

## Description

The OptiWorks 100G Active Optical Cable product is a 4 pairs parallel active optical cable for storage, data, and high performance computing connectivity. This product offers 4 independent data transmission channels and 4 data receiving channels via the multimode fibers, each capable of 25Gb/s operation so that an aggregate data rate of 100Gb/s over 70 meters/OM3 transmission can be achieved by this product. This product compliant with the QSFP28 specifications of SFF8665 and IEEE802.3bm.

## Key Features

- 4 independent full-duplex channels active optical cable
- Programmable Rx output amplitude and pre-emphasis
- Programmable Tx input equalizer
- Selectable retiming
- 2.5W max power dissipation (each end)
- Up to 100m length (OM4 fiber)
- SFF-8665 compliant QSFP28 port
- SFF-8636 compliant I2C management interface
- RoHS compliant

## Applications

- IEEE 802.3bm 100GBASE SR4 and 40GBASE SR4



# Active Optical Cable

## 100G QSFP28



A BizLink Group Company

### Absolute Maximum Ratings

Parameter	Min.	Max.	Units
Storage Temperature	-40	+85	°C
Relative Humidity (Non-condensing)	0	85	%
Supply Voltage	-0.5	3.6	V

### Recommended Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operating Temperature	0		+70	°C
Supply Voltage	3.135	3.3	3.465	V
Power Dissipation per cable end			2.5	W
Data Rate per Channel		25.78125		Gbps
Pre-FEC Bit Error Ratio			1E-6 <sup>a</sup>	
Post-FEC Bit Error Ratio			1E-12 <sup>a,b</sup>	

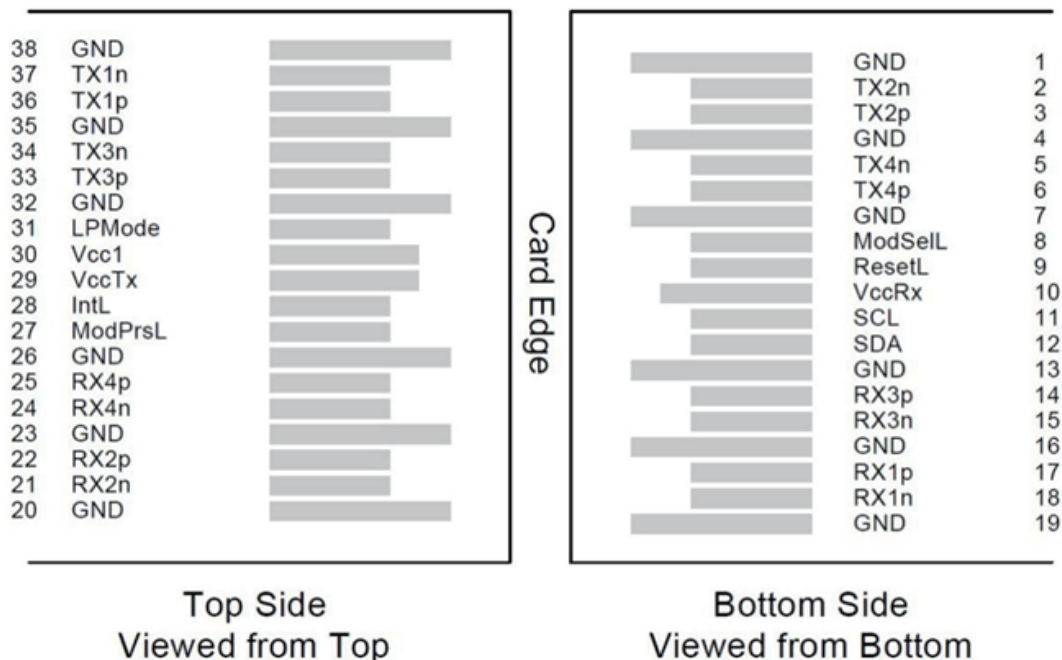
<sup>a</sup> Bit Error Rate is test with PRBS 2<sup>31</sup>-1 pattern.

<sup>b</sup> Assumes FEC provided by host system.

### Output Electrical Specifications (per Lane)

Parameter	Min.	Typical	Max.	Units
Differential Voltage pk-pk			900	mV
Common Mode Noise RMS			17.5	mV
Transition Time, 20 to 80 % Tr,Tf	12			ps
Eye Width at 1E-15 probability	0.57			UI
Eye Height at 1E-15 probability	228			mV

### QSFP28 Transceiver Pad Layout



# Active Optical Cable

## 100G QSFP28



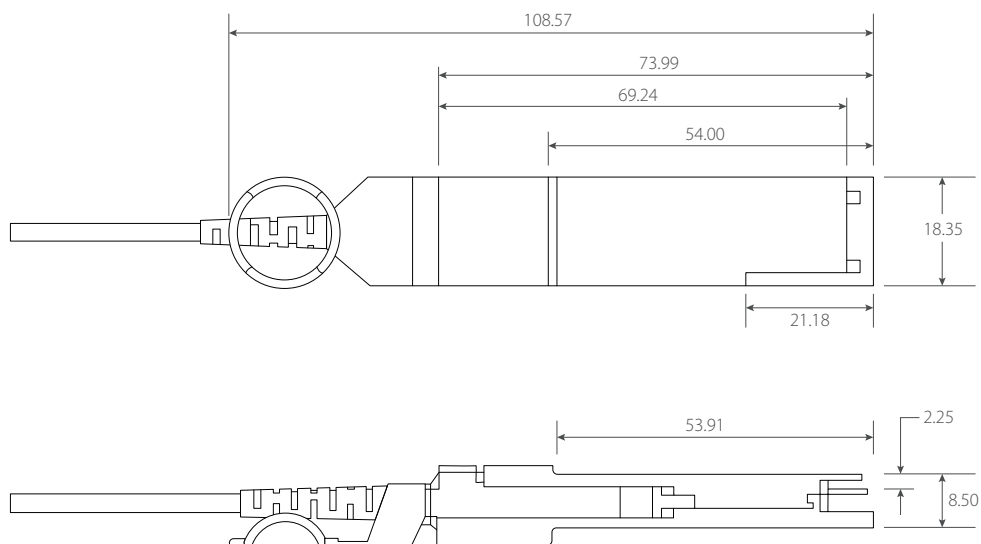
### QSFP28 Transceiver Pad Layout

Pin Definition	Logic	Symbol	Name/Description	Notes
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Ground	1
8	LVTTTL-I	ModSelL	Module Select	
9	LVTTTL-I	ResetL	Module Reset	
10		Vcc Rx	+3.3 V Power supply receiver	2
11	LVCNOS-I/O	SCL	2-wire serial interface clock	
12	LVCNOS-I/O	SDA	2-wire serial interface data	
13		GND	Ground	1
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	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTTL-O	ModPrsL	Module Present	
28	LVTTTL-O	IntL	Interrupt	
29		Vcc Tx	+3.3 V Power supply transmitter	2
30		Vcc1	+3.3 V Power Supply	2
31	LVTTTL-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 Input	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Input	
38		GND	Ground	1

Note 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.

Note 2: VccRx, Vcc1 and VccTx are the receiver and transmitter power supplies and shall be applied concurrently.

**Mechanical Dimensions**



Unit: mm

**Order Information**

Part Number	Description
AOCQ2810085SR01	1 meter QSFP28 Active Optical Cable
AOCQ2810085SR03	3 meter QSFP28 Active Optical Cable
AOCQ2810085SR05	5 meter QSFP28 Active Optical Cable
AOCQ2810085SR07	7 meter QSFP28 Active Optical Cable
AOCQ2810085SR10	10 meter QSFP28 Active Optical Cable
AOCQ2810085SR15	15 meter QSFP28 Active Optical Cable
AOCQ2810085SR20	20 meter QSFP28 Active Optical Cable
AOCQ2810085SR30	30 meter QSFP28 Active Optical Cable

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