

## 40G QSFP+ Active Optical Cables

Optronics 40G QSFP+ Active Optical Cable assemblies are high performance, cost effective, long reach interconnect I/O solutions for 40G Ethernet 40G Fibre Channel applications. Optronics QSFP+ AOC is an assembly of 4 full-duplex lanes, where each lane is capable of transmitting data at rates up to 10Gb/s, providing an aggregated rate of 40Gb/s. They are electrically compliant with SFF-8436. It has low power scattering and a rigid force tab for enhanced high-density installments. It is fully tested for compatibility with intended equipment.

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### Features

- Four-channel full-duplex active optical cable with QSFP+ plugs
- Electrical interface compliant to SFF-8436
- Support 40GE data rate
- Hot Pluggable
- Built-in digital diagnostic functions
- Low power dissipation: <1.5W
- Operating case temperature 0°C to 70°C
- RoHS compliant

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### Applications

- 40G Ethernet
- Data Centres
- InfiniBand transmission
- High performance computing (HPC) application

## Specifications

### Absolute Maximum Ratings

ELEMENT	VALUE	SYMBOL	MIN	MAX
Storage Temperature	°C	T <sub>S</sub>	-20	85
Relative Humidity	%	R <sub>H</sub>	0	85
Case Operating Temperature	°C	T <sub>Case</sub>	0	70
Supply Voltage	V	V <sub>CC</sub>	-0.5	3.6

### Recommended Operating Conditions

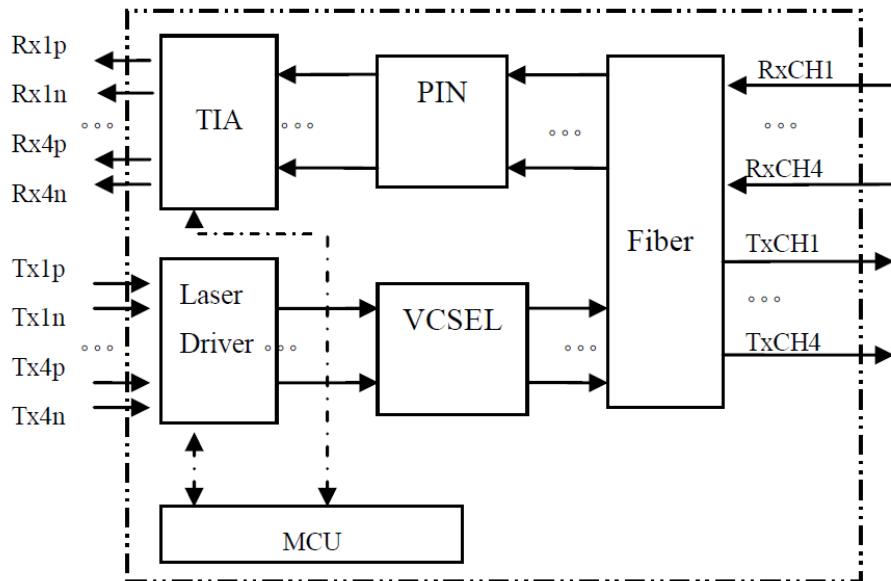
ELEMENT	VALUE	SYMBOL	MIN	TYPICAL	MAX
Case Operating Temperature	°C	T <sub>Case</sub>	0		70
Supply Voltage	V	V <sub>CC</sub>	3.15	3.3	3.45
Differential Data Input Voltage Per Lane	mVp-p	V <sub>din</sub>	200		1200
Data Rate Per Lane	Gbit/s	DR	2.5	10.3125	

### Electrical Characteristics

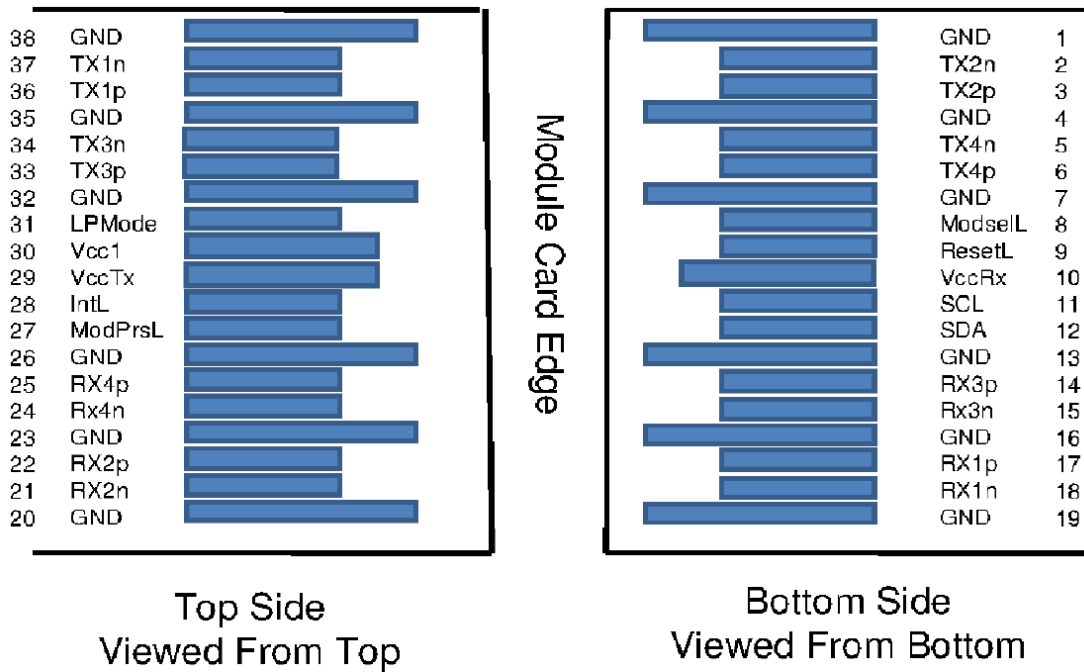
ELEMENT	VALUE	SYMBOL	MIN	TYPICAL	MAX
Bit Error Ratio		BER			10 <sup>-12</sup>
Differential Data Output Voltage Per Lane	mVp-p	V <sub>dout</sub>	320	450	
Differential Termination Resistance	Ohm	Z <sub>out</sub>	80	100	120
Module Total Power	W	P			1.5
Transmit Turn-On Time	ms		2000		

Note: Test with PRBS31 pattern

## Module Block Diagram



## Pin Descriptions

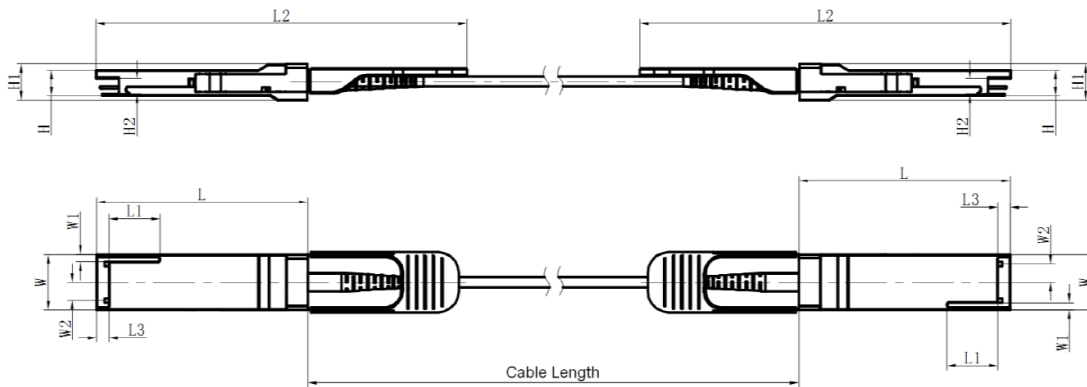


## Pin Definitions

<b>PIN</b>	<b>SYMBOL</b>	<b>NAME/DESCRIPTION</b>
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output
22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	Vcc Tx	+3.3 V Power supply transmitter

30	Vcc1	+3.3 V Power Supply
31	LPMode	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

## Mechanical Specifications



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

### DESCRIPTION

### PART NUMBER

Optronics 40G QSFP+ Active Optical Cable

OQSFP-AOC-4040-XXX

\*where XXX is cable length in metres