

QDD-100GB-DCO-ZRP-J-AO

Juniper Networks® Compatible TAA 100GBase-ZR+ Coherent QSFP-DD Transceiver (SMF, 1528.77nm to 1567.13nm, Open ZR+, LC, DOM)

Features

- QSFP-DD MSA compliant
- Supports 100Gbps Payload (Open ZR+)
- Hot pluggable QSFP-DD footprint (Type 2A)
- Tunable C-band Transmitter and Coherent Receivers
- O-FEC (15%) with 11.6dB Net Coding Gain
- Duplex LC Connector
- CAUI-4 (4x 25.78125Gbps NRZ) Serial Electrical Interface, RS-FEC (544/528)/No FEC
- 100GAUI-2 (2x 26.5625GBd PAM4) Serial Electrical Interface, RS-FEC (544/514)
- RoHS Compliant and Lead-free
- Operating Temperature 0 to 70 Celsius



Applications

- 100GBase Ethernet
- Access and Enterprise

Product Description

This Juniper Networks® QSFP-DD transceiver provides 100GBase-ZR+ throughput up to Open ZR+ over single-mode fiber (SMF) using a wavelength of 1528.77nm to 1567.13nm 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.

AddOn'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	3.218	3.3	3.465	V	
Storage Temperature	Tstg	-40		85	°C	
Case Operating Temperature	Tc	0		70	°C	
Relative Humidity (Non-Condensing)	RH			85	%	
Optical Receiver Overload				4	dBm	1
Supported Host Signal Types			103.125		Gbps	2
Line Baud Rate			30.07		GBd	3

Notes:

1. The optical input to the receiver should not exceed this value. Transmitters must never be directly connected to receivers before ensuring that proper optical attenuation is used.
2. As per IEEE 802.3-2012.
3. 100G DP-QPSK, O-FEC.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.218	3.3	3.465	V	
Power Supply Current	Icc			6	A	
Power Consumption	PD			16.5	W	
Power Consumption	PD			1.5	W	1

Notes:

1. Low-power mode.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Average Output Power	P_o	-6	-4.5	-2	dBm	1, 2
Laser Linewidth				300	kHz	
Transmitter VOA Dynamic Range		10			dB	3
Output Power Stability		-1		1	dB	
In-Band OSNR		35			dB/0.1nm	
Out-of-Band OSNR		35			dB/0.1nm	
Frequency Range		191.275		196.125	THz	4
Centre Frequency		$\nu_T - 1.5$	ν_T	$\nu_T + 1.5$	GHz	5
Channel Spacing		6.25			GHz	
Centre Wavelength Range	$T\lambda$	1528.58		1567.34	nm	
Centre Wavelength	$T\lambda$	$\lambda_T - 15$	λ_T	$\lambda_T + 15$	pm	
Receiver						
Receiver Operating Wavelength	$R\lambda$	1528.58		1567.34	nm	
Receiver Sensitivity	S			-32	dBm	6
Receiver Overload	P_{OL}	4			dBm	7
Receiver Input Power Range		-20		4	dBm	8
Extended Receiver Input Power Range		-25		4	dBm	9
Acquisition Range		-3.6		3.6	GHz	10
Upstream Tx Linewidth				1000	kHz	
OSNR Tolerance			14	15.5	dB	11
Crosstalk Tolerance				17	dB	12
Chromatic Dispersion Tolerance				5000	ps/nm	13

Notes:

1. Output power coupled into a 9/125 μ m single-mode fiber.
2. The output power is adjustable in steps of 0.1dB within the specified wavelength range.
3. With Tx VOA attenuation is set to minimum.
4. Per ITU-T G.694.1 DWDM grid definition.
5. Applies also to LO.
6. Minimum input power needed to achieve post-FEC BER $\leq 10^{-15}$, 100G DP-QPSK, and OSNR > 35 dB.
7. The optical input to the receiver should not exceed this value. Transmitters must never be directly connected to receivers before ensuring that proper optical attenuation is used.
8. An input power in this range guarantees optimum OSNR performance.
9. With ≤ 1 dB OSNR tolerance degradation.
10. Frequency offset between received carrier and LO.
11. At optimum input power range.

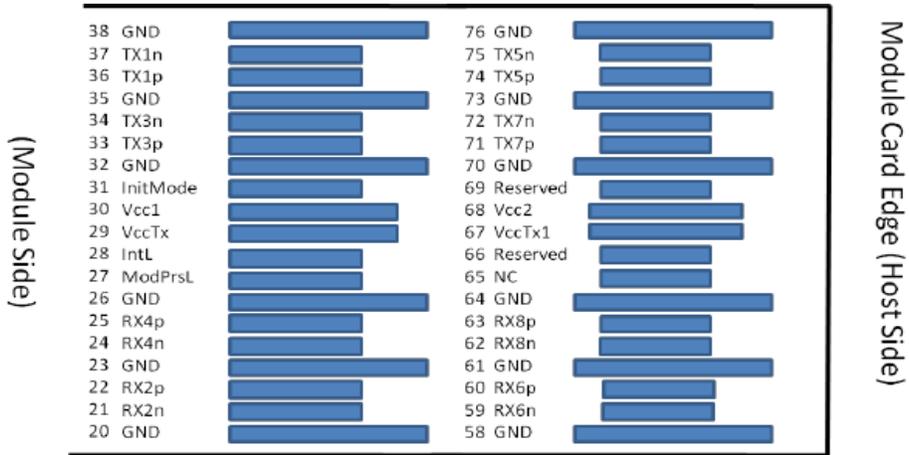
12. Ratio of accumulated crosstalk channels to signal power.
13. Less than 0.5dB receiver sensitivity penalty compared to OSNR>35dB.

Pin Descriptions

Pin	Logic	Symbol	Name/Description	Plug Sequence
1		GND	Module Ground.	1B
2	CML-I	Tx2-	Transmitter Inverted Data Input.	3B
3	CML-I	Tx2+	Transmitter Non-Inverted Data Input.	3B
4		GND	Module Ground.	1B
5	CML-I	Tx4-	Transmitter Inverted Data Input.	3B
6	CML-I	Tx4+	Transmitter Non-Inverted Data Input.	3B
7		GND	Module Ground.	1B
8	LVTTL-I	ModSelL	Module Select.	3B
9	LVTTL-I	ResetL	Module Reset.	3B
10		VccRx	+3.3V Receiver Power Supply.	2B
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock.	3B
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data.	3B
13		GND	Module Ground.	1B
14	CML-O	Rx3+	Receiver Non-Inverted Data Output.	3B
15	CML-O	Rx3-	Receiver Inverted Data Output.	3B
16		GND	Module Ground.	1B
17	CML-O	Rx1+	Receiver Non-Inverted Data Output.	3B
18	CML-O	Rx1-	Receiver Inverted Data Output.	3B
19		GND	Module Ground.	1B
20		GND	Module Ground.	1B
21	CML-O	Rx2-	Receiver Inverted Data Output.	3B
22	CML-O	Rx2+	Receiver Non-Inverted Data Output.	3B
23		GND	Module Ground.	1B
24	CML-O	Rx4-	Receiver Inverted Data Output.	3B
25	CML-O	Rx4+	Receiver Non-Inverted Data Output.	3B
26		GND	Module Ground.	1B
27	LVTTL-O	ModPrsL	Module Present.	3B
28	LVTTL-O	IntL	Interrupt.	3B
29		VccTx	+3.3V Transmitter Power Supply.	2B
30		Vcc1	+3.3V Power Supply.	2B
31	LVTTL-I	InitMode	Initialization Mode. In legacy QSFP applications, the InitMode pad is called LPMode.	3B
32		GND	Module Ground.	1B
33	CML-I	Tx3+	Transmitter Non-Inverted Data Input.	3B
34	CML-I	Tx3-	Transmitter Inverted Data Input.	3B
35		GND	Module Ground.	1B
36	CML-I	Tx1+	Transmitter Non-Inverted Data Input.	3B

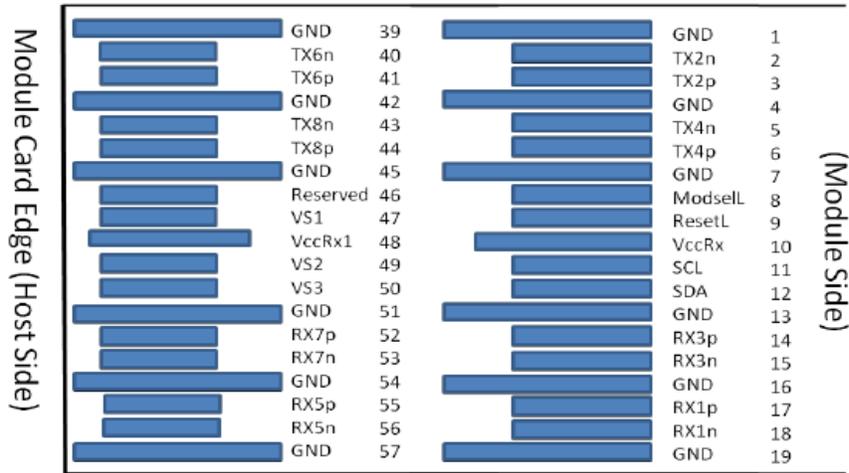
37	CML-I	Tx1-	Transmitter Inverted Data Input.	3B
38		GND	Module Ground.	1B
39		GND	Module Ground.	1A
40	CML-I	Tx6-	Transmitter Inverted Data Input.	3A
41	CML-I	Tx6+	Transmitter Non-Inverted Data Input.	3A
42		GND	Module Ground.	1A
43	CML-I	Tx8-	Transmitter Inverted Data Input.	3A
44	CML-I	Tx8+	Transmitter Non-Inverted Data Input.	3A
45		GND	Module Ground.	1A
46		Reserved	For Future Use.	3A
47		VS1	Module Vendor-Specific 1.	3A
48		VccRx1	+3.3V Receiver Power Supply.	2A
49		VS2	Module Vendor-Specific 2.	3A
50		VS3	Module Vendor-Specific 3.	3A
51		GND	Module Ground.	1A
52	CML-O	Rx7+	Receiver Non-Inverted Data Output.	3A
53	CML-O	Rx7-	Receiver Inverted Data Output.	3A
54		GND	Module Ground.	1A
55	CML-O	Rx5+	Receiver Non-Inverted Data Output.	3A
56	CML-O	Rx5-	Receiver Inverted Data Output.	3A
57		GND	Module Ground.	1A
58		GND	Module Ground.	1A
59	CML-O	Rx6-	Receiver Inverted Data Output.	3A
60	CML-O	Rx6+	Receiver Non-Inverted Data Output.	3A
61		GND	Module Ground.	1A
62	CML-O	Rx8-	Receiver Inverted Data Output.	3A
63	CML-O	Rx8+	Receiver Non-Inverted Data Output.	3A
67		GND	Module Ground.	1A
68		NC	Not Connected.	3A
69		Reserved	For Future Use.	3A
70		VccTx1	+3.3V Transmitter Power Supply.	2A
71		Vcc2	+3.3V Power Supply.	2A
72		Reserved	For Future Use.	3A
73		GND	Module Ground.	1A
74	CML-I	Tx7+	Transmitter Non-Inverted Data Input.	3A
75	CML-I	Tx7-	Transmitter Inverted Data Input.	3A
76		GND	Module Ground.	1A

Electrical Pad Layout



Top side viewed from top

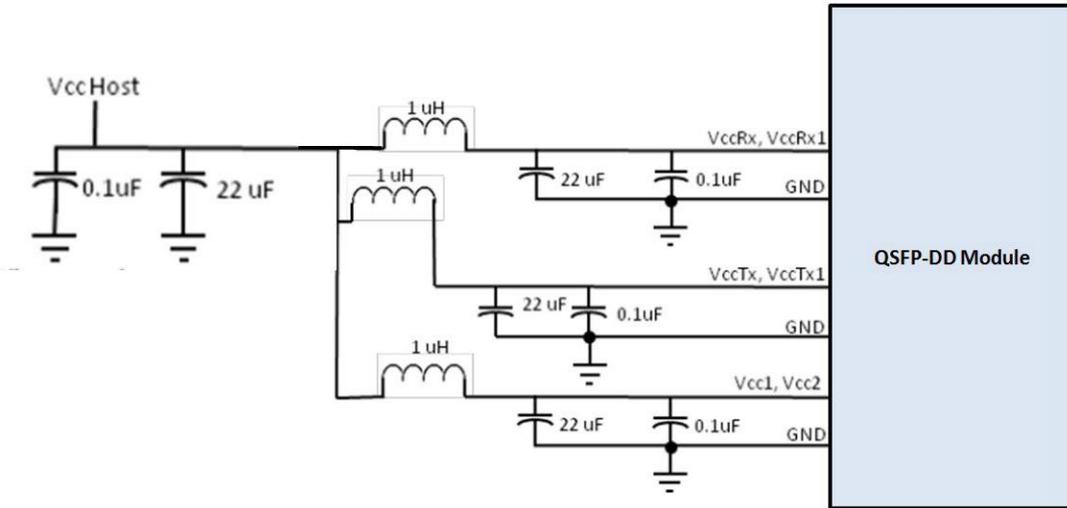
Legacy QSFP28 Pads Additional QSFP-DD Pads



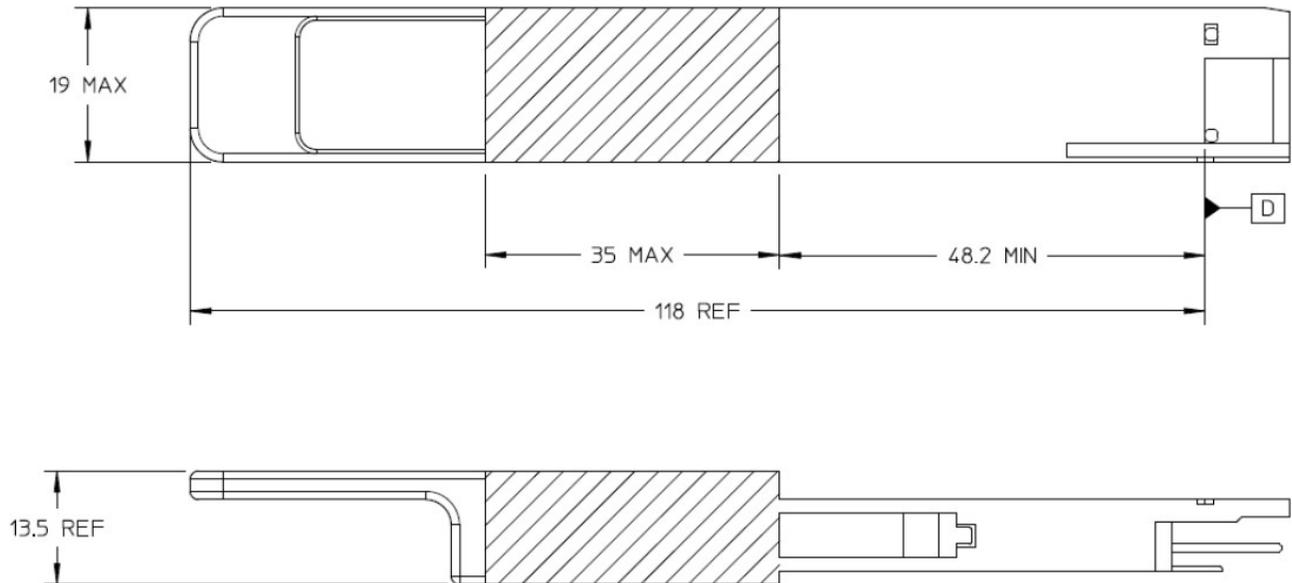
Bottom side viewed from bottom

Additional QSFP-DD Pads Legacy QSFP28 Pads

Recommended Power Supply Filter



Mechanical Specifications



About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.



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