

TITLE 10G SFP+ AOC (Active Optical cable)	DOC No.	DSPC-150025
	REVISION : 02	AUTHORIZED BY : Mike Sun
	DATE : 2020.08.05	CLASSIFICATION : CONFIDENTIAL

1. Purpose

This document validates solely for the product of JPC (Jess-Link) , SFP+ 10Gbps Active Optical Cable (AOC), with its basic information and electronic characteristics. With continuous performance improvement purpose, the document might subject to change without notice.

2. General Description

JPC's Small Form-Factor Pluggable Plus Active Optical Cables (SFP+ AOC) serve short-reach high-speed transmission applications with a data rate up to 10Gb/s per channel. These active optical cables support 10Gb Ethernet(IEEE802.3ae) and InfiniBand protocols are compliant with the Multi-Source Agreement (MSA) for product development. These solutions will benefit you with longer distances, good signal integrity, and better bit error rate performance.

3. Feature

- Bit rate support from 1G to 11.3Gbps
- Pre-terminated fiber cable
- Operating environment temperature 0 ~ 70°C
- Low power consumption
- SFP+ housing with enhanced EMI shielding
- Single 3.3V power supply
- Programmable EEPROM for serial identification

4. Applications

- 10G Ethernet

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5. Revision History

Rev.	Comments	Date	Originator	Approval
01	Preliminary Draft	2015.07.27	Mike Sun	Ray Yang
02	Add Length 0.3m P/N	2020.08.05	Mike Sun	Ray Yang

6. Absolute Maximum Rating

Not necessarily applied together. Exceeding these values may cause permanent damage. Functional operation under these conditions is not implied.

Parameter	Min	Max	Unit
Storage Temperature	-20	85	°C
Relative Humidity(non-condensing)	0	85	%
Operating Case Temperature	0	70	°C
Supply Voltage	-0.3	3.6	V
Input Voltage	-0.3	V _{cc} +0.3	V

7. Recommended Operating Conditions

Parameter	Min	Typical	Max	Unit
Case Operating Temperature	0		70	°C
Power Supply Voltage	3.14	3.3	3.46	V
Data Rate per Channel		10.3125		Gbps
Bit Error Ratio		10 ⁻¹²		
Differential Data Input / Output Load		100		Ohms
Standard Cable Lengths	1		100	m

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8. Electrical Characteristics

Parameter	Min.	Typ.	Max.	Units	Notes
Power Dissipation	-	-	0.35	W	1
Output Logic Level High	2.4	-	V _{CC}	V	
Output Logic Level Low	0	-	0.4	V	
Transmitter					
Differential Data Input Swing	100		1800	mV _{PP}	
Receiver					
Differential Data Output	400		800	mV	
Bit Error Ratio	-	-	10 ⁻¹²	-	2

Notes:

- 1.Per terminal
- 2.PRBS2³¹-1@10.3125.0Gbps

9. General Cable Characteristics

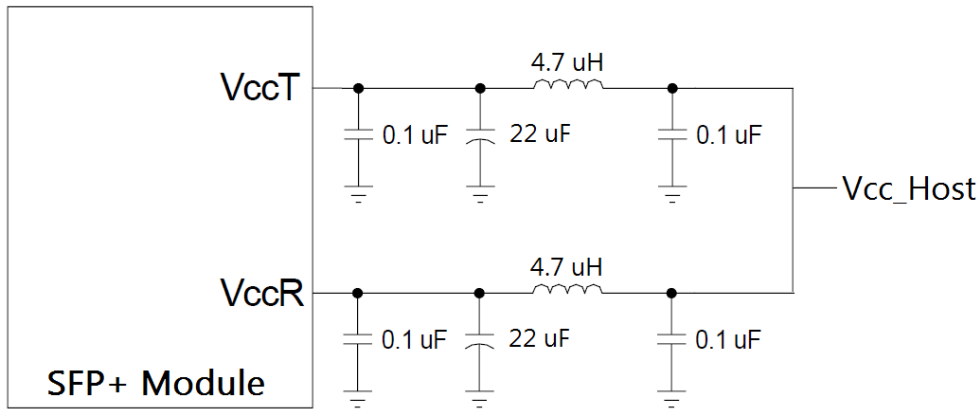
Parameter	Specification	Notes
Minimum Cable Bending Radius	30 mm	
Cable Cross-Section Dimension	Round Cable with 3.2 mm Max in Diameter	
Cable Cover Type	LSZH or OFNR	1
Standard Cable Length	1-100 m	2
Cable Length Tolerance	Cable Length Tolerance	

Notes:

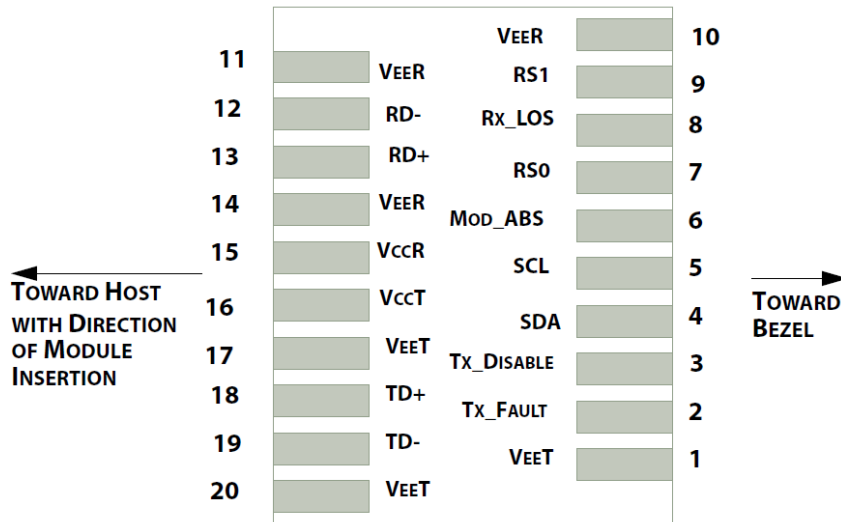
1. Cable jacket type standard is OFNR. Other types can be available upon request.
2. Different cable length may be recommended to adopt different multi-mode fiber (MMF) grades of OM2, or OM3., OM2 is standard product.

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10. Power supply and voltage detection circuitry

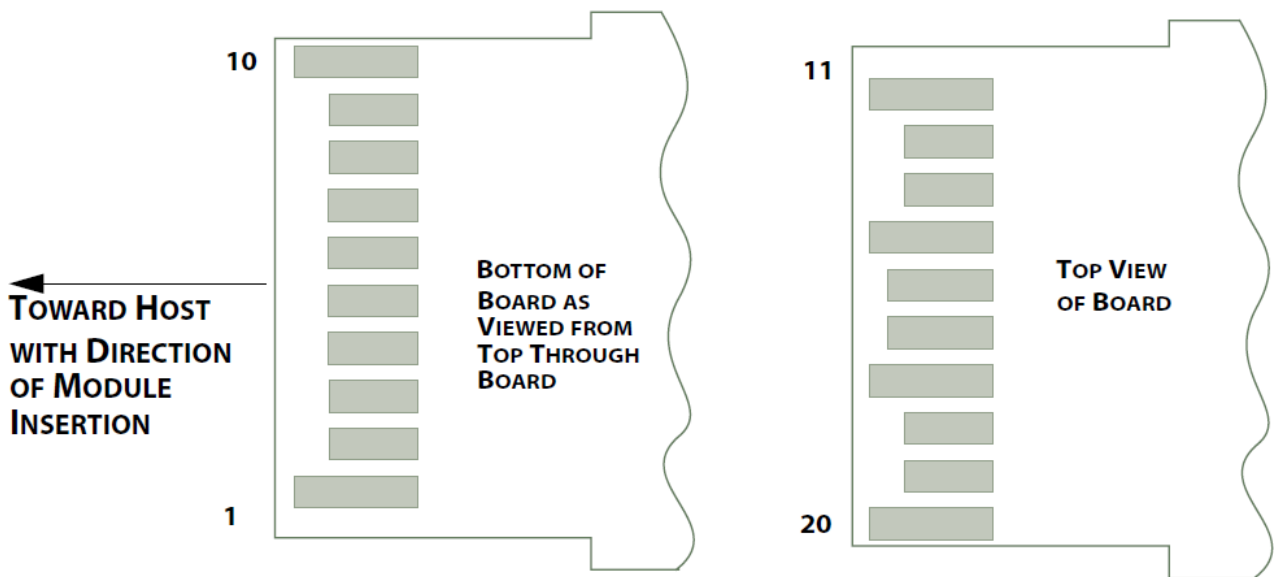


11. Host Board Connector Pin (Top View)



Note: For detail information, please refer to SFF-8083 0.8mm Card Edge Connector for 8/10 Gbps Applications

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12. Module Pin Definitions

Pin	Symbol	Name/Description	Note
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	Tx_Fault	Transmitter Fault.	2
3	Tx_Disable	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	Mod_ABS	Module Absent	4
7	RS0	Not supported.	
8	Rx_LOS	Loss of Signal indication. Logic 0 indicates normal operation	5
9	RS1	Not supported.	
10	VeeR	Module Receiver Ground	1
11	VeeR	Module Receiver Ground	1
12	RD-	Receiver Inverted Data Output	

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13	RD+	Receiver Non-Inverted Data Output	
14	VeeR	Module Receiver Ground	1
15	VccR	Module Receiver 3.3 V Supply	
16	VccT	Module Transmitter 3.3 V Supply	
17	VeeT	Module Transmitter Ground	1
18	TD+	Transmitter Non-Inverted Data Input	
19	TD-	Transmitter Inverted Data Input	
20	VeeT	Module Transmitter Ground	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Tx_Fault is an open collector/drain output, which is pulled up with a 4.7kΩ – 10kΩ resistor on the host board, but is grounded inside the SFP+ cable plug.
3. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
4. Should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. MOD_ABS pulls line low to indicate module is plugged in.
5. LOS is open collector output. Should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

Units: mm

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13. Product description &P/N List

Part Number	Description
P5100FJ0S020-1	JPC 10G active fiber cable, SFP+, OM2, 0.2m
P5100FJ0001M-1	JPC 10G active fiber cable, SFP+, OM2, 1m
P5100FJ0003M-1	JPC 10G active fiber cable, SFP+, OM2, 3m
P5100FJ0005M-1	JPC 10G active fiber cable, SFP+, OM2, 5m
P5100FJ0007M-1	JPC 10G active fiber cable, SFP+, OM2, 7m
P5100FJ0010M-1	JPC 10G active fiber cable, SFP+, OM2, 10m
P5100FJ0015M-1	JPC 10G active fiber cable, SFP+, OM2, 15m
P5100FJ0020M-1	JPC 10G active fiber cable, SFP+, OM2, 20m
P5100FJ0025M-1	JPC 10G active fiber cable, SFP+, OM2, 25m
P5100FJ0030M-1	JPC 10G active fiber cable, SFP+, OM2, 30m
P5100FJ0050M-1	JPC 10G active fiber cable, SFP+, OM2, 50m
P5100FJ0075M-1	JPC 10G active fiber cable, SFP+, OM2, 75m
P5100FJ0100M-1	JPC 10G active fiber cable, SFP+, OM2, 100m