

EAQP4X-xxx

40G QSFP+ to 40G QSFP+ Active Optical Cables

PRODUCT FEATURES

- **Four-channel full-duplex active optical cable**
- **Transmission data rate up to 11.3Gbit/s per channel**
- **Reliable VCSEL array technology using multimode fiber**
- **Available in standard lengths of 3, 5, 10, 15, 20, 30, 50,100m**
- **Low power consumption <1.5W**
- **Operating case temperature 0°C to +70°C**
- **3.3V power supply voltage**
- **RoHS 6 compliant**
- **Hot Pluggable QSFP form factor**

APPLICATIONS

- **Infiniband QDR/DDR/SDR**
- **Data center**
- **40G Ethernet**
- **4G/8G/10G Fibre Channel**

DESCRIPTIONS

The ETU-Link QSFP+ active optic cables are a high performance, low power consumption long reach interconnect solution supporting InfiniBand QDR/DDR/SDR, 12.5G/10G/8G/4G/2G fiber channel PCIe and SAS. It is compliant with the QSFP MSA and IEEE 802.3ba. ETU-Link QSFP AOC is an assembly of 4 full-duplex lanes, where each lane is capable of transmitting data at rates up to 11.3Gb/s, providing an aggregated rate of 45.2Gb/s. ETU-Link QSFP+ AOC is one kind of parallel transceiver which provides increased port density and total system cost savings.

Ordering Information

Part No.	
EAQP4X-xxx	40G QSFP+ to 40G QSFP+ Active Optical Cables OM3

Notes:

where "xx" denotes cable length in meters. Examples are as follows:

x = 3 for 3m, xx = 10 for 10m, xx = 50 for 50m, xxx = 100m

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	T _{stg}	-40		+85	°C	
Relative Humidity - Storage	R _{HS}	5		95	%	
Relative Humidity - Operating	R _{HO}	5		85	%	
DC Supply Voltage	V _{CC}	0		3.6	V	

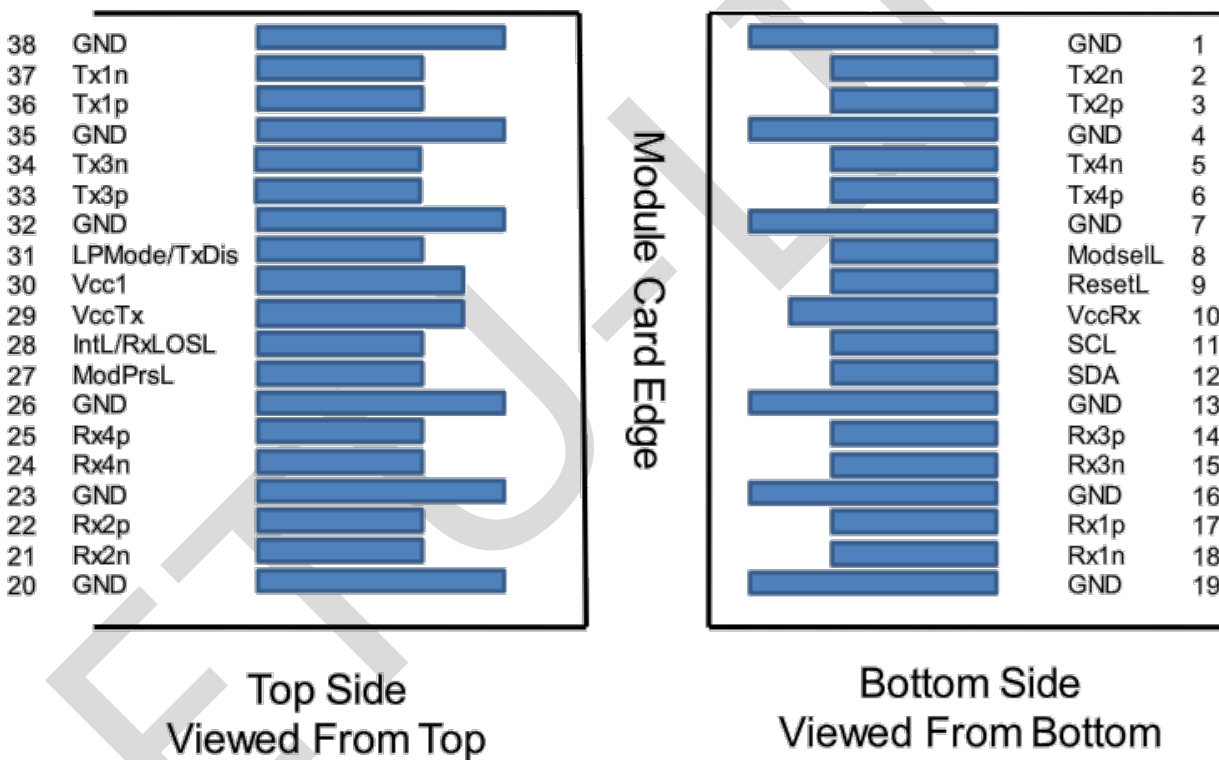
Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	TOPC	0		70	degC
Power Supply Voltage	VCC	3.13	3.3	3.47	V
Power Consumption		-		1.5	w
Data Rate	DR	1	10.3	11.3	Gbps
Data Speed Tolerance	ΔDR	-100		+100	ppm
Link Distance with OM3 fiber	D	0		100	m

Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit
Differential input impedance	Zin	90	100	110	ohm
Differential Output impedance	Zout	90	100	110	ohm
Differential input voltage amplitude	ΔV_{in}	300		1100	mVp-p
Differential output voltage amplitude	ΔV_{out}	500		800	mVp-p
Bit Error Rate	BR			E-12	
Input Logic Level High	V _{IH}	2.0		VCC	V
Input Logic Level Low	V _{IL}	0		0.8	V
Output Logic Level High	V _{OH}	VCC-0.5		VCC	V
Output Logic Level Low	V _{OL}	0		0.4	V

Pin Diagram



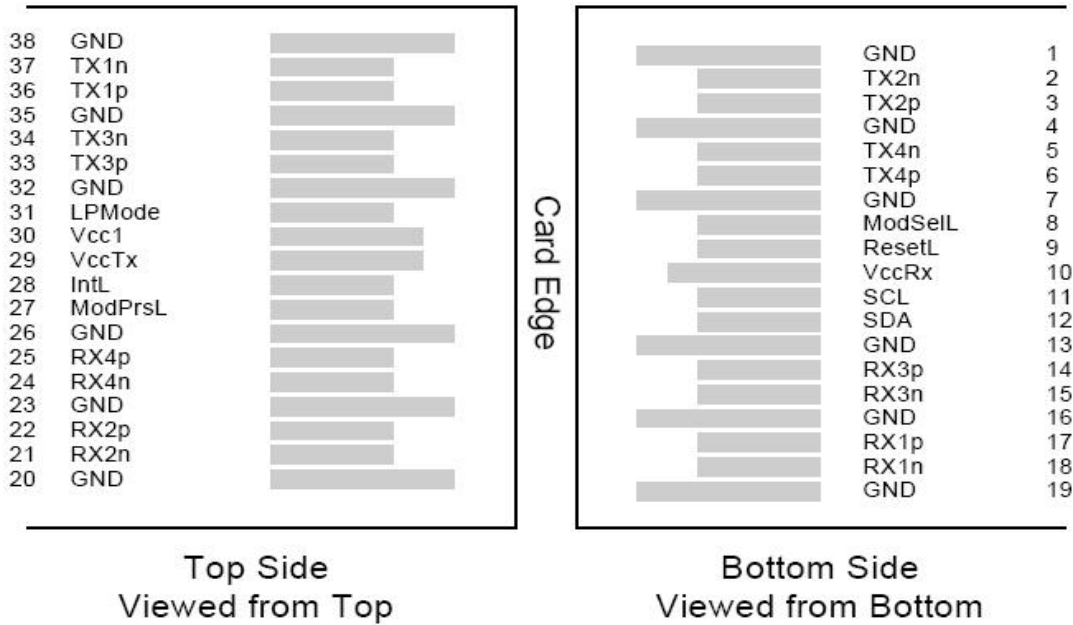
Pin Descriptions

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	1

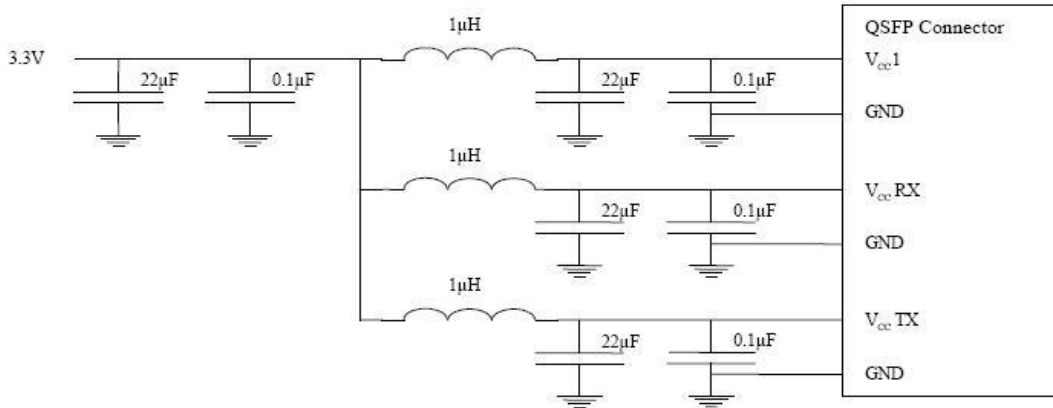
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	1
8	LVTLL-I	ModSelL	Module Select	
9	LVTLL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	2
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial 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	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	1
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTL-I	LPMode	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Notes:

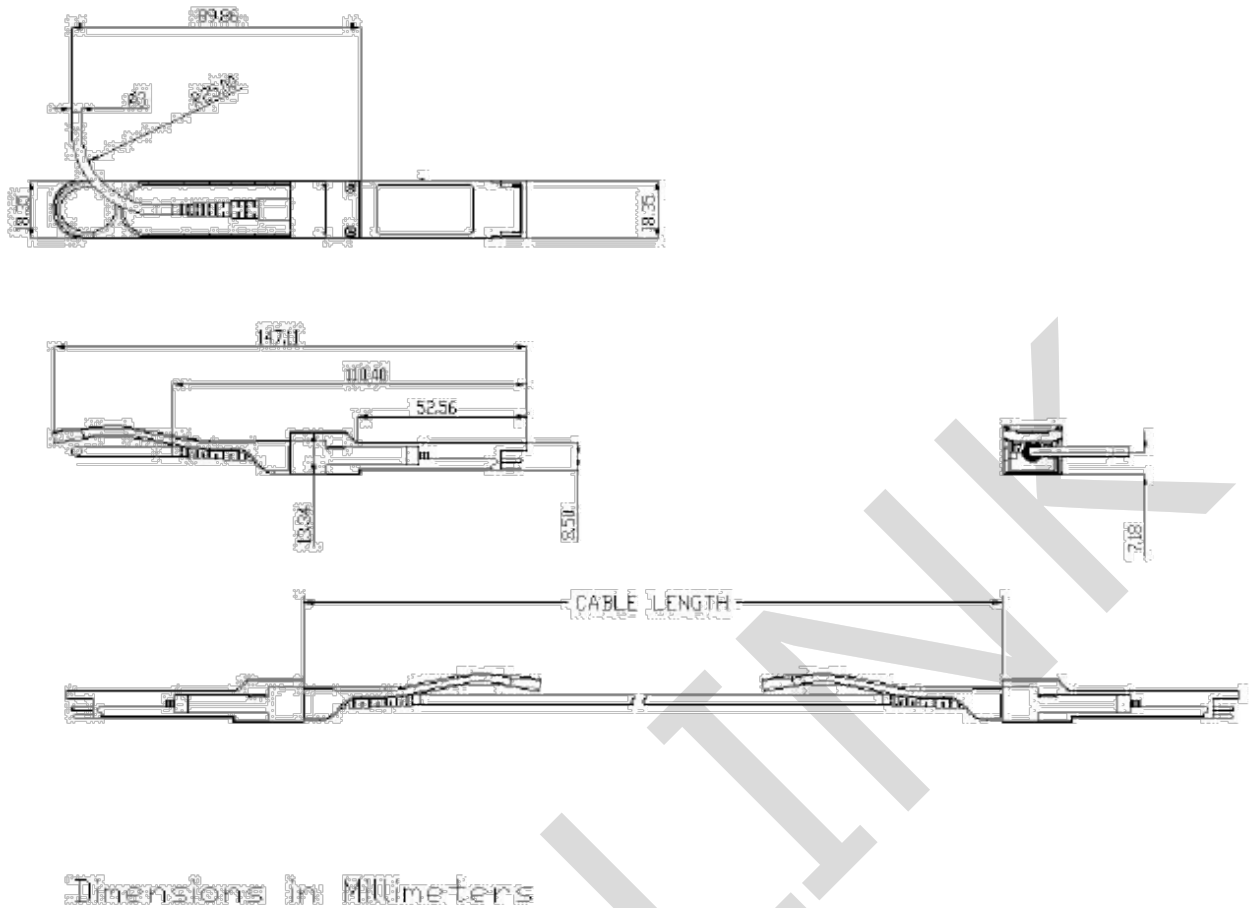
- 1) Module circuit ground is isolated from module chassis ground within the module. GND is the symbol for signal and supply (power) common for QSFP modules.
- 2) The connector pins are each rated for a maximum current of 500mA.



Power Supply Filtering



QSFP+ AOC-end Electrical Specifications



Revision History

Version No.	Date	Description
1.0	February 8, 2019	Preliminary datasheet
1.1	July 26, 2024	Format change

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