

## QSFP+ 40G Active Optical Cable

### Product Features

- 4x10Gb/s, 850nm, Compliant to the IEEE 802.3ba(40GBASE-SR4)
- Compliant to the QSFP+ MSA SFF-8436
- Built-in digital diagnostic functions
- VCSEL array transmitter and PIN array receiver for AOC
- Single +3.3V power supply, and maximum 1.5W operation power for QSFP+
- Operation case temperature 0~70°C for commercial
- Operating Data rate: up to 10.3125G for each lane.
- RoHS6 compliance, and Class 1 laser safety
- Application: 10/40G Ethernet, 2/4/8G Fiber Channel, Infiniband /QDR

### Operating Condition

Parameter	Unit	Min.	Typical	Max.
Storage Temperature	°C	-10		85
Operating Case Temp for C-temp	°C	0		70
Power Supply Voltage	V	3.135	3.3	3.465
Power Consumption(QSFP+)	W			1.5
Bit Rate per lane	Gbps	1.25	10.3125	

### Electrical Characteristics

Parameter	Unit	Min.	Typical	Max.	Note
<b>Transmitter</b>					
Data Input Swing Differential/TX	mV	200	-	1600	
Date Differential Impedance	Ω	90	100	110	
<b>Receiver</b>					
Data Output Swing Differential/RX	mV	350	-	800	
Date Differential Impedance	Ω	90	100	110	
Bit Error Ratio				1E-12	1

**Note: 1** PRBS2^31-1@10.3125Gbps

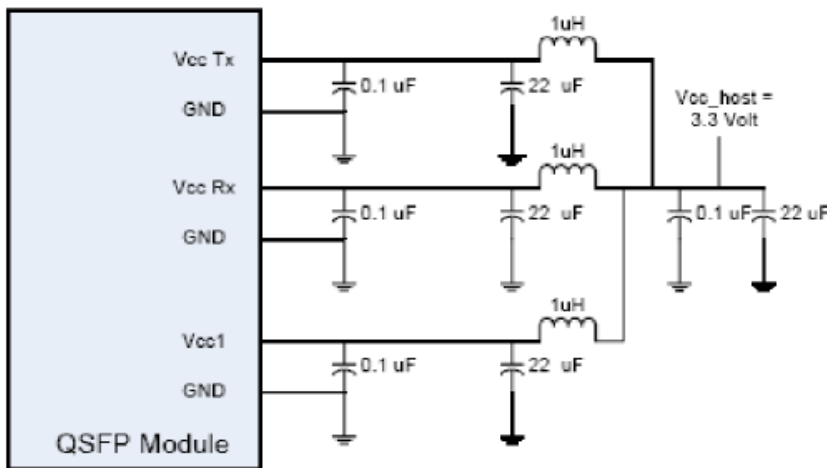
**PIN Definition**

Pin No.	Symbol	Level / Logic	Description
1	GND		Module Ground
2	Tx2n	CML-I	Transmitter Inverted Data Input
3	Tx2p	CML-I	Transmitter Non-Inverted Data Input
4	GND		Module Ground
5	Tx4n	CML-I	Transmitter Inverted Data Input
6	Tx4p	CML-I	Transmitter Non-Inverted Data Input
7	GND		Module Ground
8	ModSelL	LVTTTL-I	Module Select
9	ResetL	LVTTTL-I	Module Reset
10	VccRx		+3.3V Power Supply for Receiver
11	SCL	LVTTTL-I	2-Wire Serial Interface Clock
12	SDA	LVTTTL-I/O	2-Wire Serial Interface Data Line
13	GND		Module Ground
14	Rx3p	CML-O	Receiver Non-Inverted Data Output
15	Rx3n	CML-O	Receiver Inverted Data Output
16	GND		Module Ground
17	Rx1p	CML-O	Receiver Non-Inverted Data Output
18	Rx1n	CML-O	Receiver Inverted Data Output
19	GND		Module Ground
20	GND		Module Ground
21	Rx2n	CML-O	Receiver Inverted Data Output
22	Rx2p	CML-O	Receiver Non-Inverted Data Output
23	GND		Module Ground
24	Rx4n	CML-O	Receiver Inverted Data Output
25	Rx4p	CML-O	Receiver Non-Inverted Data Output
26	GND		Module Ground
27	ModPrsL	LVTTTL-O	Module Present
28	IntL	LVTTTL-O	Interrupt
29	VccTx		+3.3V Power Supply for Transmitter
30	Vcc1		+3.3V Power Supply
31	LPMode	LVTTTL-I	Low Power Mode
32	GND		Module Ground
33	Tx3p	CML-I	Transmitter Non-Inverted Data Input
34	Tx3n	CML-I	Transmitter Inverted Data Input
35	GND		Module Ground
36	Tx1p	CML-I	Transmitter Non-Inverted Data Input
37	Tx1n	CML-I	Transmitter Inverted Data Input
38	GND		Module Ground

**Notes:**

1: GND is the symbol for signal and supply (power) common for the QSFP+ module. All are common within the QSFP+ module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.

2: Vcc Rx, Vcc1 and Vcc Tx are the receiver and transmitter power supplies and shall be applied concurrently. Vcc Rx, Vcc1 and Vcc Tx may be internally connected within the QSFP+ Module in any combination. The connector pins are each rated for a maximum current of 500mA.



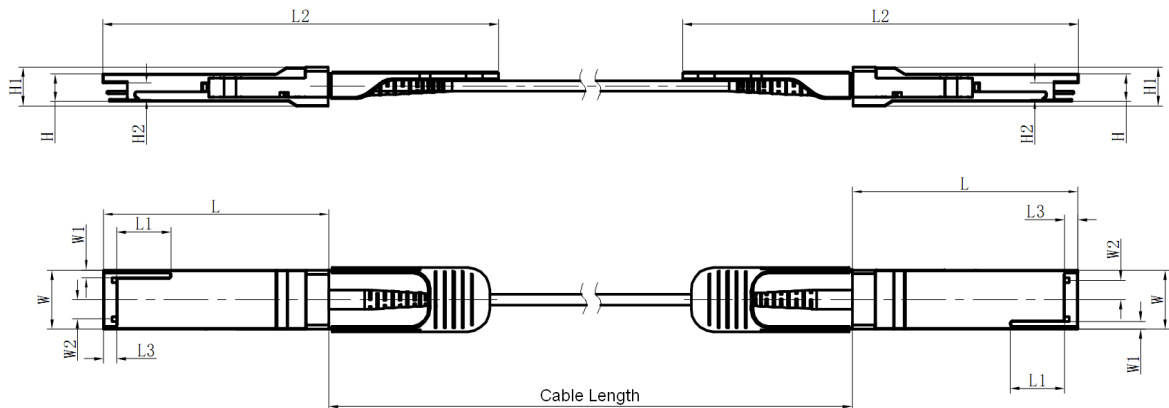
38	GND
37	TX1n
36	TX1p
35	GND
34	TX3n
33	TX3p
32	GND
31	LPMODE
30	Vcc1
29	VccTx
28	IntL
27	ModPrsL
26	GND
25	RX4p
24	Rx4n
23	GND
22	RX2p
21	RX2n
20	GND

**Top Side  
Viewed From Top**

Module Card Edge

	GND	1
	TX2n	2
	TX2p	3
	GND	4
	TX4n	5
	TX4p	6
	GND	7
	ModselL	8
	ResetL	9
	VccRx	10
	SCL	11
	SDA	12
	GND	13
	RX3p	14
	Rx3n	15
	GND	16
	RX1p	17
	RX1n	18
	GND	19

**Bottom Side  
Viewed From Bottom**

**OUTLINES**


Unit: mm

	L	L1	L2	L3	W	W1	W2	H	H1	H2
MAX	72.2	—	122	4.35	18.45	—	6.2	8.6	12.0	5.35
Typical	72.0	—	—	4.20	18.35	—	—	8.5	11.8	5.2
MIN	68.8	16.5	118	4.05	18.25	2.2	5.8	8.4	11.6	5.05

**Ordering Information**

Ordering P/Ns	Description
D088kk-QCCA-XXX	4x10G QSFP+ AOC, 850nm, MMF, Commercial temperature.

XXX	Cable (MMF) Length
001	001=1m
050	050=50m
100	100=100m

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