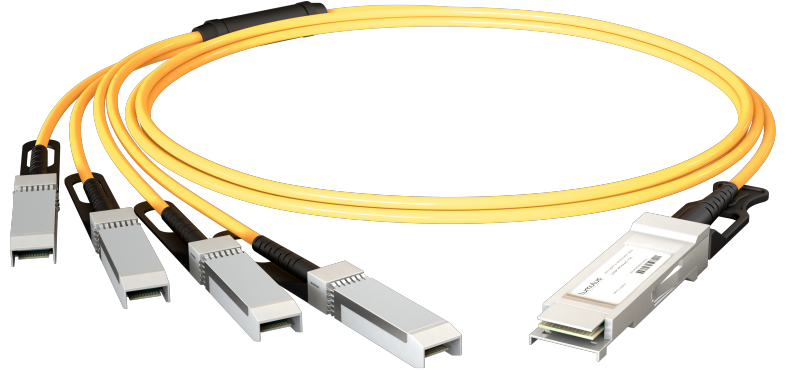


Active Optical Cable

40G QSFP+ to 4x10G SFP+

SFP+



Key Features

- Electrical data rates up to 10G per channel
- 850nm VCSEL transmitter, PIN photo-detector receiver
- Maximum power consumption: <1.5W each end
- Case temperature range: 0°C to 70°C
- 3.3V power supply
- RoHS compliant
- Maximum link length: 150m on OM3 MMF



Applications

- 40G BASE-SR4
- InfiniBand
- Switches, Routers

Supported Standards

- QSFP+MSA
- SFF-8436
- IEEE 802.3bm

Ordering Information

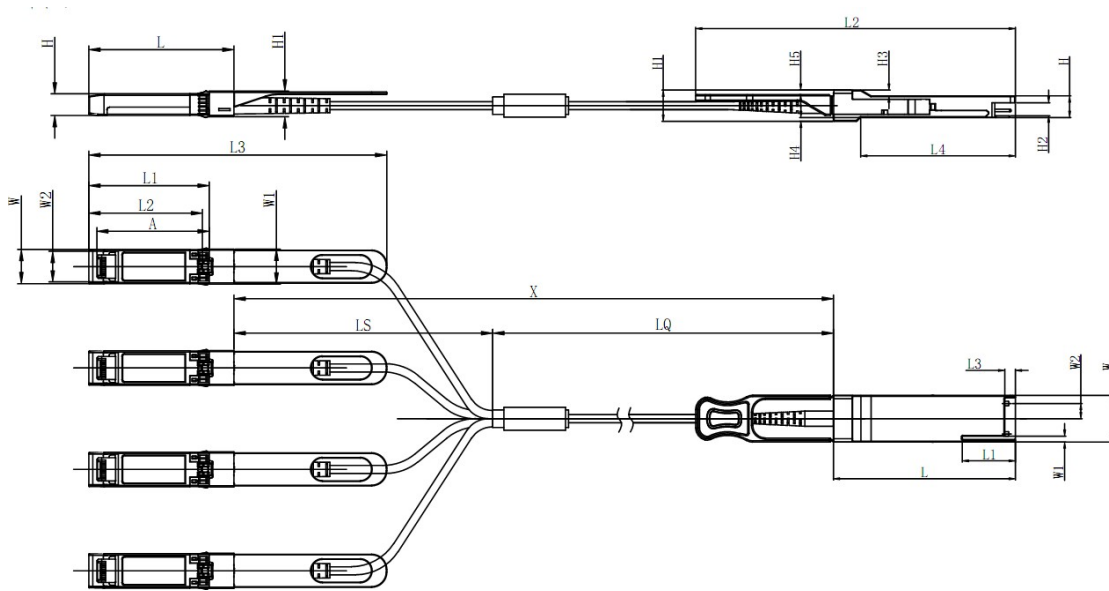
LAQP-WC4xxxC		40G QSFP+ to 4x10G SFP+ AOC (1m~300m)		
Ordering P/Ns	Description	Length	WL (nm)	Fiber Type
LAQP-WC4010C	40G QSFP+ to 4x10G SFP+ AOC	1m	850nm	LSZH MMF
LAQP-WC4100C	40G QSFP+ to 4x10G SFP+ AOC	10m	850nm	LSZH MMF
LAQP-WC4X30C	40G QSFP+ to 4x10G SFP+ AOC	300m	850nm	LSZH MMF

xxx define AOC cable length

Mechanical Outline

Unit mm

	L	L1	L2	L3	L4	W	W1	W2	H	H1	H2	H3	H4	H5	H6
Max	72.2	-	128	4.35	61.4	18.45	-	6.2	8.6	12.4	5.35	2.5	1.6	2.0	-
Type	72.0	-	-	4.20	61.2	18.35	-	-	8.5	12.2	5.2	2.3	1.5	1.8	6.55
Min	68.8	16.5	124	4.05	61.0	18.25	2.2	5.8	8.4	12.0	5.05	2.1	1.3	1.6	-



Unit mm

QSFP+	L	L1	L2	L3	L4	W	W1	W2	H	H1	H2	H3	H4	H5	H6
Max	72.2	-	128	4.35	61.4	18.45	-	6.2	8.6	12.4	5.35	2.5	1.6	2.0	-
Type	72.0	-	-	4.20	61.2	18.35	-	-	8.5	12.2	5.2	2.3	1.5	1.8	6.55
Min	68.8	16.5	124	4.05	61.0	18.25	2.2	5.8	8.4	12.0	5.05	2.1	1.3	1.6	-

SFP+	L	L1	L2	L3	W	W1	W2	H	H1	A
Max	57.6	47.7	44.55	119.9	13.8	14.0	12.3	8.7	10.3	45.25
Type	57.4	47.5	44.35	117.9	13.55	13.8	12.1	8.5	10.1	45
Min	57.2	47.3	44.15	115.9	13.3	13.6	11.9	8.4	9.9	44.65

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min.	Typ.	Max.	Notes
Supply Voltage	Vcc	V	-0.4	-	+3.6	
Storage Temperature	TS	°C	-40	-	85	
Operating Humidity	RH	%	5	-	85	

Recommended Operating Conditions

Parameter	Unit	Min.	Typ.	Max.	Notes
Operating Case Temperature	°C	0		70	
Supply Voltage	V	3.135	3.3	3.465	
Power Dissipation	W			1.5	
Bit Rate per channel	Gbps		10.3125		
Error Bit Rate			1E-12		

QSFP+ Electrical Characteristics

Parameter	Unit	Min.	Typical	Max.	Notes
Transmitter					
Data Input Swing Differential	mVp-p	200	-	1600	
Data Differential Impedance	Ω	90	100	110	
Receiver					
Data Output Swing Differential	mVp-p	350	-	800	
Data Differential Impedance	Ω	90	100	110	

SFP+ Electrical Characteristics

Parameter	Unit	Min.	Typical	Max.	Notes
Transmitter					
Data Input Swing Differential	mVp-p	200	-	1000	
Data Differential Impedance	Ω	90	100	110	
Receiver					
Data Output Swing Differential	mVp-p	370	-	1600	
Data Differential Impedance	Ω	90	100	110	

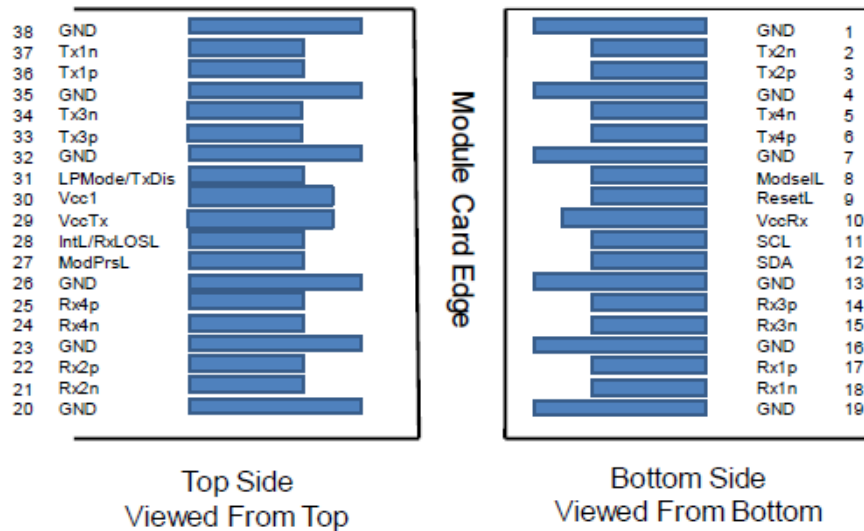
QSFP+ PIN Function Definitions

Pin	Logic	Symbol	Description
1		GND	Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input
4		GND	Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input
7		GND	Ground
8	LVTTL-I	ModSelL	Module Select
9	LVTTL-I	ResetL	Module Reset
10		Vcc Rx	+3.3V Power Supply Receiver
11	LVC MOS-I/O	SCL	2-wire serial interface clock
12	LVC MOS-I/O	SDA	2-wire serial interface data
13		GND	Ground
14	CML-O	Rx3p	Receiver Non-Inverted Data Output
15	CML-O	Rx3n	Receiver Inverted Data Output

16		GND	Ground
17	CML-O	Rx1p	Receiver Non-Inverted Data Output
18	CML-O	Rx1n	Receiver Inverted Data Output
19		GND	Ground
20		GND	Ground
21	CML-O	Rx2n	Receiver Inverted Data Output
22	CML-O	Rx2p	Receiver Non-Inverted Data Output
23		GND	Ground
24	CML-O	Rx4n	Receiver Inverted Data Output
25	CML-O	Rx4p	Receiver Non-Inverted Data Output
26		GND	Ground
27	LVTTL-O	ModPrsL	Present
28	LVTTL-O	IntL/RxLOSL	Interrupt/optional RxLOS
29		Vcc Tx	+3.3 V Power supply transmitter
30		Vcc1	+3.3 V Power Supply
31	LVTTL-I	LPMode/TxDis	Low Power Mode/optional TX Disable
32		GND	Ground
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input
34	CML-I	Tx3n	Transmitter Inverted Data Input
35		GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input
37	CML-I	Tx1n	Transmitter Inverted Data Input
38		GND	Ground

QSFP+ Electrical pad layout

For detail mechanical information, please refer to the related document of QSFP+ MSA.



SFP+ PIN Function Definitions

Pin	Logic	Symbol	Description
1		VeeT	Module Transmitter Ground
2	LVTTL-O	Tx_Fault	Module Transmitter Fault
3	LVTTL-I	Tx_DIS	Transmitter Disable; Active High Disable Transmitter Output
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data
5	LVTTL-I/O	SCL	2-Wire Serial Interface Clock
6		Mod_ABS	Module Absent, connected to VeeT or VeeR in the module
7	LVTTL-I	RS0	Rate Select0, optionally controls SFP+ module receiver
8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication
9	LVTTL-I	RS1	Rate Select1, optionally controls SFP+ module transmitter
10		VeeR	Module Receiver Ground
11		VeeR	Module Receiver Ground
12	CML-O	RD-	Receiver Inverted Data Output
13	CML-O	RD+	Receiver Non-Inverted Data Output
14		VeeR	Module Receiver Ground

15		VccR	Module Receiver 3.3V Supply
16		VccT	Module Transmitter 3.3V Supply
17		VeeT	Module Transmitter Ground
18	CML-I	TD+	Transmitter Non-Inverted Data Input
19	CML-I	TD-	Transmitter Inverted Data Input
20		VeeT	Module Transmitter Ground

SFP+ Transceiver Electrical Pad Layout

