# Pro**Labs**

# QSFP-100GBASE-SR4-C

Juniper Networks® QSFP-100GBASE-SR4 Compatible TAA 100GBase-SR4 QSFP28 Transceiver (MMF, 850nm, 100m, MPO, DOM)

# Features:

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



#### **Applications:**

- 100GBase Ethernet
- Access and Enterprise

# **Product Description**

This Juniper Networks<sup>®</sup> QSFP-100GBASE-SR4 compatible 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 is guaranteed to be 100% compatible with the equivalent Juniper Networks<sup>®</sup> 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. 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."



Rev. 040523

# **Absolute Maximum Ratings**

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	Ts	-40		+85	°C	
Relative Humidity	RH	5		95	%	
Operating Case Temperature	ТС	0	25	70	°C	
Data Rate PER Channel	DR		25.78125		Gb/s	

# **Electrical Characteristics**

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes	
Supply Voltage	VCC	3.135	3.3	3.465	V		
Module Supply Current	lcc			750	mA		
Power Dissipation	PD			2.5	W		
Transmitter							
Input Differential Impedance	ZIN		100		Ω		
Differential Data Input Swing	V <sub>IN, P-P</sub>	180		900	mVp-p		
Receiver							
Output Differential Impedance	Zo		100		Ω		
Differential Data Output Swing	V <sub>OUT</sub> , p-p	300		850	mVp-p	1	
Transition Time (20% to 80%)	Tr,Tf	12			ps		

#### Notes:

- The optical power is launched into OM3 MMF.
  Measured with a PRBS 2<sup>31</sup>-1 test pattern @25.78125Gbps.

Optical Characteristics						
Parameter	Symbol	Min.	Тур.	Max.	Unit.	Notes
Transmitter						
Launch Optical Power	Ро	-8.4		+2.4	dBm	1
Center Wavelength Range	λς	840	850	860	nm	-
Extinction Ratio	EX	2			dB	2
Spectral width (RMS)	Δλ			0.6	nm	
Transmitter and Dispersion Penalty	TDP			4.3	dB	
Optical Return Loss Tolerance	ORLT			12	dB	
Eye Diagram		IEEE Std 802.3bm compatible				
Receiver						
Center Wavelength	λς	840	850	860	nm	
Average Receiver Sensitivity (Pavg)	S			-11	dBm	3
Average Receiver Sensitivity (Pavg)	S			-7.5	dBm	4
Receiver Overload (Pavg)	Pol	2.5			dBm	
Damage Threshold	POL	3.4			dBm	
Optical Reflectance	ORL			-12	dB	
LOS Assert	LOSA	-30			dB	
LOS De-Assert	LOSD			-11.5	dB	
LOS Hysteresis		0.5			dB	

# Notes:

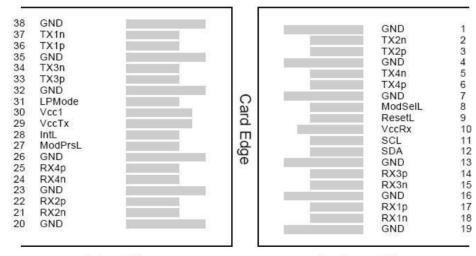
- 1. The optical power is launched into OM3 MMF.
- 2. Measured with a PRBS 2<sup>31</sup>-1 test pattern @25.78125Gbps.
- 3. Measured with a PRBS 2<sup>31</sup>-1 test pattern, 25.78125Gb/s, BER<5E<sup>-5</sup>.
- 4. Measured with PRBS  $2^{31}$ -1 test pattern, 25.78125Gb/s, BER<10<sup>-12</sup>.

Pin De	escriptions		
Pin	Symbol	Function/Description	Notes
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	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 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:

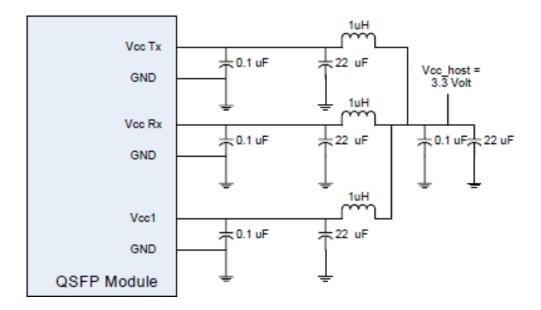
- 1. The module signal grounds are isolated from the module case.
- 2. This is an open collector/drain output that on the host board requires a 4.7K $\Omega$  to 10K $\Omega$  pull-up resistor to VccHost.



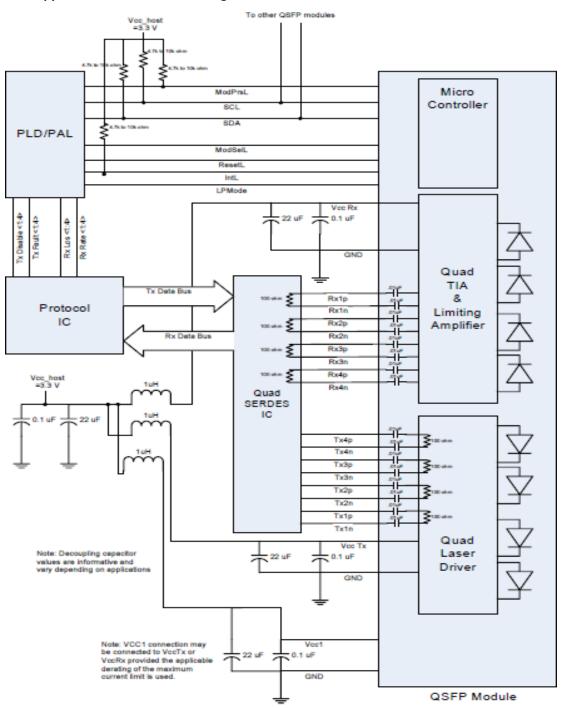
Top Side

Bottom Side

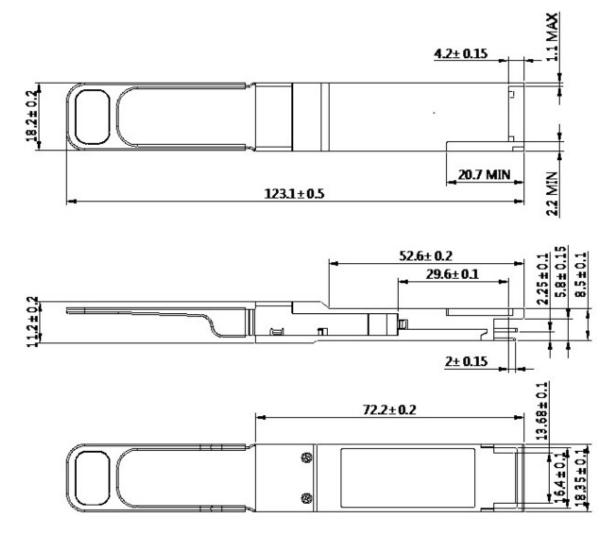
# **Recommended Host Board Power Supply Filter Network**



# **Recommended Application Interface Block Diagram**



# **Mechanical Specifications**



#### **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.



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