Product Features

- Support 100GBASE per lane in multimode fiber
- 8 channels full-duplex transceiver modules
- Transmission data rate up to 106.25G per channel
- 8x106.25Gbps PAM4 transmitter and PAM4 receiver
- 8 channels 850nm VCSEL array
- 8 channels PIN photo detector array
- Power consumption <14W per end
- Hot Pluggable OSFP form factor and Compliant with CMIS
- Built-in digital diagnostic functions
- Operating case temperature 0°C to +70°C
- 3.3V power supply voltage
- RoHS compliant

Application

- Networks
- Data Centers and Cloud

Standards

- OSFP_Module_Specification_Rev5.0
- CMIS V4.0
- IEEE 802.3db
- IEEE802.3ck

Description

The 800G OSFP AOC is an eight-channel, pluggable, parallel fiber-optic transceiver designed for QSFP density and optimized for 800 Gigabit Ethernet applications. It serves as a high-performance module tailored for short-range, multi-lane data communication and interconnection scenarios. With the capability to integrate eight data lanes in each direction at a rate of 8x53.125 GBd, this transceiver ensures efficient data transmission.

Each data lane supports operation up to 106.25 Gbps over distances of up to 30 meters when using OM3 fiber and up to 50 meters with OM4 fiber, facilitated by Forward Error Correction (FEC). These modules function within multimode fiber systems, employing a nominal wavelength of 850nm.

Absolute Maximum Ratings

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Parameter	Unit	Min	Max
Supply Voltage	V	-0.3	3.6
Input Voltage	V	-0.3	Vcc+0.3
Storage Temperature	℃	-20	85
Case Operating Temperature	℃	0	70
Humidity(non-condensing)	%	5	95

Recommended Operating Conditions

Parameter	Unit	Min	Typical	Max
Supply Voltage	V	3.13	3.3	3.47
Operating Case temperature	℃	0		70
Data Rate Per Lane	Gbps		106.25	
Humidity	%	5		85
Power Dissipation	W		13.5	14

Electrical Specifications

Parameter	Unit	Min	Typical	Max
Differential input impedance	ohm	90	100	110
Differential Output impedance	ohm	90	100	110
Differential input voltage amplitude	mVp-p	400		900
Differential output voltage	mVp-p			850
Bit Error Rate	-			2.4E-4
Input Logic Level High	V	2.0		Vcc
Input Logic Level Low	V	0		0.8
Output Logic Level High	V	Vcc-0.5		Vcc
Output Logic Level Low	V	0		0.4
Input Logic Level High	V	2.0		Vcc

Note：

    1. BER=2.4E-4; PRBS31Q@53. 125GBd. Pre-FEC

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2. Differential input voltage amplitude is measured between TxnP and TxnN.

3. Differential output voltage amplitude is measured between RxnP and RxnN.

Optical Characteristics

Parameter	Min	Typical	Max	Unit	Notes
Transmitter					
Centre Wavelength	840	850	860	nm	-
RMS spectral width	-	-	0.65	nm	-
Average launch power, each lane	-4.6	-	5.5	dBm	-
Optical Modulation Amplitude (OMAouter), each lane	-2.6		4	dBm	-
Transmitter and dispersion eye closure for PAM4(TDECQ),each lane			4.4	dB	
Extinction Ratio	2.5	-	-	dB	-
Average launch power of OFF transmitter, each lane			-30	dB	-
Receiver					
Centre Wavelength	840	850	860	nm	-
Receiver Sensitivity in OMAout			max (-4.4,TECQ-6.2)	dBm	1
Stressed Receiver Sensitivity in OMAout			-1.8	dBm	2
Maximum Average power at receiver , each lane input, each lane			5.5	dBm	-
Minimum Average power at receiver , each lane	-6.3			dBm	
Receiver Reflectance			-15	dB	-
LOS Assert	-15		-8.5	dBm	-
LOS De-Assert			-6.5	dBm	-
LOS Hysteresis	0.5			dB	-

Note：

1 .Measured with conformance test signal at TP3 for BER = 2.4E-4 Pre-FEC.

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2 .These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.
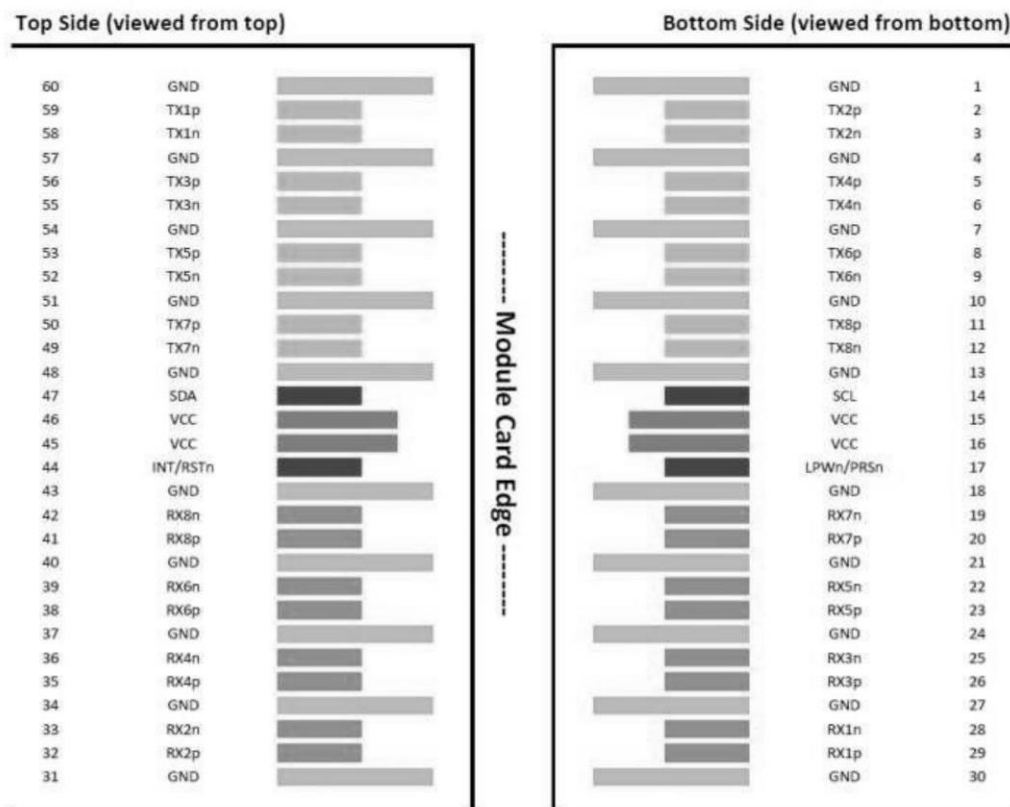
Pin Definition and Description

Table 1. Pin definition and descriptions

Pin	Symbol	Logic	Description	Note
1	GND		Ground	
2	TX2p	CML-I	Transmitted Data Non-Inverted	
3	TX2n	CML-I	Transmitted Data Inverted	
4	GND		Ground	
5	TX4p	CML-I	Transmitted Data Non-Inverted	
6	TX4n	CML-I	Transmitted Data Inverted	
7	GND		Ground	
8	TX6p	CML-I	Transmitted Data Non-Inverted	
9	TX6n	CML-I	Transmitted Data Inverted	
10	GND		Ground	
11	TX8p	CML-I	Transmitted Data Non-Inverted	
12	TX8n	CML-I	Transmitted Data Inverted	

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13	GND		Ground	
14	SCL	LVCMOS-I/O	2-wire Serial Interface Clock	1
15	VCC		+3.3V Power	
16	VCC		+3.3V Power	
17	LPWn/PRSn	Multi-Level	Low-Power Mode / Module Present	2
18	GND		Ground	
19	RX7n	CML-O	Receiver Data Inverted	
20	RX7p	CML-O	Receiver Data Non-Inverted	
21	GND		Ground	
22	RX5n	CML-O	Receiver Data Inverted	
23	RX5p	CML-O	Receiver Data Non-Inverted	
24	GND		Ground	
25	RX3n	CML-O	Receiver Data Inverted	
26	RX3p	CML-O	Receiver Data Non-Inverted	
27	GND		Ground	
28	RX 1n	CML-O	Receiver Data Inverted	
29	RX 1p	CML-O	Receiver Data Non-Inverted	
30	GND		Ground	
31	GND		Ground	
32	RX2p	CML-O	Receiver Data Non-Inverted	
33	RX2n	CML-O	Receiver Data Inverted	
34	GND		Ground	
35	RX4p	CML-O	Receiver Data Non-Inverted	
36	RX4n	CML-O	Receiver Data Inverted	
37	GND		Ground	
38	RX6p	CML-O	Receiver Data Non-Inverted	
39	RX6n	CML-O	Receiver Data Inverted	
40	GND		Ground	
41	RX8p	CML-O	Receiver Data Non-Inverted	
42	RX8n	CML-O	Receiver Data Inverted	
43	GND		Ground	
44	INT/RSTn	Multi-Level	Module Interrupt / Module Reset	2
45	VCC		+3.3V Power	
46	VCC		+3.3V Power	
47	SDA	LVCMOS-I/O	2-wire Serial Interface Clock	1
48	GND		Ground	
49	TX7n	CML-I	Transmitted Data Inverted	
50	TX7p	CML-I	Transmitted Data Non-Inverted	
51		GND	Ground	

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52	TX5n	CML-I	Transmitted Data Inverted	
53	TX5p	CML-I	Transmitted Data Non-Inverted	
54		GND	Ground	
55	TX3n	CML-I	Transmitted Data Inverted	
56	TX3p	CML-I	Transmitted Data Non-Inverted	
57		GND	Ground	
58	TX 1n	CML-I	Transmitted Data Inverted	
59	TX 1p	CML-I	Transmitted Data Non-Inverted	
60		GND	Ground	

Notes:

1. Open-Drain with pull up resistor on Host.

2. See pin description for required circuit.

Digital Diagnostic Specification

Parameter	Units	Min	Typical	Max	Notes
Transceiver Case Temperature	°C	-3		+3	Over operating
Supply voltage monitor absolute	V	-3%		+3%	Full operating
Channel RX power monitor absolute	dB	-3		+3	Per channel
Channel Bias current monitor	mA	- 10%		+10%	Per channel
Channel TX power monitor absolute	dB	-3		+3	Per channel

Mechanical Dimensions(mm)