

# QSFP-DD Dual Pluggable EDFA

## Tech Specs

### QDD-2EDFA-20-SO

QSFP-DD Dual Pluggable EDFA Booster amplifier for DWDM, Duplex LC, Input power -20dBm to 0dBm, Nominal gain +20dB

## 1. PRODUCT INTRODUCTION

QSFP-DD form factor EDFA is a pluggable dual EDFA product designed for C-band 8 channels DWDM amplification. It is designed to be compatible with QSFP-DD MSA on mechanical and electrical interface, which allow it be plug-and-play in QSFP-DD cage.



Product Sketch Map

## 2. PRODUCT SPECIFICATION & 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 °C to 70 °C
- RoHS compliant and lead-free

### 3. GENERAL SPECIFICATION

Items	Symbol	Min	Typ.	Max	Unit
Operating Temperature	TW	-5	25	70	°C
Storage Temperature	Ts	-40		85	°C
Humidity		10		85	°C
Working Voltage	V	3.13	3.3	3.46	VDC
Power Dissipation	Pc	-		3	W

### 4. OPTICAL CHARACTERISTICS

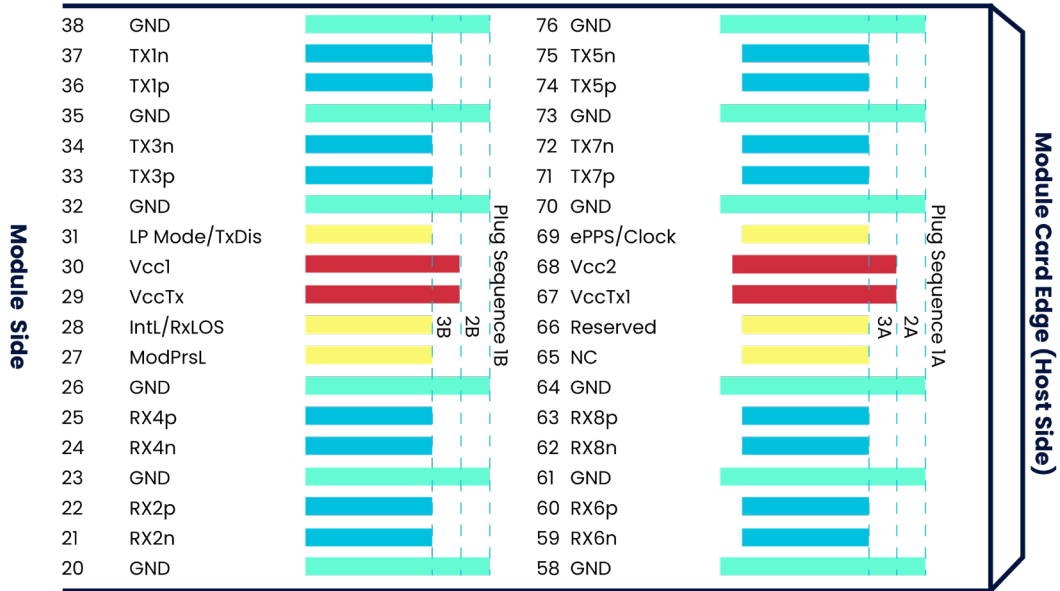
Items	Symbol	Min	Typ.	Max	Unit	Notes*
Operating Wavelength	$\lambda$	1542		1554	nm	
Channel Number		1		8		
Input Power	P_in	-20		-11	dBm	
Output Power	P_out		9	14	dBm	
Optical Power Shutdown	P_off			-30	dBm	1
Output Power Variation	$\Delta$ POut	-0.5		0.5	dB	
Gain			20		dB	
Gain Flatness	GF			1.0	dB	2
Gain Accuracy	$\Delta$ G	-1		1	dB	
Noise Figure	NF_PA			8	dB	
Noise Figure	NF_BA			10		
Transient performance				3	dB	3
Return Loss	RL	40			dB	
VOA Attenuation Range				30	dB	

**Notes\*:**

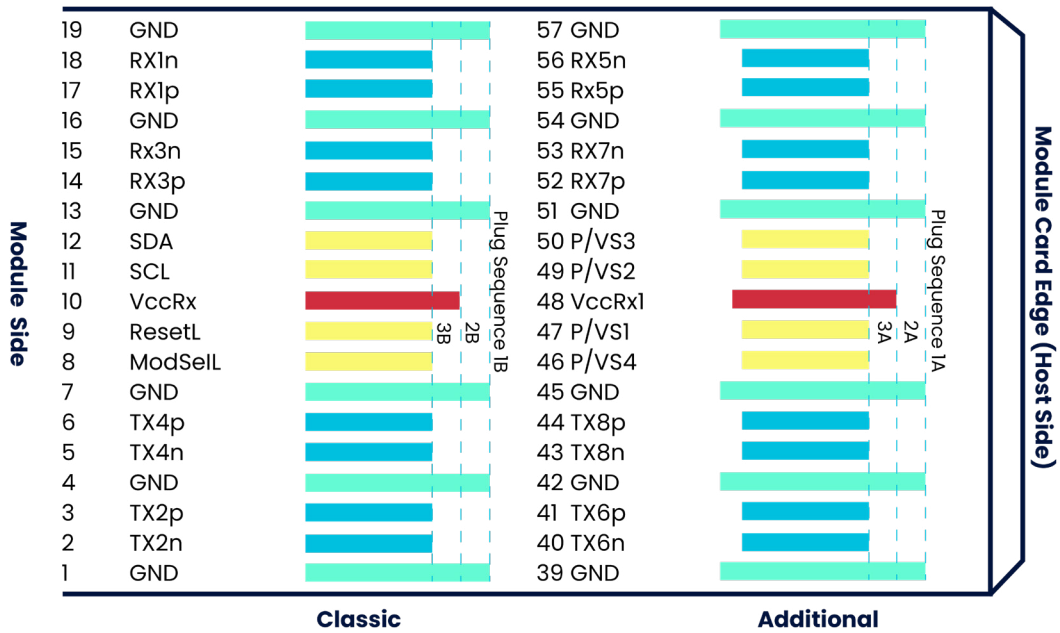
- 1) Assert when both BA and PA signal are loss
- 2) Peak to peak
- 3) 3dB Add/Drop
- 4) PA and BA share the same value if not specified

# 5. ELECTRIC INTERFACE DEFINITION

Top PCB viewed from top



Bottom PCB viewed from bottom



Classic

Additional

## 6. PIN DESCRIPTIONS

Pad	Logic	Symbol	Description	Plug Sequence <sup>4</sup>	Notes*
1		GND	Ground	1B	1
2	CML-I	Tx2n	NC	3B	
3	CML-I	Tx2p	NC	3B	
4		GND	Ground	1B	1
5		Tx4n	NC	3B	
6		Tx4p	NC	3B	
7			NC	1B	
8	LVTTTL-I	ModSelL	Module Select	3B	
9	LVTTTL-I	ResetL	Module Reset	3B	
10		VccRx		2B	2
11	LVC MOS-I/O	SCL	TWI serial interface clock	3B	
12	LVC MOS-I/O	SDA	TWI serial interface data	3B	
13		GND	Ground	1B	1
14	CML-O	Rx3n	NC	3B	
15	CML-O	rx3p	NC	3B	
16		GND	Ground	1B	1
17	CML-O	Rx1n	NC	3B	
18	CML-O	Rx1p	NC	3B	
19		GND	Ground	1B	1
20		GND	Ground	1B	1
21	CML-O	Rx2n	NC	3B	
22	CML-O	Rx2p	NC	3B	
23		GND	Ground	1B	1
24	CML-O	Rx4n	NC	3B	
25	CML-O	Rx4p	NC	3B	
26		GND	Ground	1B	1
27	LVTTTL-O	ModPrsL	Module Present	3B	
28	LVTTTL-O	IntL/RxLOS	Interrupt/Optional RxLOS	3B	
29		VccTx	+3.3V Power supply transmitter	2B	2
30		VccI	+3.3V Power supply	2B	2
31	LVTTTL-I	LPMode/TxDis	optional TX Disable	3B	
32		GND	Ground	1B	1
33	CML-I	Tx3n	NC	3B	
34	CML-I	Tx3p	NC	3B	
35		GND	Ground	1B	1
36	CML-I	Tx1n	NC	3B	
37	CML-I	Tx1p	NC	3B	
38		GND	Ground	1B	1
39		GND	Ground	1A	1
40	CML-I	Tx6n	NC	3A	
41	CML-I	Tx6p	NC	3A	

42		GND	Ground	1A	1
43	CML-I	Tx8n	NC	3A	
44	CML-I	Tx8p	NC	3A	
45		GND	Ground	1A	1
46	LVC MOS/CMLI	P/VS4	NC	3A	5
47	LVC MOS/CMLI	P/VS1	NC	3A	5
48		VccRx1	3.3V Power supply	2A	2
49	LVC MOS/CMLO	P/VS2	NC	3A	5
50	LVC MOS/CMLO	P/VS3	NC	3A	5
51		GND	Ground	1A	1
52	CML-O	Rx7n	NC	3A	
53	CML-O	Rx7p	NC	3A	
54		GND	Ground	1A	1
55	CML-O	Rx5n	NC	3A	
56	CML-O	Rx5p	NC	3A	
57		GND	Ground	1A	1
58		GND	Ground	1A	1
59	CML-O	Rx6n	NC	3A	
60	CML-O	Rx6p	NC	3A	
61		GND	Ground	1A	1
62	CML-O	Rx8n	NC	3A	
63	CML-O	Rx8p	NC	3A	
64		GND	Ground	1A	1
65		NC	No Connect	3A	3
66		Reserved	For future use	3A	3
67		VccTx1	3.3V Power supply	2A	2
68		Vcc2	3.3V Power supply	2A	2
69	LVC MOS-I	ePPS/Clock	NC	3A	6
70		GND	Ground	1A	1
71	CML-I	Tx7n	NC	3A	
72	CML-I	Tx7p	NC	3A	
73		GND	Ground	1A	1
74	CML-I	Tx5n	NC	3A	
75	CML-I	Tx5p	NC	3A	
76		GND	Ground	1A	1

**Notes\*:**

1) QSFP-DD uses common ground (GND) for all signals and supply (power). All are common with in 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 500 mA.

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 pads must not result in exceeding contact current limits. Each connector Vcc contact is rated for a maximum current of 1500 mA.

3) Reserved and no Connect pads recommended to be terminated with 10 k $\Omega$  to ground on the host. Pad 65 (No Connect) shall be left unconnected within the module.

4) Plug Sequence specifies the mating sequence of the host connector and module. The sequence is 1A, 2A, 3A, 1B, 2B, 3B. (see Figure 5-1 for pad locations) Contact sequence A will make, then break contact with additional QSFP-DD pads. Sequence 1A and 1B will then occur simultaneously, followed by 2A and 2B, followed by 3A and 3B.

5) Full definitions of the P/VSx signals currently under development. On new designs not used P/VSx signals are recommended to be terminated on the host with 10 k $\Omega$

6) ePPS/Clock if not used recommended to be terminated with 50  $\Omega$  to ground on the host.

## 7. SAFETY

Please read the manual first before using the equipment for the safety of the equipment and operator. The manufactory does NOT take on any responsibility for any equipment damage, personal hurt and property loss for improper operation.



Laser and EDFA output are the high-power invisible laser radiation. The laser radiation can seriously damage your eyes or skin when in any case looking into the interface of the output port or optical fiber as it is on. Do NOT enable the laser when there is no fiber attached to the optical output connector.



Please avoid vibration and collision violently for that there are precise optics devices in the equipment. Please operate carefully for the fiber tail easy to be snapped off.

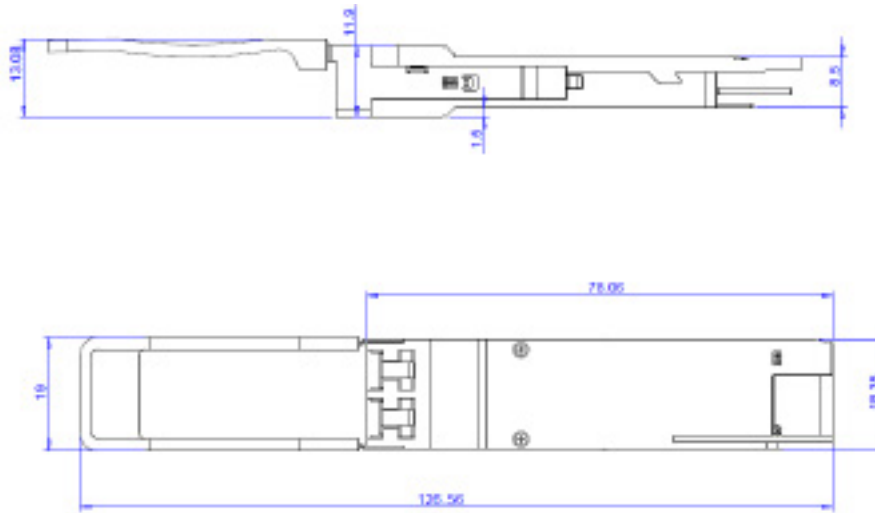


Please handle carefully, ensure ground well. and power cable in normal state for that there are static sensitive devices in the equipment.



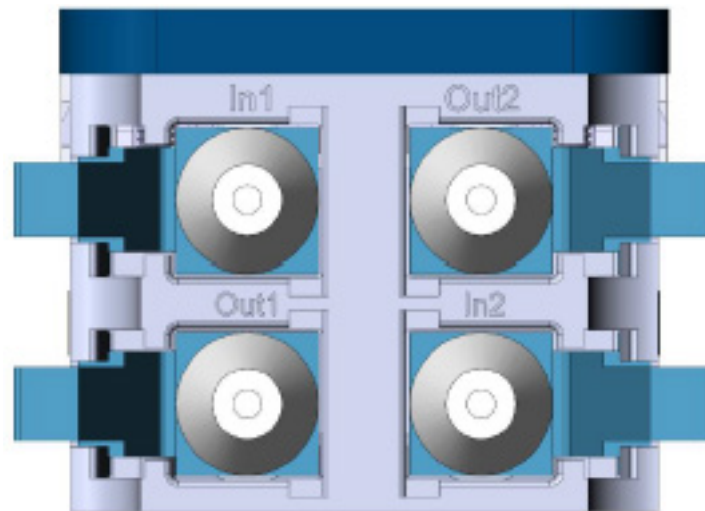
Please contact us or our distributor if any problem or question existed. The equipment may be permanently damaged when dismantling module without written permission.

## 8. MECHANICAL DIMENSIONS



Module Dimension (unit:mm)

THE MODULE IS QSFP-DD MULTI-SOURCING AGREEMENT (MSA) COMPLIANT DESIGN.



Optical port layout

In1	PA input	LC/UPC
Out1	PA Output	LC/UPC
In2	Ba Input	LC/UPC
Out2	BA Output	LC/UPC

## 8. DISCLAIMER & COPYRIGHT

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