

<b>TITLE</b>  <b>40G QSFP+ AOC</b> <b>(Active Optical cable)</b>	<b>DOC No.</b>	<b>DTRX-160022</b>
	<b>REVISION :</b> <b>02</b>	<b>AUTHORIZED BY :</b> <b>Mike Sun</b>
	<b>DATE :</b> <b>2020.08.05</b>	<b>CLASSIFICATION :</b> <b>CONFIDENTIAL</b>

### 1. Purpose

This document validates solely for the product of JPC (Jess-Link) , QSFP+ 40Gbps 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 P4008FJ/FC0xxxM-1 series QSFP+ Active Optical Cable (AOC) contains four fiber optic transceivers per end, each operating at data rates of up to 10.325Gb/s. This integrated cable solution provides reliable transport for aggregate data rates of up to 40Gb/s. This SFF-8685 compliant cable can be used for either Ethernet or InfiniBand link protocols. Rigorous production testing ensures the best out-of-the-box installation experience, performance and durability.

### 3. Feature

- 4-channel bi-directional AOC with aggregate bandwidth of 40-Gbps inks up to 100-m
- Compliant to SFF-8436 QSFP+ Specification Revision 4.0
- Low power consumption of max 1.5 W (Compliant to Power Level 1)
- BERT better than 1E-15
- Full Digital Diagnostics Monitor Interface
- Hot pluggable electrical interface
- 0 to 70°C case temperature operating range
- RoHS Compliance and Lead-Free

### 4. Applications

- 40G Ethernet
- Datacenter

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**5. Revision History**

Rev.	Comments	Date	Originator	Approval
01	Preliminary Draft	2016.07.23	Mike Sun	Ray Yang
02	Add Length 0.3m P/N	2020.08.05	Mike Sun	Ray Yang

**6. Absolute Maximum Rating**

Parameter	Min	Max	Unit
Storage Temperature	-40	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	Vcc+0.3	V

**7. Recommended Operating Conditions**

Parameter	Min	Typical	Max	Unit
Operating Case Temperature	0		70	°C
Power Supply Voltage	3.13	3.3	3.47	V
Power Consumption			1.5	W
Data Rate	1	10.3	11.3	Gbps
Link Distance with OM3 fiber	1		100	m

**8. Electrical Characteristics**

Parameter	Min.	Typ.	Max.	Units
<b>Transmitter</b>				
Differential Data Input Swing	300		1100	mV <sub>PP</sub>
Input Differential Impedance		100		Ω
Tx_Fault	Normal Operation	0	0.8	V

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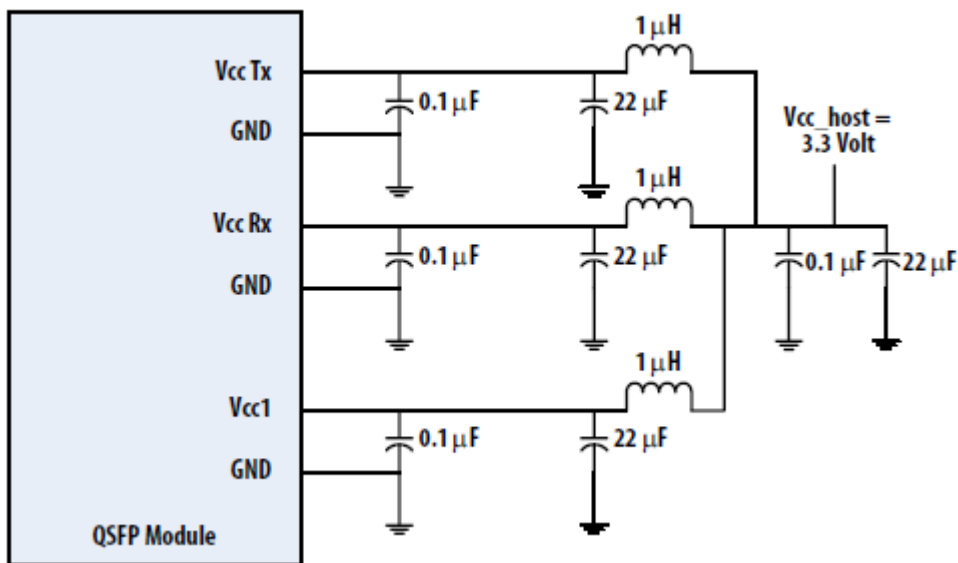
	Transmitter Fault	2.0		VCC	V	
Tx_Disable	Normal Operation	0		0.8	V	
	Laser Disable	2.0		VCC+0.3	V	
<b>Receiver</b>						
	Differential Data Output	500		800	mV	
	Output Differential Impedance		100		Ω	
	Bit Error Ratio (BER)		10-12			
Rx_LOS	Normal Operation	0		0.8	V	
	Lose Signal	2.0		VCC+0.3	V	

## 9. General Cable Characteristics

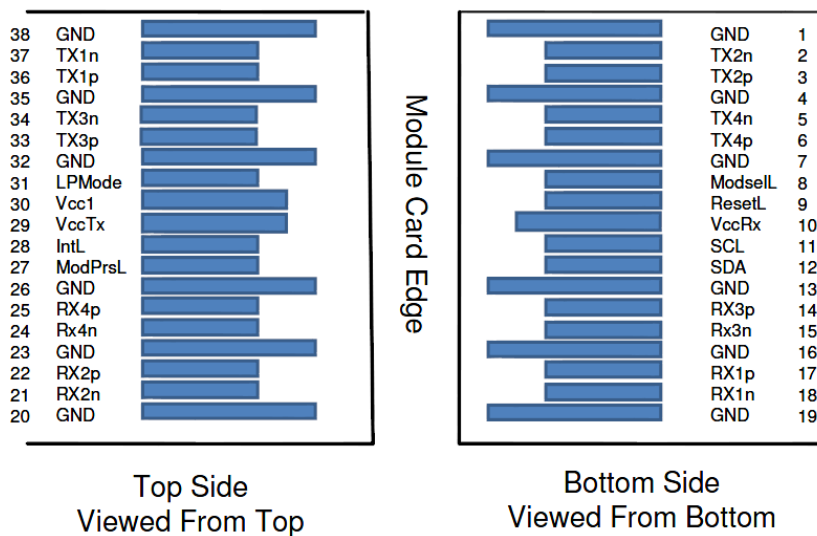
Parameter	Value	Units
Diameter	3±0.2	mm
Minimum bend radius	30	mm
Length tolerance	Length < 5m: +300mm /-0 5m < Length < 50m: +500mm / -0 50m < Length: +1000mm /-0	mm
Cable color	Length < 30m (OM2)Orange Length < 30m (OM3)Aqua	

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**10. Power supply and voltage detection circuitry**



**11. Host Board Connector Pin (Top View)**



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## 12. Module Pin Definitions

Pin	Symbol	Name/Description	Note
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data output	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data	
7	GND	output	1
8	ModSelL	Ground	
9	ResetL	Module Select	
10	VccRx	Module Reset	2
11	SCL	+3.3V Power Supply Receiver	
12	SDA	2-Wire Serial Interface Clock	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	1
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	
17	Rx1p	Receiver Non-Inverted Data Output	1
18	Rx1n	Receiver Inverted Data Output	1
19	GND	Ground	
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	1
22	Rx2p	Receiver Non-Inverted Data Output	1
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	1
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	

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28	IntL	Interrupt	
29	VccTx	+3.3 V Power Supply transmitter	2
30	Vcc1	+3.3 V Power Supply	2
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Output	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Output	
38	GND	Ground	1

Notes:

1. Module circuit ground is isolated from module chassis ground within the module. GND is the symbol for signal and supply (power) common for QSFP modules.
2. The connector pins are each rated for a maximum current of 500mA.

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**13. Product description &P/N List**

<b>Part Number</b>	<b>Description</b>
P4000FC00050-1	JPC 40G active fiber cable, QSFP+, OM3, 0.5m
P4000FC0001M-1	JPC 40G active fiber cable, QSFP+, OM3, 1m
P4000FC0003M-1	JPC 40G active fiber cable, QSFP+, OM3, 3m
P4000FC0005M-1	JPC 40G active fiber cable, QSFP+, OM3, 5m
P4000FC0007M-1	JPC 40G active fiber cable, QSFP+, OM3, 7m
P4000FC0010M-1	JPC 40G active fiber cable, QSFP+, OM3, 10m
P4000FC0015M-1	JPC 40G active fiber cable, QSFP+, OM3, 15m
P4000FC0020M-1	JPC 40G active fiber cable, QSFP+, OM3, 20m
P4000FC0025M-1	JPC 40G active fiber cable, QSFP+, OM3, 25m
P4000FC0030M-1	JPC 40G active fiber cable, QSFP+, OM3, 30m
P4000FC0050M-1	JPC 40G active fiber cable, QSFP+, OM3, 50m
P4000FC0075M-1	JPC 40G active fiber cable, QSFP+, OM3, 75m
P4000FC0100M-1	JPC 40G active fiber cable, QSFP+, OM3, 100m