

## Q2F15D14000DC3L

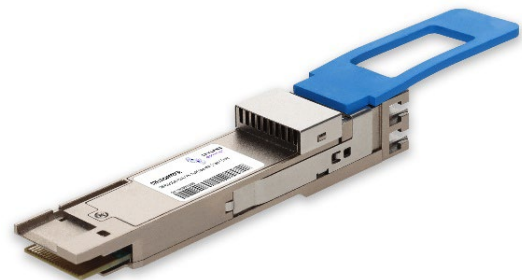
Juniper Networks® Compatible QSFP-DD Dual Pluggable EDFA Booster amplifier for DWDM, Duplex LC, Nominal gain +20dB

### Product Description

This Juniper Networks® compatible QSFP-DD dual pluggable EDFA booster amplifier offers a optical input range and provides a +20dB nominal gain to a C-Band DWDM link. The dual pluggable EDFA connects to a composite DWDM link via an LC connector. It is configured for Automatic Gain Control (AGC) by default and can be further configured via CLI prompt in supported hosts or by our coding and tuning system.

### Features:

- QSFP-DD MSA Compliant Electrical and Mechanical Interfaces
- QSFP-DD Dual Pluggable EDFA Booster and Amplifier
- C-Band 8-Channel DWDM Amplification
- 20dB Nominal Gain with Automatic Gain Control
- Duplex LC Connector
- Power Dissipation Maximum of 3W
- Operating Temperature: 0 to 70 Celsius
- RoHS compliant and lead-free



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*For your product safety, please read the following information carefully before any manipulation of the transceiver:*



**ESD**

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



**LASER SAFETY**

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

*The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.*

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## General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V <sub>CC</sub>	3.13	3.3	3.46	VDC
Storage Temperature	T <sub>stg</sub>	-40		85	°C
Operating Temperature	T <sub>c</sub>	-5	25	70	°C
Humidity	H	10		85	%
Power Dissipation	P <sub>DISS</sub>			3	W

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Wavelength	$\lambda$	1542		1554	nm	
Channel Number		1		8		
Input Power	P <sub>in</sub>	-20		-11	dBm	
Output Power	P <sub>out</sub>		9	14	dBm	
Optical Power Shutdown	P <sub>off</sub>			-30	dBm	1
Output Power Variation	$\Delta$ POUT	-0.5		0.5	dB	
Gain			20		dB	
Gain Flatness	GF			1.0	dB	2
Gain Accuracy	$\Delta$ G	-1		1	dB	
Noise Figure	NF <sub>PA</sub>			8	dB	
	NF <sub>BA</sub>			10	dB	
Transient Performance				3	dB	3
Return Loss	RL	40			dB	
VOA Attenuation Range				30	dB	

### Notes:

1. Assert when both BA and PA input signals are at loss.
2. Peak-to-peak.
3. 3dB add/drop.
4. PA and BA share the same value if not specified.

## Pin Descriptions

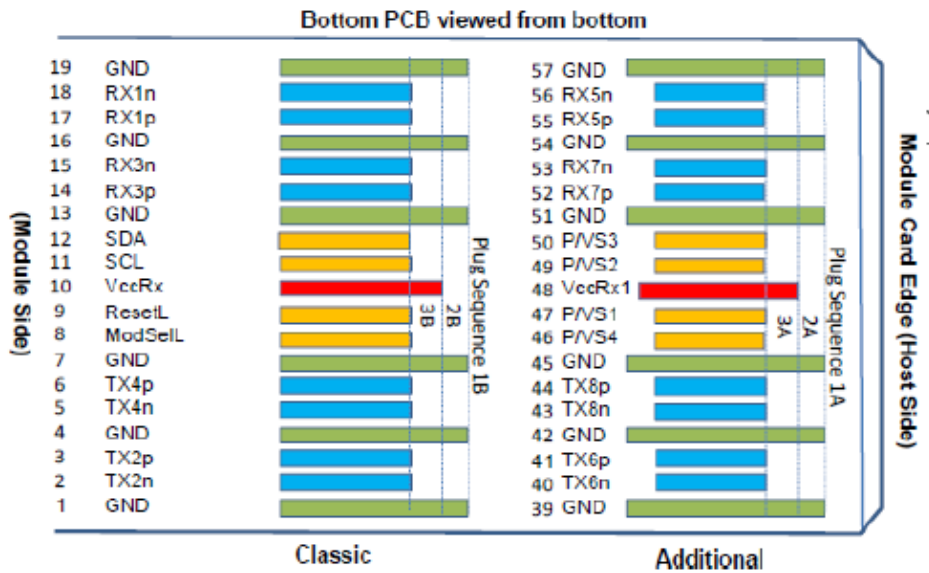
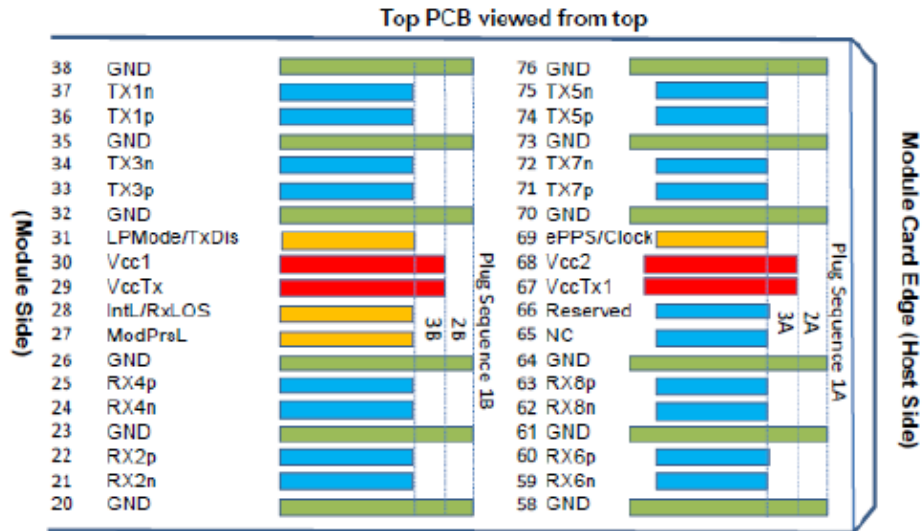
Pin	Logic	Symbol	Name/Description	Plug Sequence	Notes
1		GND	Module Ground.	1B	1
2	CML-I	Tx2-	Not Connected.	3B	
3	CML-I	Tx2+	Not Connected.	3B	
4		GND	Module Ground.	1B	1
5		Tx4-	Not Connected.	3B	
6		Tx4+	Not Connected.	3B	
7		GND	Module Ground.	1B	1
8	LVTTTL-I	ModSelL	Module Select.	3B	
9	LVTTTL-I	ResetL	Module Reset.	3B	
10		VccRx	+3.3V Receiver Power Supply.	2B	2
11	LVCNOS-I/O	SCL	2-Wire Serial Interface Clock.	3B	
12	LVCNOS-I/O	SDA	2-Wire Serial Interface Data.	3B	
13		GND	Module Ground.	1B	1
14	CML-O	Rx3-	Not Connected.	3B	
15	CML-O	Rx3+	Not Connected.	3B	
16		GND	Module Ground.	1B	1
17	CML-O	Rx1-	Not Connected.	3B	
18	CML-O	Rx1+	Not Connected.	3B	
19		GND	Module Ground.	1B	1
20		GND	Module Ground.	1B	1
21	CML-O	Rx2-	Not Connected.	3B	
22	CML-O	Rx2+	Not Connected.	3B	
23		GND	Module Ground.	1B	1
24	CML-O	Rx4-	Not Connected.	3B	
25	CML-O	Rx4+	Not Connected.	3B	
26		GND	Module Ground.	1B	1
27	LVTTTL-O	ModPrsL	Module Present.	3B	
28	LVTTTL-O	IntL/RxLOS	Interrupt/Optional RxLOS.	3B	
29		VccTx	+3.3V Transmitter Power Supply.	2B	2
30		Vcc1	+3.3V Power Supply.	2B	2
31	LVTTTL-I	LPMODE/TxDis	Optional Tx Disable.	3B	
32		GND	Module Ground.	1B	1
33	CML-I	Tx3-	Not Connected.	3B	
34	CML-I	Tx3+	Not Connected.	3B	
35		GND	Module Ground.	1B	1
36	CML-I	Tx1-	Not Connected.	3B	
37	CML-I	Tx1+	Not Connected.	3B	

38		GND	Module Ground.	1B	1
39		GND	Module Ground.	1A	1
40	CML-I	Tx6-	Not Connected.	3A	
41	CML-I	Tx6+	Not Connected.	3A	
42		GND	Module Ground.	1A	1
43	CML-I	Tx8-	Not Connected.	3A	
44	CML-I	Tx8+	Not Connected.	3A	
45		GND	Module Ground.	1A	1
46	LVC MOS/CML-I	P/VS4	Not Connected.	3A	4
47	LVC MOS/CML-I	P/VS1	Not Connected.	3A	4
48		VccRx1	+3.3V Power Supply.	2A	2
49	LVC MOS/CML-O	P/VS2	Not Connected.	3A	4
50	LVC MOS/CML-O	P/VS3	Not Connected.	3A	4
51		GND	Module Ground.	1A	1
52	CML-O	Rx7-	Not Connected.	3A	
53	CML-O	Rx7+	Not Connected.	3A	
54		GND	Module Ground.	1A	1
55	CML-O	Rx6-	Not Connected.	3A	
56	CML-O	Rx6+	Not Connected.	3A	
57		GND	Module Ground.	1A	1
58		GND	Module Ground.	1A	1
59	CML-O	Rx6-	Not Connected.	3A	
60	CML-O	Rx6+	Not Connected.	3A	
61		GND	Module Ground.	1A	1
62	CML-O	Rx8-	Not Connected.	3A	
63	CML-O	Rx8+	Not Connected.	3A	
64		GND	Module Ground.	1A	1
65		NC	Not Connected.	3A	3
66		Reserved	For Future Use.	3A	3
67		VccTx1	+3.3V Transmitter Power Supply.	2A	2
68		Vcc2	+3.3V Power Supply.	2A	2
69	LVC MOS-I	ePPS/Clock	Not Connected.	3A	5
70		GND	Module Ground.	1A	1
71	CML-I	Tx7-	Not Connected.	3A	
72	CML-I	Tx7+	Not Connected.	3A	
73		GND	Module Ground.	1A	1
74	CML-I	Tx5-	Not Connected.	3A	
75	CML-I	Tx5+	Not Connected.	3A	
76		GND	Module Ground.	1A	1

**Notes:**

1. QSFP-DD uses common ground (GND) for all signal and supply (power). All are common within the QSFP-DD module, and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane. Each connector GND contact is rated for a maximum current of 500mA.
2. VccRx, VccRx1, Vcc1, Vcc2, VccTx, and VccTx1 shall be applied concurrently. Supply requirements defined for the host side of the Host Card Edge Connector. For power classes 4 and above, the module differential loading of input voltage pins must not result in exceeding contact current limits. Each connector Vcc contact is rated for a maximum current of 1500mA.
3. Reserved and Not Connected pins are recommended to be terminated with 10k $\Omega$  to ground on the host. Pin 65 (Not Connected) shall be left unconnected within the module.
4. Full definitions of the P/VSx signals currently under development. On new designs, unused P/VSx signals are recommended to be terminated on the host with 10k $\Omega$ .
5. ePPS/Clock, if not used, is recommended to be terminated with 50 $\Omega$  to ground on the host.
6. Plug Sequences specifies the mating sequence of the host connector and module. The sequence is 1A, 2A, 3A, 1B, 2B, and 3B. Contact sequence A will make, then break, contact with additional QSFP-DD pins. Sequence 1A and 1B will then occur simultaneously, followed by 2A and 2B, followed by 3A and 3B.

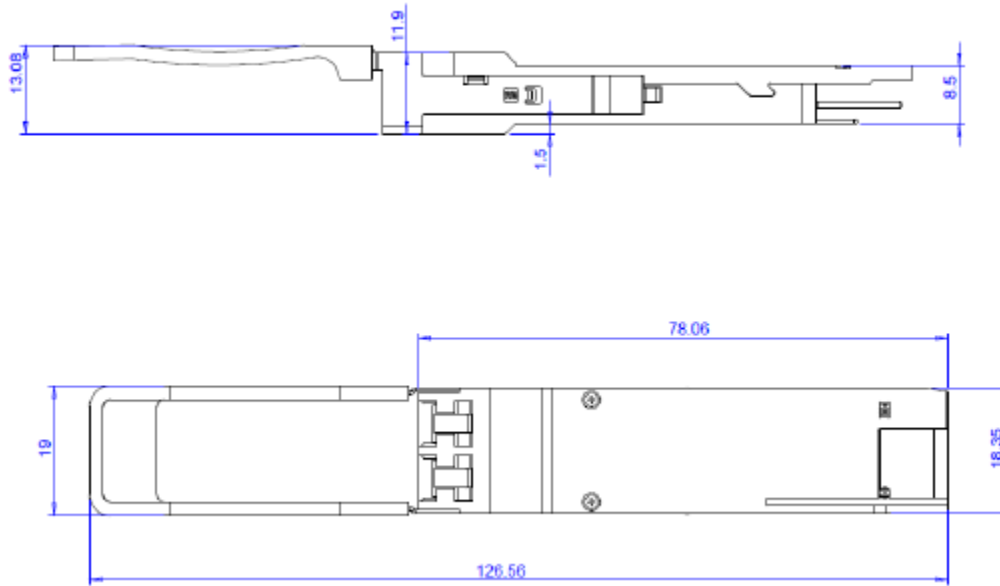
## Electrical Pin-Out Details



## Product Sketch Map



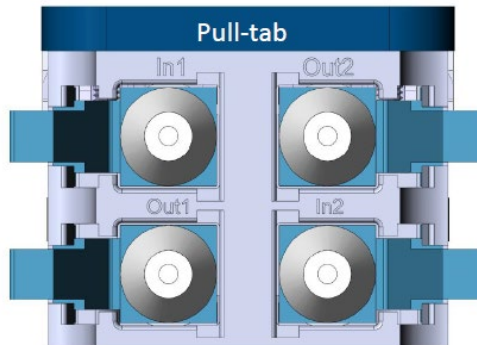
## Mechanical Specifications



### Notes:

1. All dimensions are in mm.
2. This module's design is QSFP-DD Multi-Sourcing Agreement (MSA) compliant.

## Optical Port Layout



Parameter	Specification	Connector
In1	PA Input	LC/UPC
Out1	PA Output	LC/UPC
In2	BA Input	LC/UPC
Out2	BA Output	LC/UPC

# About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box (SKYGATE).

