISS}			3500	W	
Transmitter						
Input Differential Impedance	Z _{IN}	90	100	110	Ω	
Differential Data Input Swing	V _{IN,pp}	190		700	mVp-p	
AC Common-Mode Input Voltage Tolerance		15			mV	
Receiver						
Output Differential Impedance	Z _{OUT}	90	100	110	Ω	
Differential Data Output Swing	V _{OUT,pp}	300		850	mVp-p	1
AC Common-Mode Output Voltage		12		7.5	ps	
Single-Ended Output Voltage		-0.3		4		

Notes:

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

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power Per Lane	Po	-4.5		4	dBm	1
Side-Mode Suppression Ratio	SMSR	30			dB	
Center Wavelength	λ	1295	1310	1325	nm	
Extinction Ratio	ER	3.5			dB	2
Optical Return Loss Tolerance	ORLT			20	dB	
POUT @Tx_Disable Asserted	Poff			-30	dBm	1
Transmitter Eye Mask Definition	{X1, X2, X3, Y1, Y2, Y3} {0.31, 0.4, 0.45, 0.34, 0.38, 0.4}					
Receiver						
Center Wavelength	λC	1295		1325	nm	
Average Receive Power Per Lane	P1	-7.5		2.0	dBm	
Receiver Sensitivity Per Lane	S			-7.5	dBm	3
Receiver Overload Per Channel	POL	2.0			dBm	3
Damage Threshold	Pdamage	3.0			dBm	
LOS De-Assert	LOSD			-12.5	dBm	
LOS Assert	LOSA	-24			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. The optical power is launched into the SMF.
2. Measured with a PRBS $2^{31}-1$ test pattern @25.78125Gbps.
3. Measured with PRBS $2^{31}-1$ test pattern, @25.78125Gbps per lane, and BER= 1×10^{-12} .

Pin Descriptions

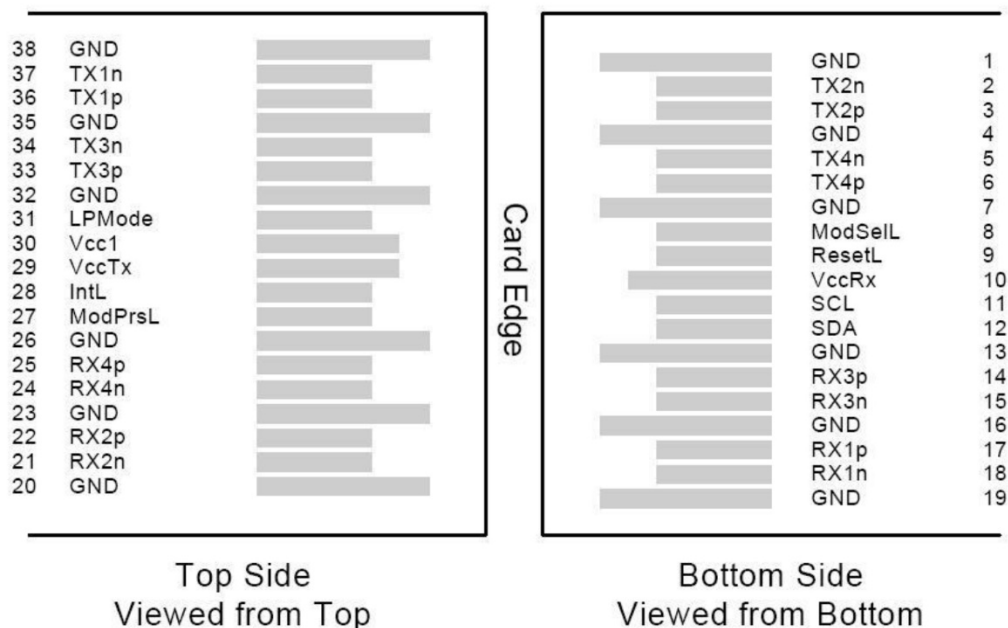
Pin	Symbol	Name/Description	Notes
1	GND	Transmitter Ground (Common with Receiver Ground).	1
2	Tx2-	Transmitter Inverted Data Input.	
3	Tx2+	Transmitter Non-Inverted Data Input.	
4	GND	Transmitter Ground (Common with Receiver Ground).	1
5	Tx4-	Transmitter Inverted Data Input.	
6	Tx4+	Transmitter Non-Inverted Data Input.	
7	GND	Transmitter Ground (Common with Receiver Ground).	1
8	ModSelL	Module Select.	2
9	ResetL	Module Reset.	2
10	VccRx	+3.3V Receiver Power Supply.	
11	SCL	2-Wire Serial Interface Clock.	2
12	SDA	2-Wire Serial Interface Data.	2
13	GND	Transmitter Ground (Common with Receiver Ground).	1
14	Rx3+	Receiver Non-Inverted Data Output.	
15	Rx3-	Receiver Inverted Data Output.	
16	GND	Transmitter Ground (Common with Receiver Ground).	1
17	Rx1+	Receiver Non-Inverted Data Output.	
18	Rx1-	Receiver Inverted Data Output.	
19	GND	Transmitter Ground (Common with Receiver Ground).	1
20	GND	Transmitter Ground (Common with Receiver Ground).	1
21	Rx2-	Receiver Inverted Data Output.	
22	Rx2+	Receiver Non-Inverted Data Output.	
23	GND	Transmitter Ground (Common with Receiver Ground).	1
24	Rx4-	Receiver Inverted Data Output.	1
25	Rx4+	Receiver Non-Inverted Data Output.	
26	GND	Transmitter Ground (Common with Receiver Ground).	1
27	ModPrsL	Module Present.	
28	IntL	Interrupt.	2
29	VccTx	+3.3V Transmitter Power Supply.	
30	Vcc1	+3.3V Power Supply.	
31	LPMODE	Low-Power Mode.	2
32	GND	Transmitter Ground (Common with Receiver Ground).	1
33	Tx3+	Transmitter Non-Inverted Data Input.	
34	Tx3-	Transmitter Inverted Data Output.	
35	GND	Transmitter Ground (Common with Receiver Ground).	1
36	Tx1+	Transmitter Non-Inverted Data Input.	

37	Tx1-	Transmitter Inverted Data Input.	
38	GND	Transmitter Ground (Common with Receiver Ground).	1

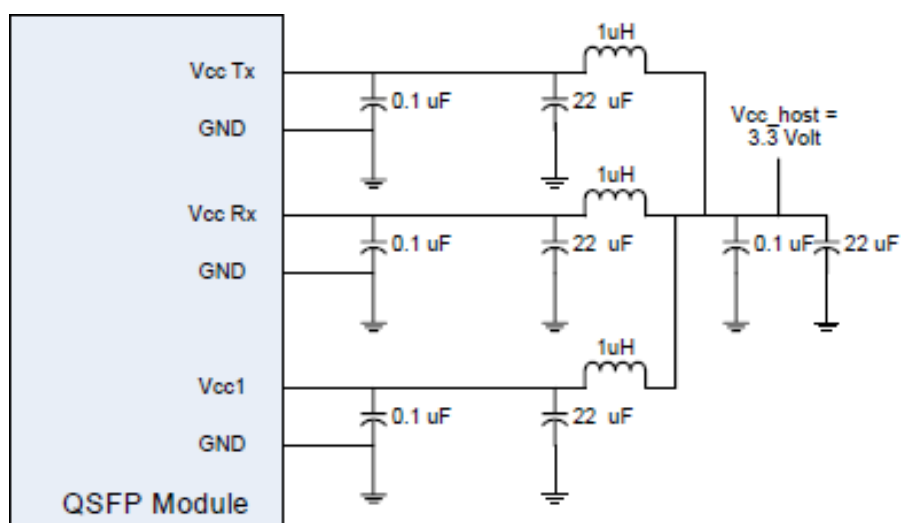
Notes:

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 4.7kΩ to 10kΩ pull-up resistor to the Host_Vcc.

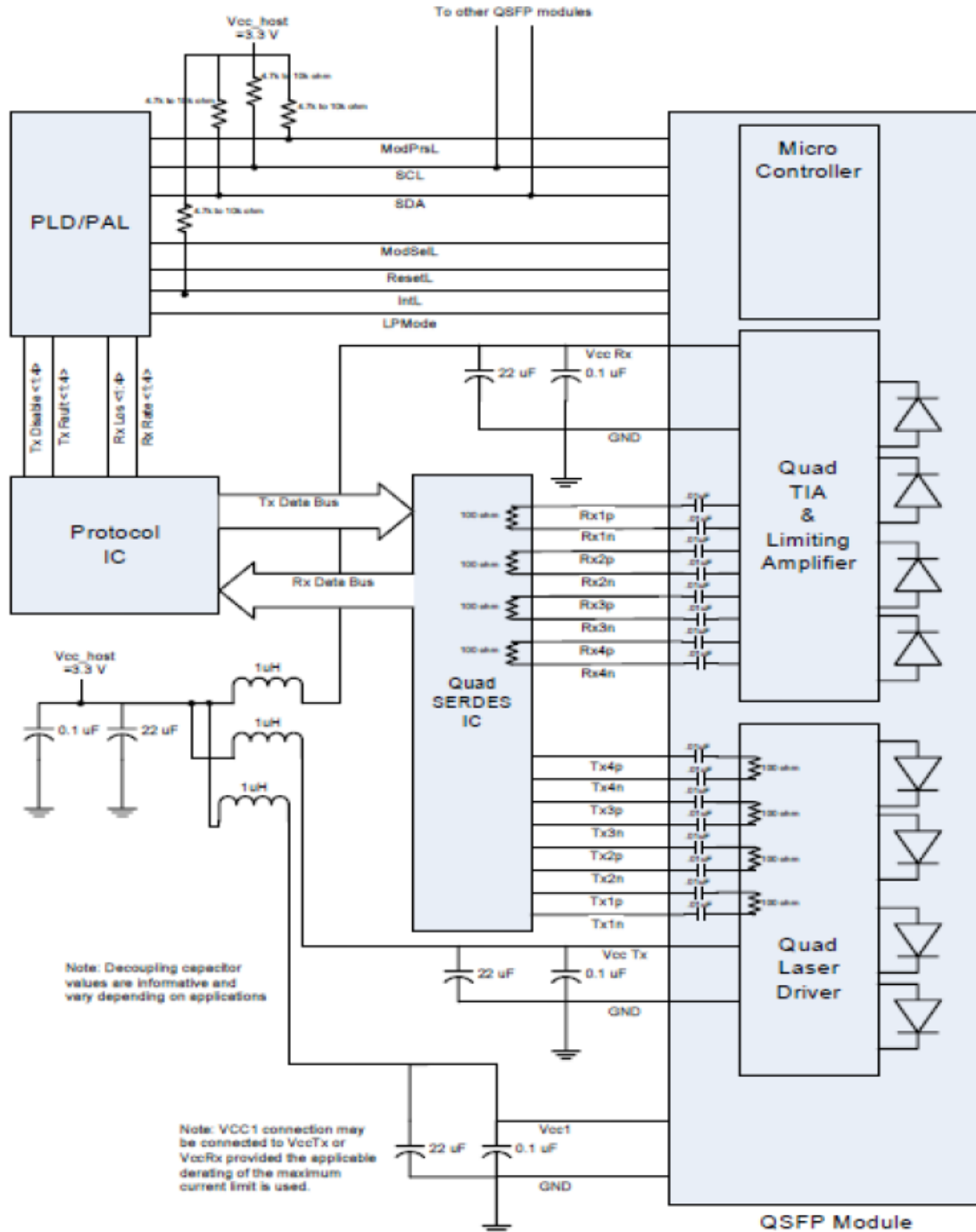
Electrical Pin-Out Details



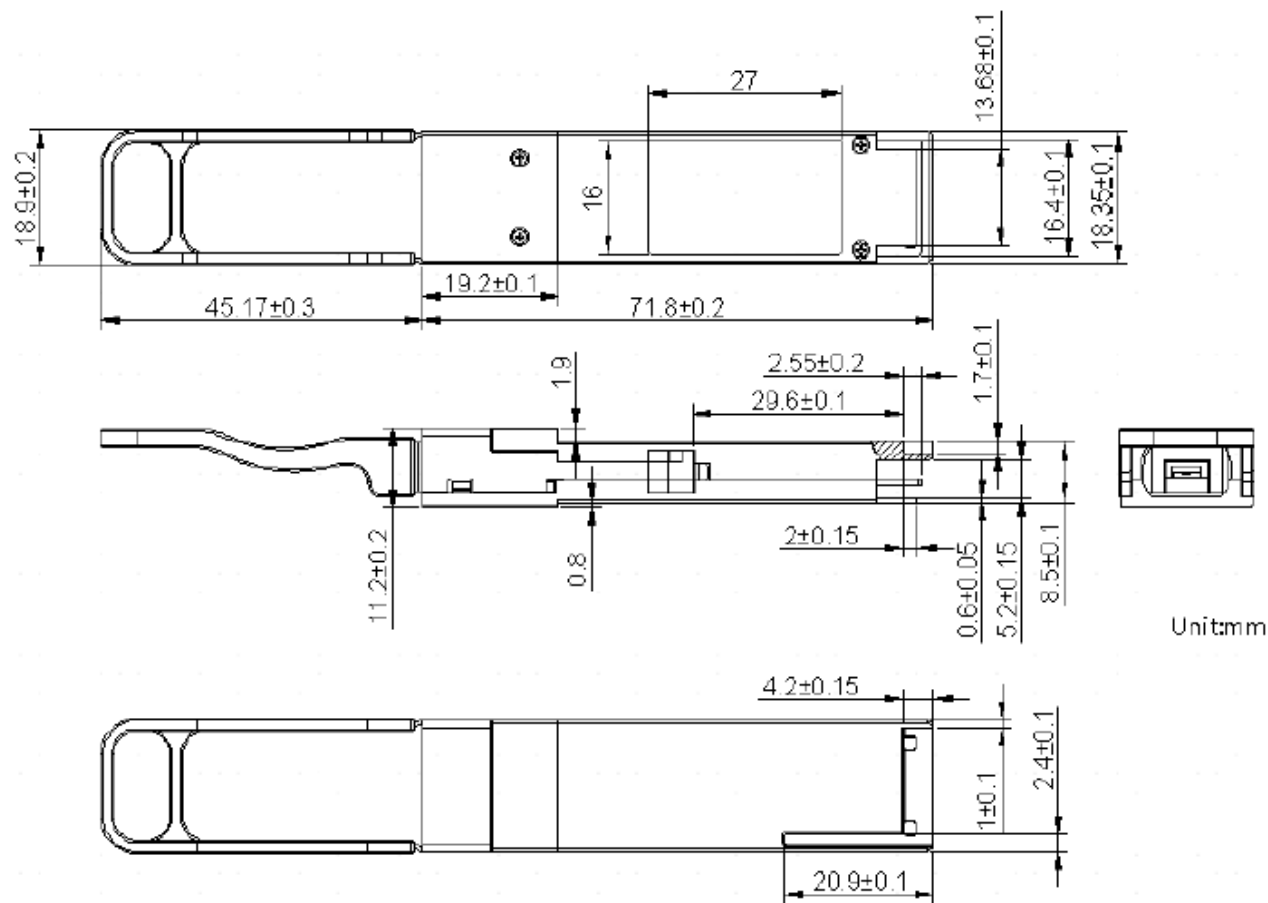
Recommended Host Board Power Supply Filter Network



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.

