

### JNP-QSFP-100G-LR-CW33-PRO

Juniper Networks® JNP-QSFP-100G-LR-CW33 Compatible TAA Compliant 100GBase-CWDM QSFP28 Single Lambda Transceiver (SMF, 10km, 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 Juniper Networks® JNP-QSFP-100G-LR-CW33 compatible QSFP28 transceiver provides 100GBase-CWDM throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1330nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Juniper Networks® 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.



## 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	
<b>Transmitter</b>						
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	
<b>Receiver</b>						
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	
<b>Transmitter</b>							
Signaling speed			53.125		Gbaud		
Modulation format		PAM4					
Optical center wavelength	$\lambda$	$\lambda_c-6.5$	$\lambda_c$	$\lambda_c+6.5$	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 <sub>outer</sub> minus TDECQ		-0.7			dBm	2	
Launch power in OMA <sub>outer</sub> minus TDECQ		-0.6			dBm	3	
Transmitter and dispersion eye closure	TDECQ			3.4	dB		
Optical return loss tolerance				15.6	dB	4	
<b>Receiver</b>							
Signaling speed			53.125		Gbaud		
Damage threshold		5.5			dBm		
Receive power (OMA <sub>outer</sub> )	RxOMA			4.7	dBm		
Average receive power	RxAVG	-7.7		4.5	dBm		
Receiver sensitivity (OMA <sub>outer</sub> )	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:

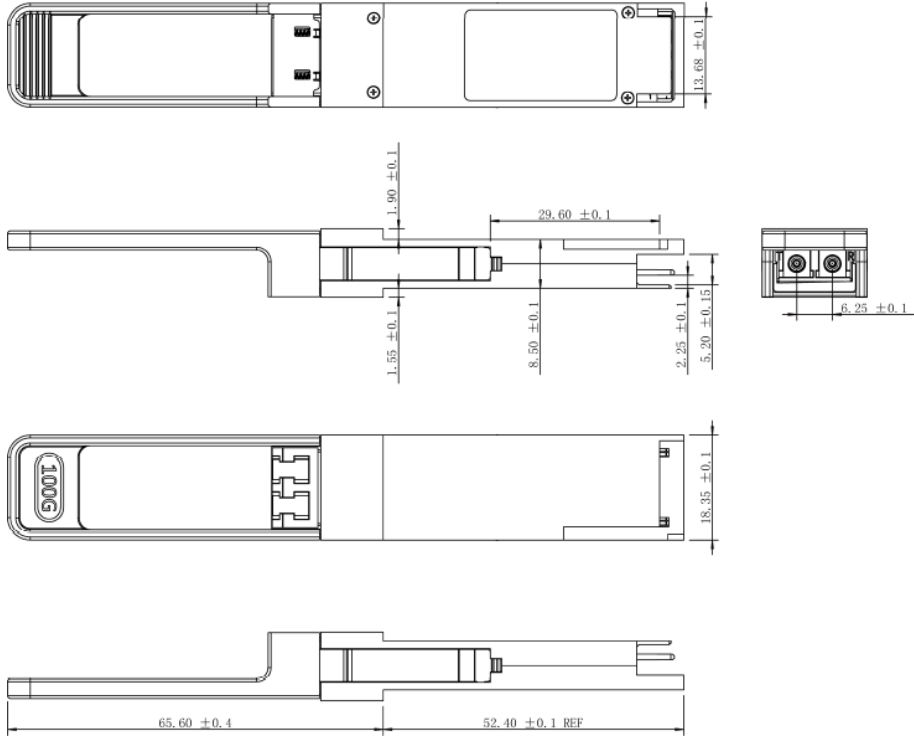
1. Average launch power (min) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
2. For  $ER \geq 4.5$  dB
3. For  $ER < 4.5$  dB
4. Transmitter reflectance is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



**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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