

QSFP28-100GB-SR4-LP-CX-PRO

Calix® Compatible TAA Compliant 100GBase-SR4 QSFP28 Low Power Transceiver (MMF, 850nm, 100m, DOM, 0 to 70C, MPO)

Features

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



Applications:

- 100GBase Ethernet
- Access and Enterprise

Product Description

This Calix® 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 Calix® 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.

Proline's 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	Notes
Power Supply Voltage	Vcc	-0.3		4	V	
Storage Temperature	Tstg	-40		85	°C	
Case Operating Temperature	Tc	0		70	°C	Without Air Flow
Relative Humidity	RH	5		95	%	
Signal Input Voltage		Vcc-0.3		Vcc+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	Vcc	3.14	3.3	3.46	V	
Power Supply Current	Icc			600	mA	
Transmitter						
Input Differential Impedance	RIN		100		Ω	1
Differential Data Input Swing	VIN,pp	180		1000	mV	
Single-Ended Input Voltage Tolerance	VIN	-0.3		4.0	V	
Receiver						
Differential Data Output Swing	VOUT,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 $1.5 \cdot 10^{-5}$ hits per sample.
2. Measured with a PRBS $2^{31}-1$ test pattern, @25.78Gbps, and $BER < 5.0 \cdot 10^{-5}$.

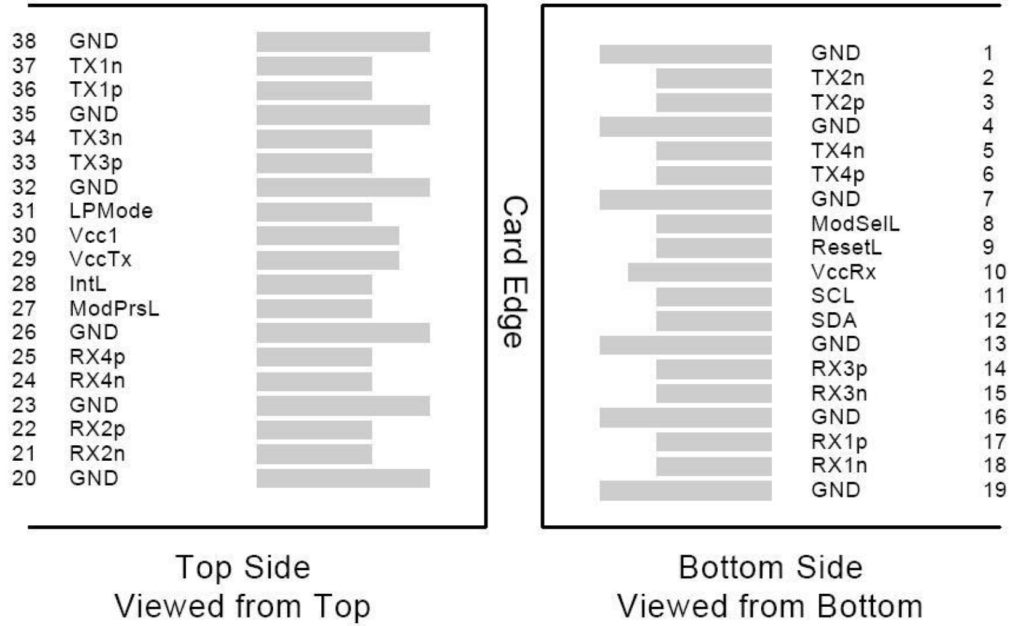
Pin Descriptions

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	LVTTTL-I	MODSEIL	Module Select.	2
9	LVTTTL-I	ResetL	Module Reset.	2
10		VccRx	+3.3V Receiver Power Supply.	
11	LVCNOS-I	SCL	2-Wire Serial Interface Clock.	2
12	LVCNOS-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	LVTTTL-O	ModPrsL	Module Present. Internally pulled down to GND.	
28	LVTTTL-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	LVTTTL-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

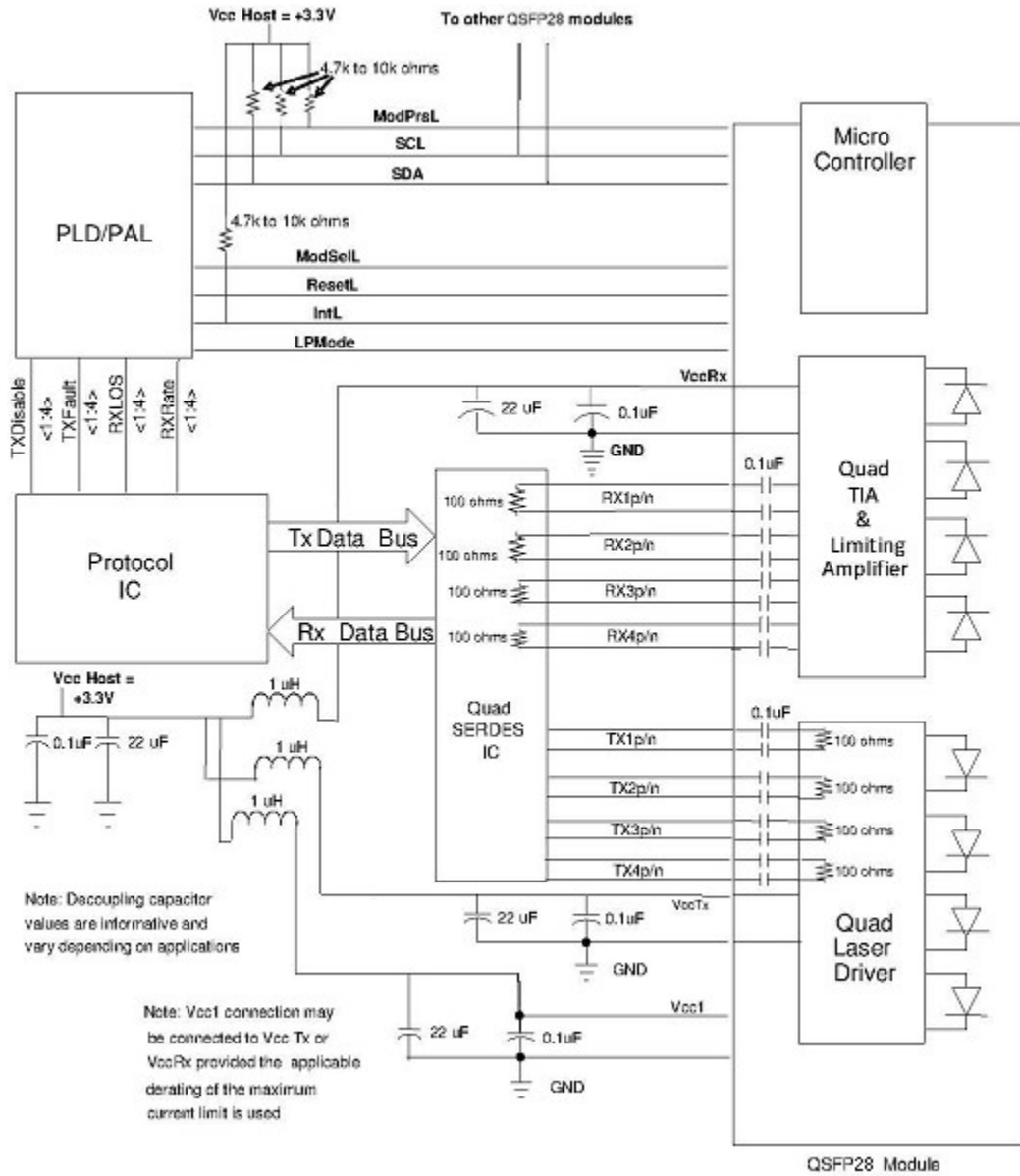
Notes:

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.

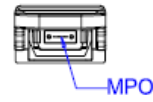
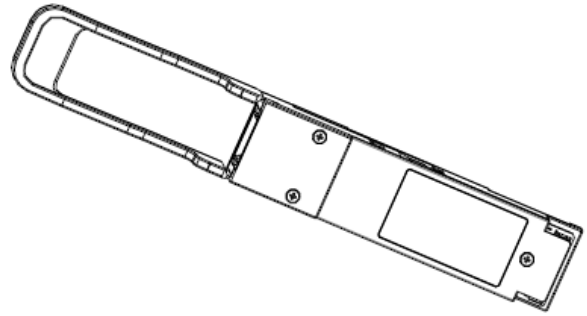
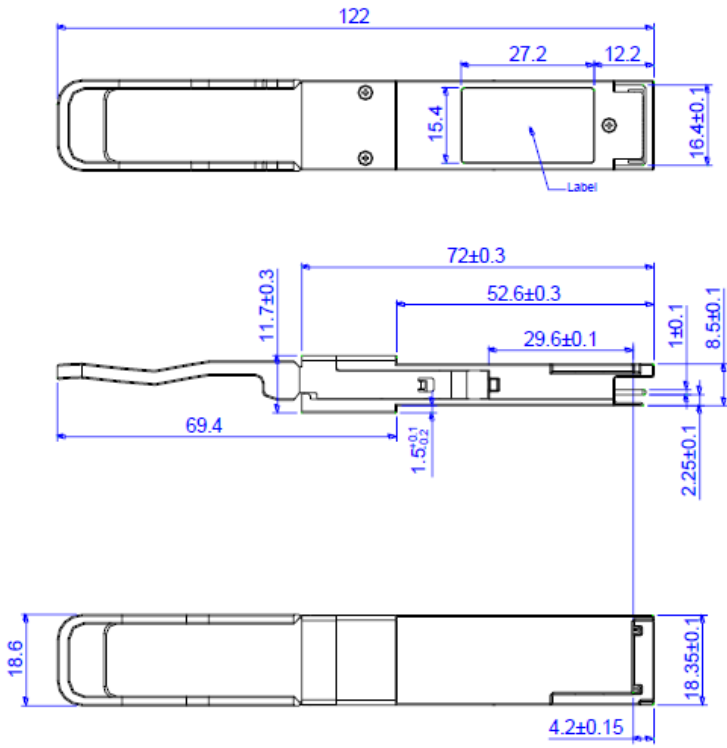
Electrical Pin-Out Details



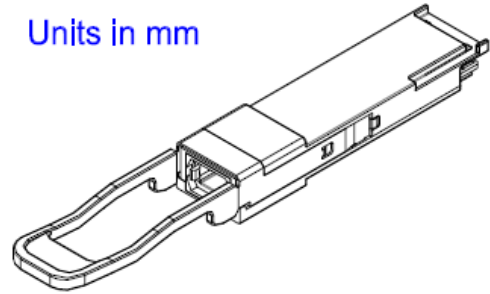
Transceiver Interface Block Diagram



Mechanical Specifications



Units in mm



About Us:

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.



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