

QSFP28-100GB-LR-CW31-PRO

MSA and TAA Compliant 100GBase-CWDM QSFP28 Single Lambda Transceiver (SMF, 1310nm, 10km w/host FEC, DOM, 0 to 70C, LC)

Features

- Supports 100Gbps
- Single 3.3V Power Supply
- 100G Lambda MSA 100G-LR Specification Compliant
- Up to 10km over SMF with FEC
- QSFP28 MSA Compliant
- Power Dissipation < 4.5W
- 4x25G Electrical Interface
- SFF-8636 Rev 2.10a Compliant
- Operating Case Temperature: 0C to 70C
- LC Duplex Connector
- I2C Interface with Integrated Digital Diagnostic Monitoring
- RoHS compliant



Applications:

- 100GBase Ethernet over CWDM
- Access, Metro and Enterprise

Product Description

This MSA Compliant QSFP28-100GB-LR-CW31 compatible QSFP28 transceiver provides 100GBase-CWDM throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC 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.

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.



CWDM Available Wavelengths

Wavelengths	Min.	Typ.	Max.
27	1264.5	1271	1277.5
29	1284.5	1291	1297.5
31	1304.5	1311	1317.5
33	1324.5	1331	1337.5

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		70	°C
Operating Relative Humidity	RH	5		85	%
Damage threshold	Rxdmg	5.5			dBm

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Dissipation	PD			4.5	W	
Transmitter						
Differential data input swing per lane		900			mVp-p	
Differential input impedance	Zin	90	100	110	ohm	
DC common mode voltage (Vcm)		-350		2850	mV	
Receiver						
Differential output amplitude				900	mVp-p	
Differential output impedance	Zout	90	100	110	ohm	
Output Rise/Fall Time	tr/tf	12			ps	20%~80%
AC Common Mode Output Voltage				7.5	mV	
Eye width		0.57			UI	
Eye height differential		228			mV	@TP4, 1E-15
DC common mode voltage (Vcm)		-350		2850	mV	1

Notes:

1. Vcm is generated by the host. Specification includes effects of ground offset voltage.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes	
Transmitter							
Signaling speed			53.125		Gbaud		
Modulation format		PAM4					
Optical center wavelength	λ	$\lambda_c-6.5$	λ_c	$\lambda_c+6.5$	nm		
Side-mode suppression ratio	SMSR	30			dB		
Extinction ratio	ER	3.5			dB		
Transmit OMA	TxOMA	0.7		4.7	dBm		
Transmit average	TxAVG	-1.4		4.5	dBm	1	
Launch power in OMA _{outer} minus TDECQ		-0.7			dBm	2	
Launch power in OMA _{outer} minus TDECQ		-0.6			dBm	3	
Transmitter and dispersion eye closure	TDECQ			3.4	dB		
Optical return loss tolerance				15.6	dB	4	
Receiver							
Signaling speed			53.125		Gbaud		
Damage threshold		5.5			dBm		
Receive power (OMA _{outer})	RxOMA			4.7	dBm		
Average receive power	RxAVG	-7.7		4.5	dBm		
Receiver sensitivity (OMA _{outer})	SenOMA			Max(-6.1, SECQ-7.5)	dBm	5	
Receiver reflectance				-26	dB		
LOS assert	LOSA	-15			dBm		
LOS De-assert	LOSD			-12	dBm		
LOS hysteresis		0.5			dB		

Notes:

1. Average launch power (min) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
2. For $ER \geq 4.5$ dB
3. For $ER < 4.5$ dB
4. Transmitter reflectance is defined looking into the transmitter.
5. Sensitivity is specified at 2.4×10^{-4} BER.

Pin Descriptions

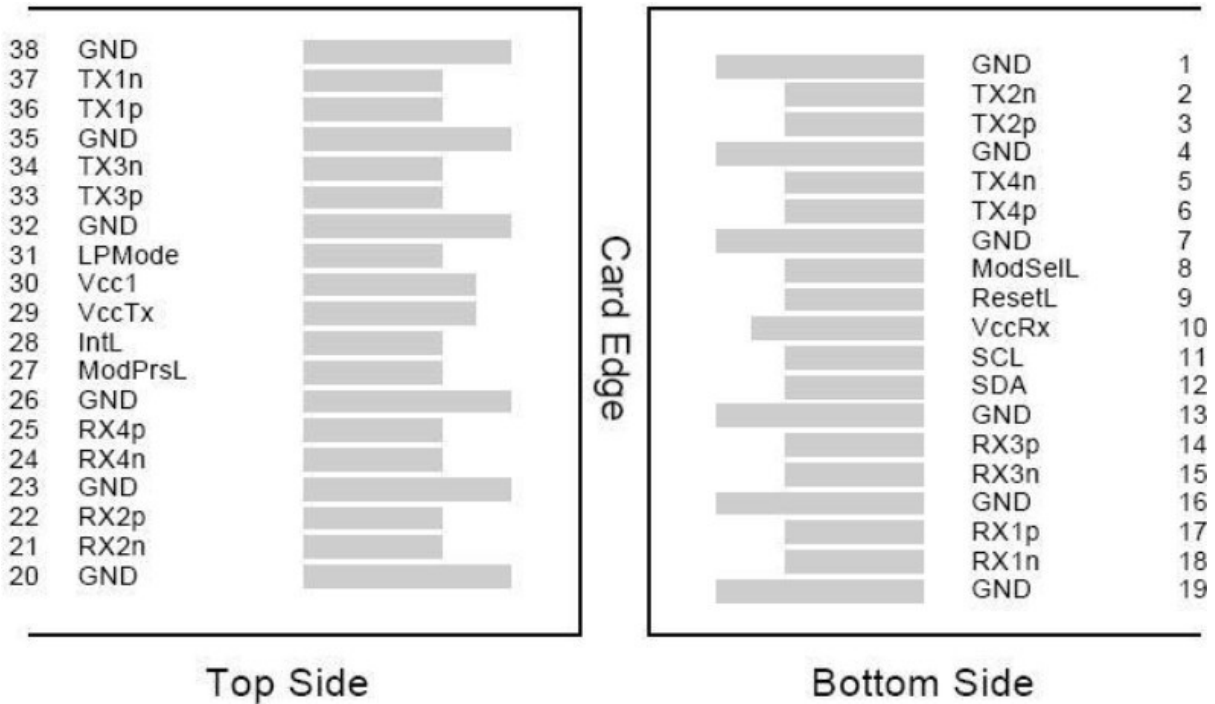
Pin	Symbol	Name/Descriptions	Ref.
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2-	Transmitter Inverted Data Input	
3	Tx2+	Transmitter Non-Inverted Data output	
4	GND	Transmitter Ground (Common with Receiver Ground)	1
5	Tx4-	Transmitter Inverted Data Input	
6	Tx4+	Transmitter Non-Inverted 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	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

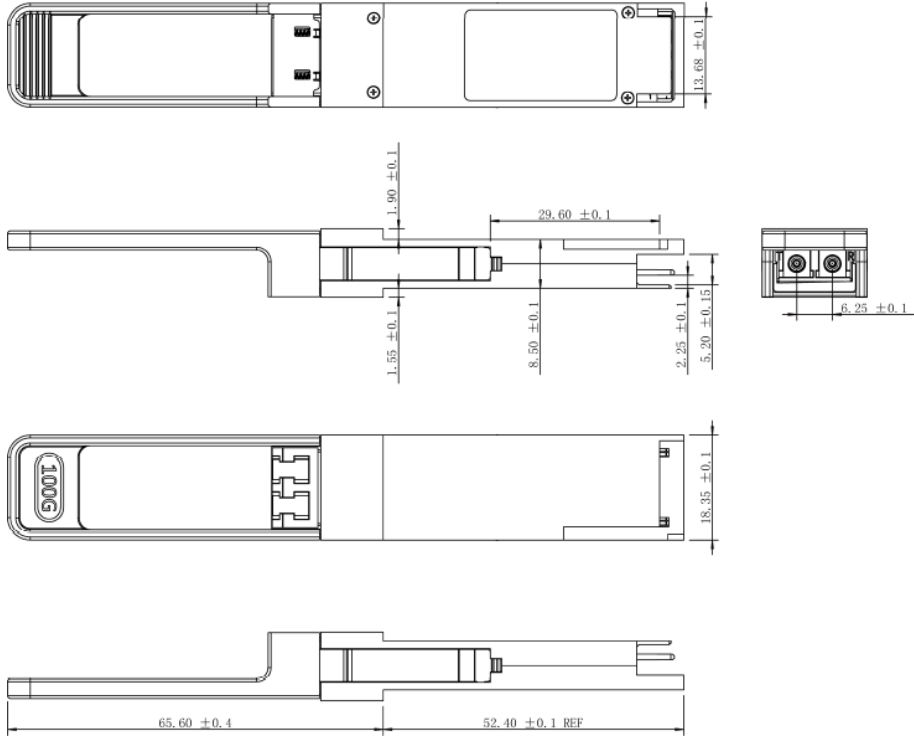
Notes:

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 Ω to 10K Ω pull-up resistor to VccHost.

Electrical Pin-out Details



Mechanical Specifications



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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