

OSFP-800GB-LB-0W-AO

MSA Compliant 800GBase OSFP Loopback Transceiver, 0W

Features:

- Compliant with SFF-8024
- Built-In Surge Current Mitigation Technology
- Supports 8x10G/25G/56G PAM4/112G PAM4 Data Rates
- Multi-Color LED Indicator for High/Low-Power Modes
- +3.3V Power Supply
- Built-In High-Precision Temperature Monitoring w/ Calibration Algorithm
- Operating Temperature: 0 to 70 Celsius
- Hot-Pluggable
- CMIS 5.0 Compliant
- RoHS Compliant and Lead-Free



Applications:

- Ethernet IEEE 802.3 (Gigabit, 10 to 800 Gigabit Ethernet)
- OSFP Port/System Testing
- InfiniBand, SDH, GbE, Fiber Channel

Product Description

This MSA compliant OSFP loopback provides a simple solution to loopback testing on individual ports with the use of a cable assembly. It is compatible with existing 800G OSFP ports. All of our transceivers are built to comply with Multi-Source Agreement (MSA) standards and are uniquely serialized and tested for data-traffic and application to ensure seamless network integration. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's transceivers are RoHS compliant and lead-free.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	Tstg	-40	+85	°C
Ambient Operating Temperature	Ta	-0	+70	°C
Storage Relative Humidity	RHs	0	95	%
Operating Relative Humidity	RHo	0	85	%
Power Supply Voltage	Vcc	2.97	+3.63	V

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Ambient Operating Temperature	Ta	0		+70	°C
Power Supply Voltage	Vcc	2.97	3.3	3.63	V
Data Rate	DR	0.1		800	Gbps
Durability Cycles			2000	2250	Times

High-Speed Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Input/Output Impedance	Zd	90	95	105	Ω	1
Return Loss	SDD11/22	$< -10 \quad 0.01\text{GHz} \leq f < 10\text{GHz}$ $< -5 \quad 10\text{GHz} \leq f < 40\text{GHz}$			dB	
Insertion Loss	SDD21			7 (Include Trace&Via&Mating&Connectors, Without MCB Insertion Loss)	dB	2
				11.75 (Include MCB Insertion Loss&Trace&Via&Mating&Connectors)	dB	2

Notes:

1. Differential impedance.
2. The insertion loss for Tx to Rx, including the AC caps, as measured with MCB. The MCB insertion loss complies with IEEE 802.3ck CL 162B.1.2.1.

Pin Descriptions

Pin	Logic	Symbol	Name/Description	Direction	Plug Sequence	Notes
1		GND	Module Ground.		1	
2	CML-I	Tx2p	CH2 Transmitter Data Non-Inverted.	Input from Host	3	
3	CML-I	Tx2n	CH2 Transmitter Data Inverted.	Input from Host	3	
4		GND	Module Ground.		1	
5	CML-I	Tx4p	CH4 Transmitter Data Non-Inverted.	Input from Host	3	
6	CML-I	Tx4n	CH4 Transmitter Data Inverted.	Input from Host	3	
7		GND	Module Ground.		1	
8	CML-I	Tx6p	CH6 Transmitter Data Non-Inverted.	Input from Host	3	
9	CML-I	Tx6n	CH6 Transmitter Data Inverted.	Input from Host	3	
10		GND	Module Ground.		1	
11	CML-I	Tx8p	CH8 Transmitter Data Non-Inverted.	Input from Host	3	
12	CML-I	Tx8n	CH8 Transmitter Data Inverted.	Input from Host	3	
13		GND	Module Ground.		1	
14	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock.	Bi-Directional	3	1
15		Vcc	+3.3V Power Supply.	Power from Host	2	
16		Vcc	+3.3V Power Supply.	Power from Host	2	
17	Multi-Level	LPWn/PRSn	Low-Power Mode/Module Present.	Bi-Directional	3	2
18		GND	Module Ground.		1	
19	CML-O	Rx7n	CH7 Receiver Data Inverted.	Output to Host	3	
20	CML-O	Rx7p	CH7 Receiver Data Non-Inverted.	Output to Host	3	
21		GND	Module Ground.		1	
22	CML-O	Rx5n	CH5 Receiver Data Inverted.	Output to Host	3	
23	CML-O	Rx5p	CH5 Receiver Data Non-Inverted.	Output to Host	3	
24		GND	Module Ground.		1	
25	CML-O	Rx3n	CH3 Receiver Data Inverted.	Output to Host	3	
26	CML-O	Rx3p	CH3 Receiver Data Non-Inverted.	Output to Host	3	
27		GND	Module Ground.		1	
28	CML-O	Rx1n	CH1 Receiver Data Inverted.	Output to Host	3	
29	CML-O	Rx1p	CH1 Receiver Data Non-Inverted.	Output to Host	3	
30		GND	Module Ground.		1	
31		GND	Module Ground.		1	
32	CML-O	Rx2p	CH2 Receiver Data Non-Inverted.	Output to Host	3	
33	CML-O	Rx2n	CH2 Receiver Data Inverted.	Output to Host	3	
34		GND	Module Ground.		1	
35	CML-O	Rx4p	CH4 Receiver Data Non-Inverted.	Output to Host	3	
36	CML-O	Rx4n	CH4 Receiver Data Inverted.	Output to Host	3	

37		GND	Module Ground.		1	
38	CML-O	Rx6p	CH6 Receiver Data Non-Inverted.	Output to Host	3	
39	CML-O	Rx6n	CH6 Receiver Data Inverted.	Output to Host	3	
40		GND	Module Ground.		1	
41	CML-O	Rx8p	CH8 Receiver Data Non-Inverted.	Output to Host	3	
42	CML-O	Rx8n	CH8 Receiver Data Inverted.	Output to Host	3	
43		GND	Module Ground.		1	
44	Multi-Level	INT/RSTn	Module Interrupt/Module Reset.	Bi-Directional	3	2
45		Vcc	+3.3V Power Supply.	Power from Host	2	
46		Vcc	+3.3V Power Supply.	Power from Host	2	
47	LVCMOS-I/O	SDA	2-Wire Serial Interface Data.	Bi-Directional	3	1
48		GND	Module Ground.		1	
49	CML-I	Tx7n	CH7 Transmitter Data Inverted.	Input from Host	3	
50	CML-I	Tx7p	CH7 Transmitter Data Non-Inverted.	Input from Host	3	
51		GND	Module Ground.		1	
52	CML-I	Tx5n	CH5 Transmitter Data Inverted.	Input from Host	3	
53	CML-I	Tx5p	CH5 Transmitter Data Non-Inverted.	Input from Host	3	
54		GND	Module Ground.		1	
55	CML-I	Tx3n	CH3 Transmitter Data Inverted.	Input from Host	3	
56	CML-I	Tx3p	CH3 Transmitter Data Non-Inverted.	Input from Host	3	
57		GND	Module Ground.		1	
58	CML-I	Tx1n	CH1 Transmitter Data Inverted.	Input from Host	3	
59	CML-I	Tx1p	CH1 Transmitter Data Non-Inverted.	Input from Host	3	
60		GND	Module Ground.		1	

Notes:

1. Open-drain with pull-up resistor on host.
2. See electrical pad layout for required circuit.

Electrical Pad Layout

Top Side (viewed from top)

60	GND	
59	TX1p	
58	TX1n	
57	GND	
56	TX3p	
55	TX3n	
54	GND	
53	TX5p	
52	TX5n	
51	GND	
50	TX7p	
49	TX7n	
48	GND	
47	SDA	
46	VCC	
45	VCC	
44	INT/RSTn	
43	GND	
42	RX8n	
41	RX8p	
40	GND	
39	RX6n	
38	RX6p	
37	GND	
36	RX4n	
35	RX4p	
34	GND	
33	RX2n	
32	RX2p	
31	GND	

----- Module Card Edge -----

Bottom Side (viewed from bottom)

	GND	1
	TX2p	2
	TX2n	3
	GND	4
	TX4p	5
	TX4n	6
	GND	7
	TX6p	8
	TX6n	9
	GND	10
	TX8p	11
	TX8n	12
	GND	13
	SCL	14
	VCC	15
	VCC	16
	LPWn/PRSn	17
	GND	18
	RX7n	19
	RX7p	20
	GND	21
	RX5n	22
	RX5p	23
	GND	24
	RX3n	25
	RX3p	26
	GND	27
	RX1n	28
	RX1p	29
	GND	30

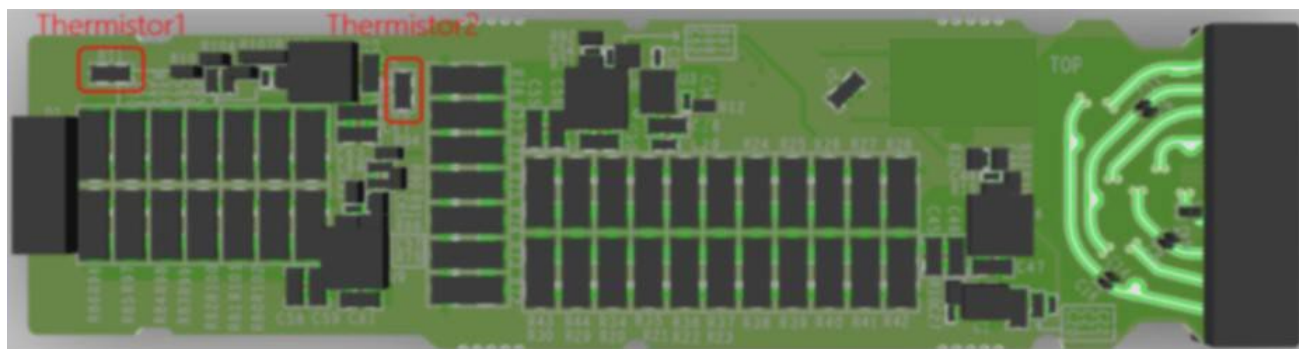
Nomenclature on Lanes

The 16 lanes are connected as following with match polarity:

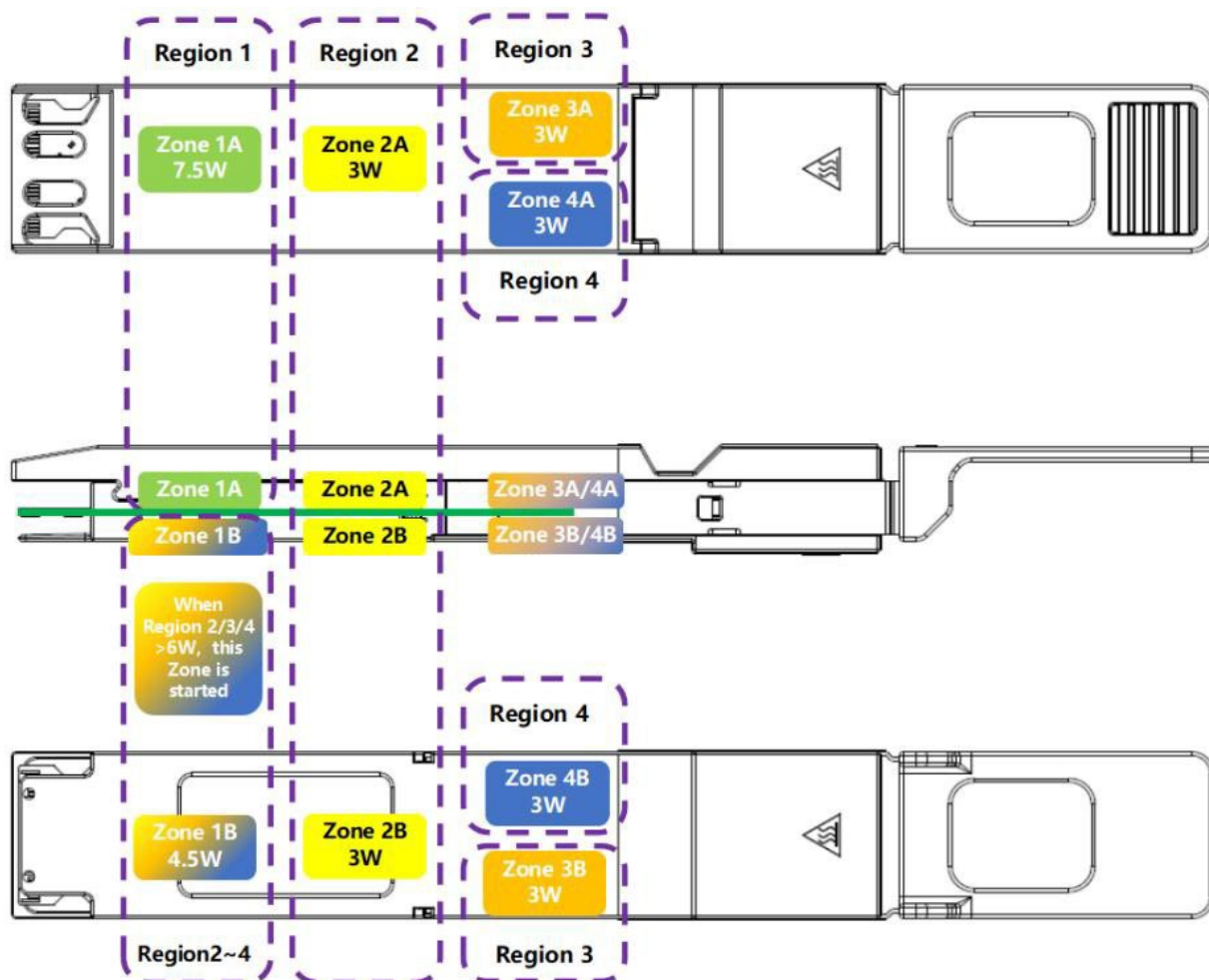
- TX1 and RX1
- TX2 and RX2
- TX3 and RX3
- TX4 and RX4
- TX5 and RX5
- TX6 and RX6
- TX7 and RX7
- TX8 and RX8

Temperature Sensors

The temperature is based on direct measurement and feedback to MCU for built-in algorithms.



Power Distribution



Status LED

A multi-color LED must be viewed from the front of the module in order to signify module states.

Power-up-reset or Soft-reset:

Step 1: Illuminate RED LED.

Step 2: Continuous illuminate Red LED if the voltage on LPWn/PRSn is below 0.3V

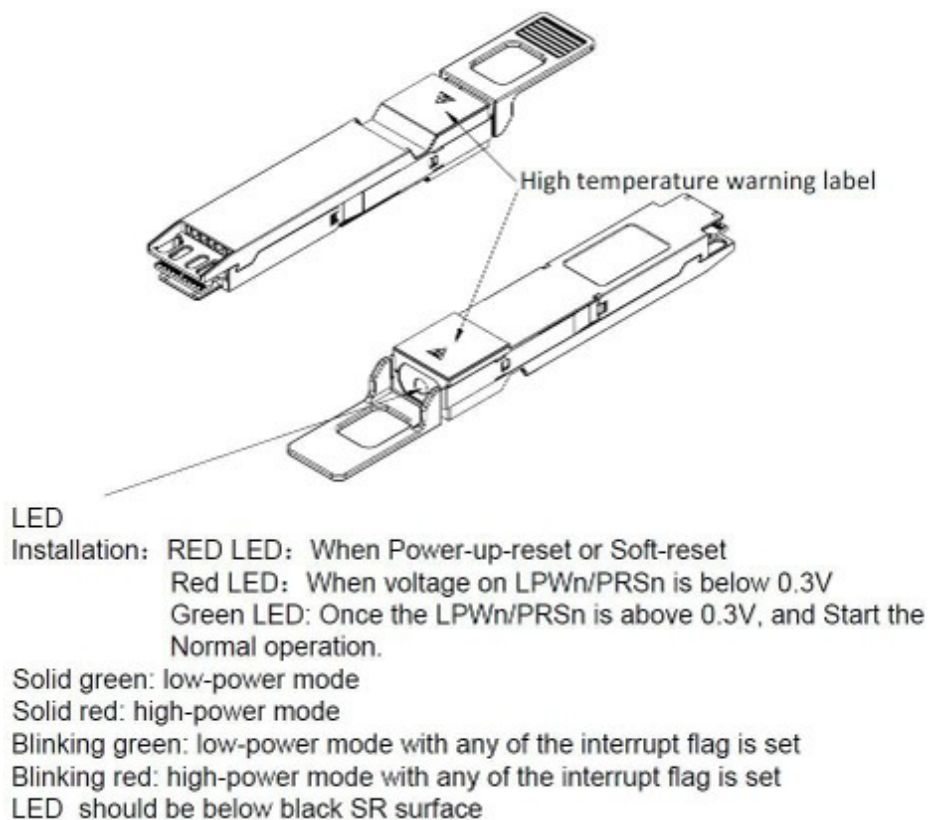
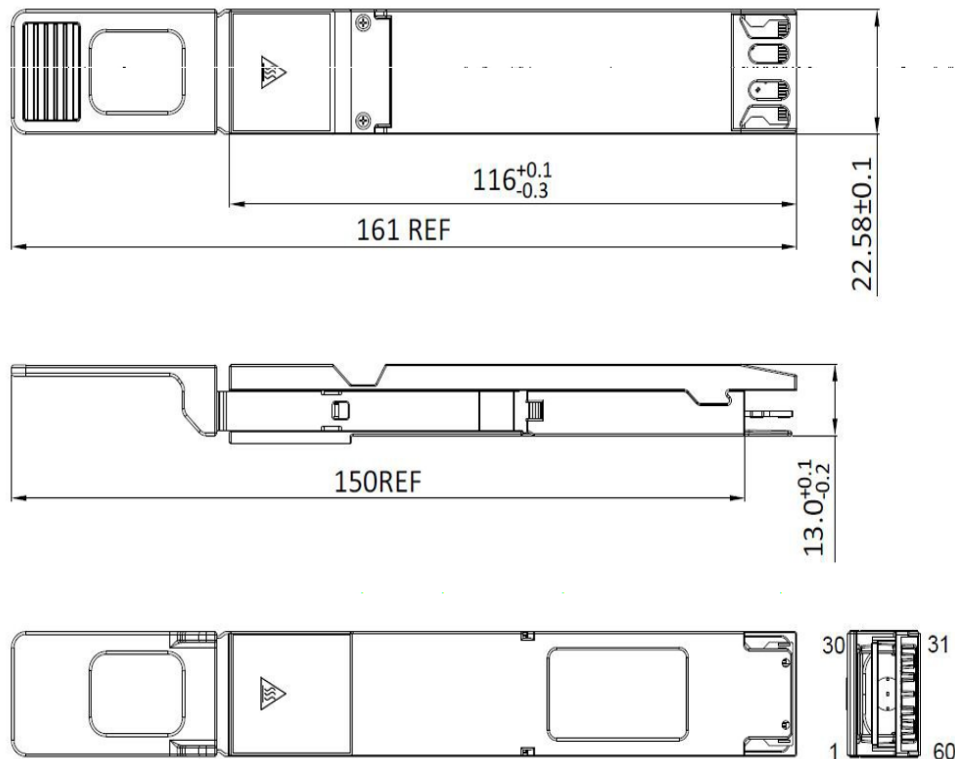
Step 3: Once the LPWn/PRSn is above 0.3V, illuminate Green LED, and Start the Normal operation.

Normal Operation:

- Solid green: low-power mode
- Solid red: high-power mode
- Blinking green: low-power mode with any of the interrupt flag is set
- Blinking red: high-power mode with any of the interrupt flag is set

Mechanical Specifications

Dimensions are in millimeters. Unit: mm.



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 ingrained 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 ranging from NEBS Level 3 to ISO 9001:2015 with every new development while maintaining the signature reliability of its products.



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