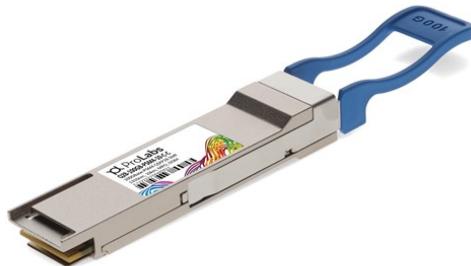


**Q28-100GB-PSM4-10-C-C**

Cisco® Compatible TAA Compliant 100GBase-PSM4 QSFP28 Transceiver (SMF, 1310nm, 10km, MPO, DOM)

**Features:**

- SFF-8665 Compliance
- MPO Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

**Applications:**

- 100G Ethernet

**Product Description**

This Cisco® compatible QSFP28 transceiver provides 100GBase-PSM4 throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an MPO connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. Digital optical monitoring (DOM) support is also present to allow 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.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products.")



### Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		4.0	V
Storage Temperature	TS	-40		85	°C
Operating Case Temperature	Tc	0	25	70	°C
Relative Humidity	RH	5		95	%
Data Rate Per Channel			25.78125		Gbps

### Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.30	3.465	V	
Power Supply Current	Icc			1100	mA	
Power Dissipation	P <sub>D</sub>			3500	mW	
<b>Transmitter</b>						
Differential data input swing	V <sub>in,pp</sub>	190		700	mVp-p	
Input differential impedance	Z <sub>in</sub>	90	100	110	Ω	
AC Common Mode Input Voltage Tolerance		15			mV	
<b>Receiver</b>						
Differential data output swing	V <sub>out, pp</sub>	300		850	mV	1
Output differential impedance	Z <sub>in</sub>	90	100	110	Ω	
AC Common Mode Output Voltage				7.5	mV	
Single-ended Output Voltage		-0.3		4	V	

### Notes:

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

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
<b>Launch Optical Power Per Lane</b>	P <sub>o</sub>	-4		+2	dBm	1
<b>Side Mode Suppression Ratio</b>	SMSR	30			dB	
<b>Optical Return Loss Tolerance</b>	ORLT			12	dB	
<b>Optical Extinction Ratio</b>	ER	3.5			dB	2
<b>Optical Wavelength</b>	T $\lambda$	1295	1310	1325	nm	
<b>Pout @TX-Disable Asserted</b>	P <sub>out</sub>			-30	dBm	1
<b>Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}</b>	{0.31,0.4,0.45,0.34,0.38,0.4}					
<b>Receiver</b>						
<b>Receiver wavelength</b>	R $\lambda$	1295		1325	nm	
<b>Receiver Sensitivity</b>	S			-12.0	dBm	3
<b>Damage Threshold</b>	P <sub>OL</sub>	3.0			dBm	
<b>LOS De-Assert</b>	LOS <sub>D</sub>			-12.5	dBm	
<b>LOS Assert</b>	LOS <sub>A</sub>	-24			dBm	
<b>LOS Hysteresis</b>		0.5			dB	

### Notes:

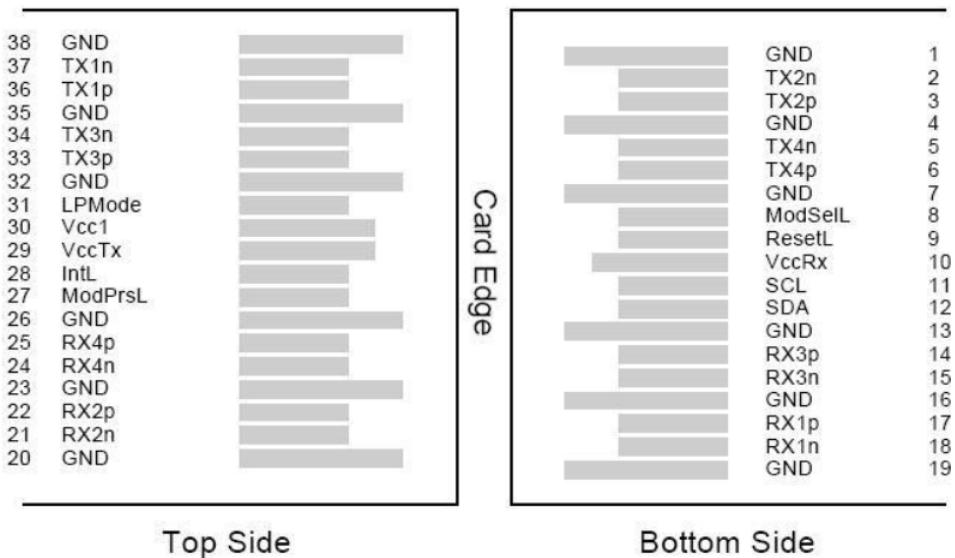
1. The optical power is launched into SMF.
2. Measured with a PRBS 2<sup>31</sup>-1 test pattern @25.78125Gbps.
3. Measured with PRBS 2<sup>31</sup>-1 test pattern, 25.78125Gb/s, BER of 5×10<sup>-5</sup>(informative)

## Pin Descriptions

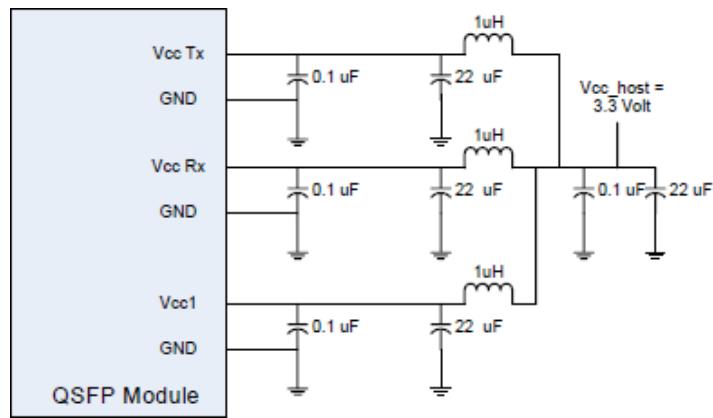
Pin	Symbol	Name/Descriptions	Ref.
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2-	Transmitter Inverted Data Input	
3	Tx2+	Transmitter Non-Inverted Data output	
4	GND	Transmitter Ground (Common with Receiver Ground)	1
5	Tx4-	Transmitter Inverted Data Input	
6	Tx4+	Transmitter Non-Inverted Data output	
7	GND	Transmitter Ground (Common with Receiver Ground)	1
8	ModSelL	Module Select	2
9	ResetL	Module Reset	2
10	VccRx	3.3V Power Supply Receiver	
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	
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 power supply transmitter	
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 Output	
38	GND	Transmitter Ground (Common with Receiver Ground)	1

**Notes:**

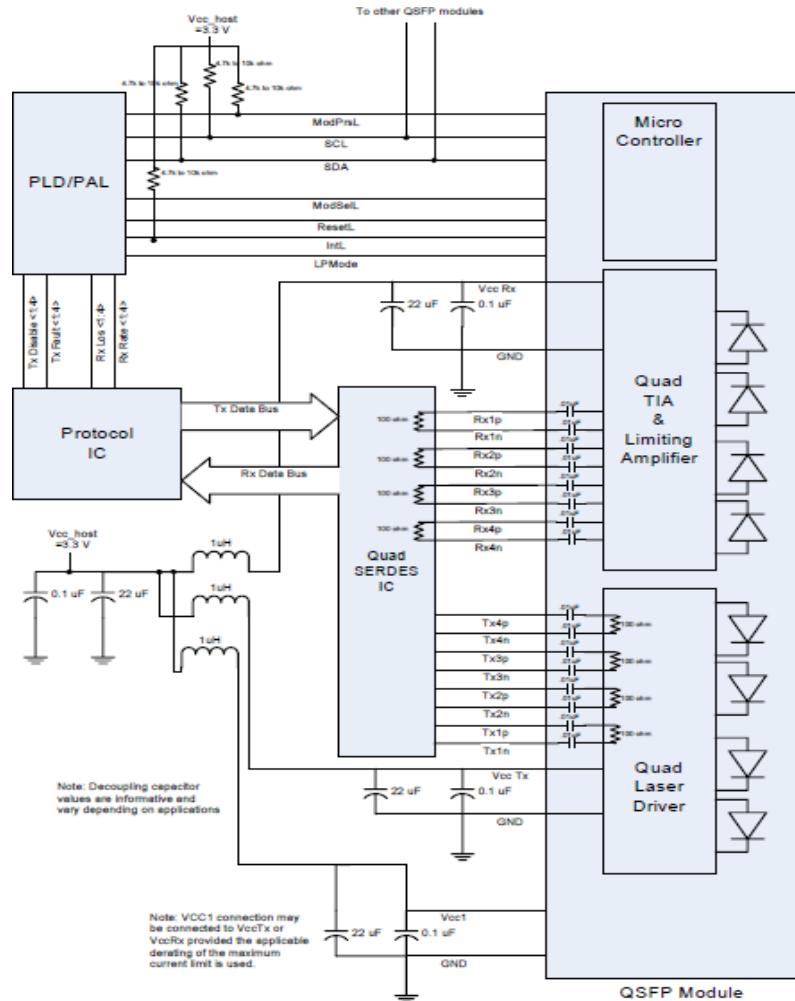
1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.

**Electrical Pin-out Details**

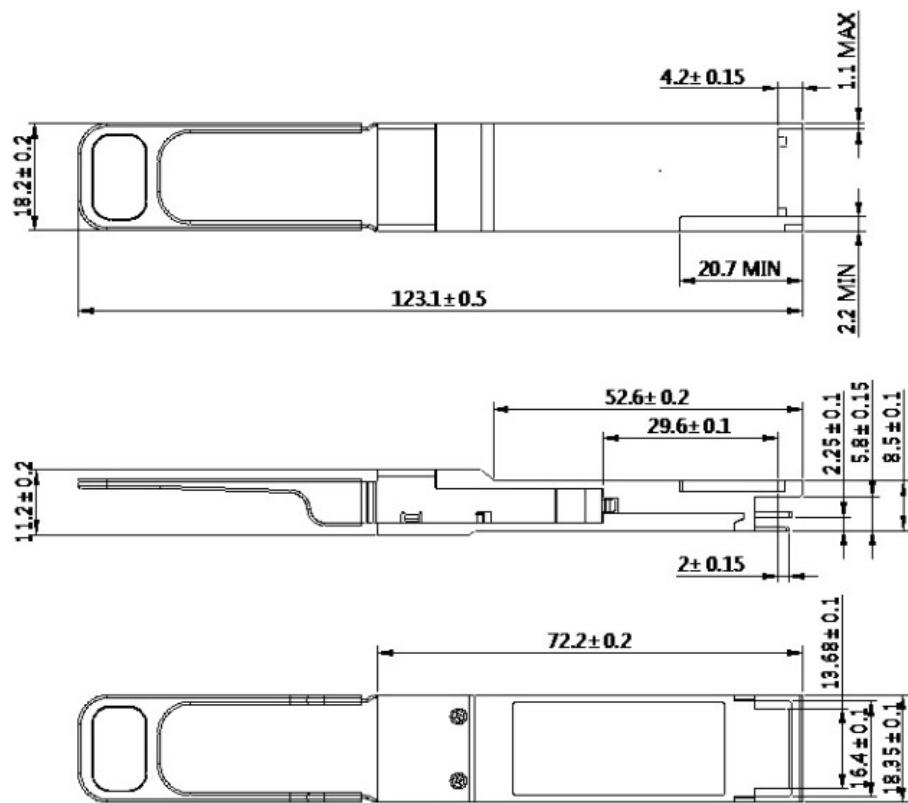
## Recommended Host Board Power Supply Filter Network



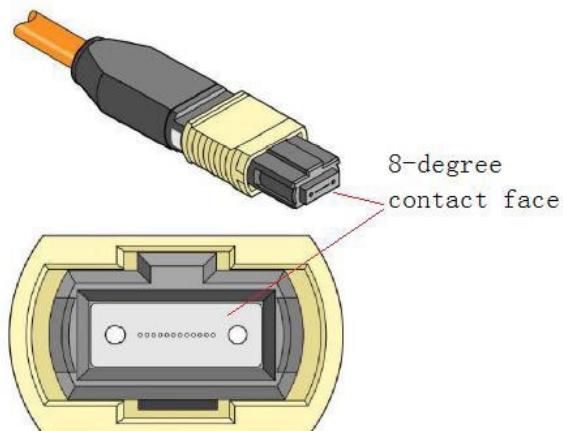
## Recommended Application Interface Block Diagram



## Mechanical Specifications



**Attention:** To minimize MPO connection induced reflections, an MPO receptacle with 8-degree angled end-face is utilized for this product. A female MPO connector with 8-degree end-face should be used with this product as illustrated in below Figure.



## About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

## Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

## Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



## Contact Information

### ProLabs US

Email: [sales@prolabs.com](mailto:sales@prolabs.com)

Telephone: 952-852-0252

### ProLabs UK

Email: [salesupport@prolabs.com](mailto:salesupport@prolabs.com)

Telephone: +44 1285 719 600