Features

- Up to 200Gb/s data rate
- 4x25Gb/s PAM4 modulation
- Compliant with SFF-8665 and SFF-8436
- Compliant with IEEE802.3cd / Infiniband HDR
- Hot-pluggable
- Power consumption <0.1W
- RoHS compliant
- Operating temperature range: 0℃ to 70℃

Applications

- 200G / 100G Ethernet
- Infiniband HDR

Description

The OPQS56-T-xx-PxL QSFP56 passive cable assemblies are high performance, cost effective I/O solutions for 200G Ethernet. QSFP56 copper cables allow hardware manufactures to achieve high port density, configurability and utilization at a very low cast and reduced power budget..

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	*TS*	-40		85	℃
Operating Case Temperature	*TOP*	0		70	℃
Supply Voltage	*VCC3*	3.135		3.465	V
Relative Humidity (non-condensation)	*RH*	5		85	%

Recommended Operating Conditions and Power Supply Requirements

Parameter	Symbol	Min.	Typ.	Max.	Units
Operating Case Temperature	*TOP*	0		70	℃
Power Supply Voltage	*VCC*	3.135	3.3	3.465	V
Power Consumption				0.01	W
Power Supply Current	Icc_3	0.001			mA

Frequency Domain

Item	Test Parameter	IEEE802.3cd Specification
1	Differential Insertion Loss (SDD21)	Maximum insertion loss at 13.28Ghz -17.16dB Minimum insertion loss at 13.28Ghz -8dB
2	Differential Return Loss (SDD22)	-16.5+2xSQRT(f) @ 0.01 to 4.1GHz -10.66+14xLog10(f/5.5) @4.1 to 19GHz
3	Differential Return Loss (SDD11)	-16.5+2xSQRT(f) @ 0.01 to 4.1GHz -10.66+14xLog10(f/5.5) @4.1 to 19GHz
4	Common Mode Reflection (SCC22)	-2dB @ 0.01 to 19GHz
5	Common Mode Reflection (SCC11)	-2dB @ 0.01 to 19GHz
6	Common Mode Conversion (SCD22)	-22+(20/25.78)*(f) @ 0.01 to 12.89GHz -15+(6/25.78)*(f) @ 12.9 to 19GHz
7	Common Mode Conversion (SCD11)	-22+(20/25.78)*(f) @ 0.01 to 12.89GHz -15+(6/25.78)*(f) @ 12.9 to 19GHz
8	Differential to Common Mode Conversion Loss (SCD12)	-10dB @ 0.01 to 12.89GHz -27+(29/22)*(f) @ 12.9 to 15.7GHz -6.3dB @ 15.71 to 19GHz
9	Differential to Common Mode Conversion Loss (SCD21)	-10dB @ 0.01 to 12.89GHz -27+(29/22)*(f) @ 12.9 to 15.7GHz

		-6.3dB @ 15.71 to 19GHz
10	Channel Operating Margin (COM)	3 dB Minimum.

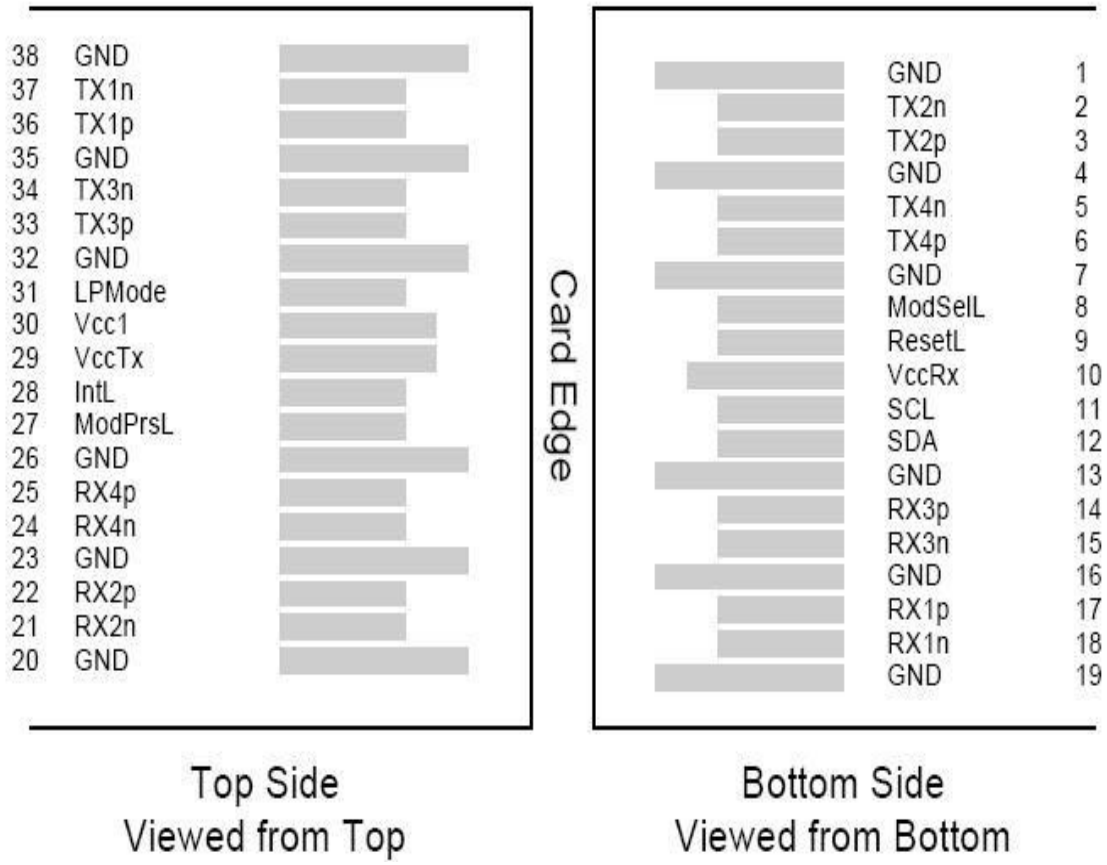
Time Domain

Item	*Test Parameter*	*IEEE802.3cd Specification*
1	Intra-Skew* 1M 1.5M~2M 2.5M~3M	 20ps Max 25ps Max 30ps Max
2	Impedance Rise time: 35ps (20%~80%)	100 +/- 10 Ohm
3	Insertion Loss* (SDD21)for 1M 30awg	13.28GHz : -12.5 dB Max
4	Insertion Loss* (SDD21) for 1.5M 30awg	13.28GHz : -14.5 dB Max
5	Insertion Loss* (SDD21) for 2M 30awg	13.28GHz : -16.5 dB Max
6	Insertion Loss* (SDD21) for 2.5M 28awg	13.28GHz : -16.0 dB Max
7	Insertion Loss* (SDD21) for 3M 26awg	13.28GHz : -16.8 dB Max

Note:

The item 1and 3, Different diameter and length requirements, Different specification

Pin Assignment



Pin Descriptions

PIN	Logic	Symbol	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	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	+ 3.3V Power Supply Receiver	2
11	LVCMOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVCMOS-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

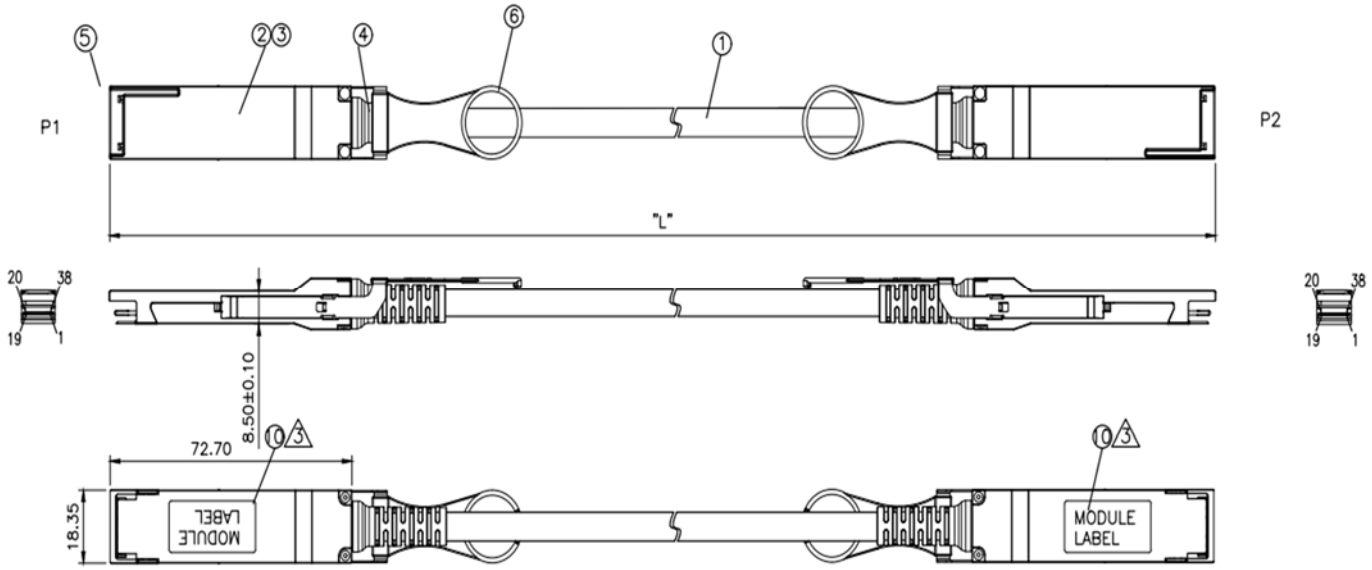
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	1

Notes:

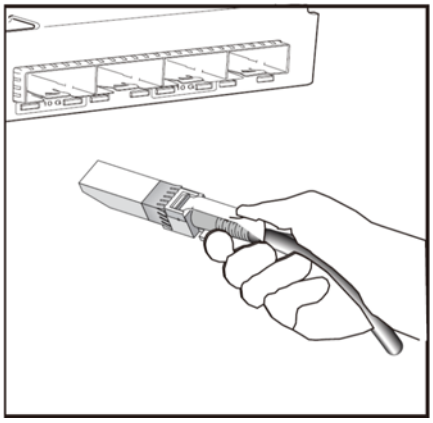
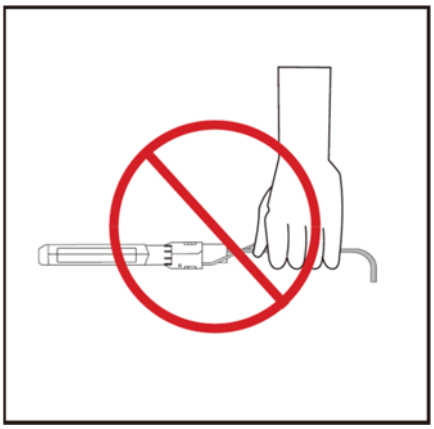
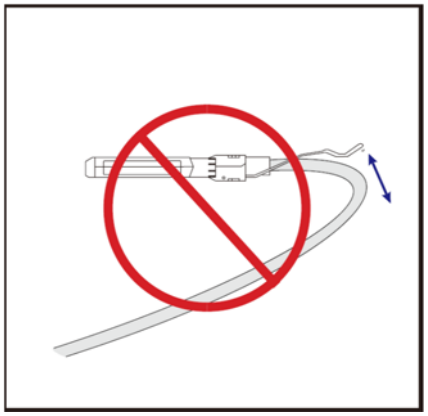
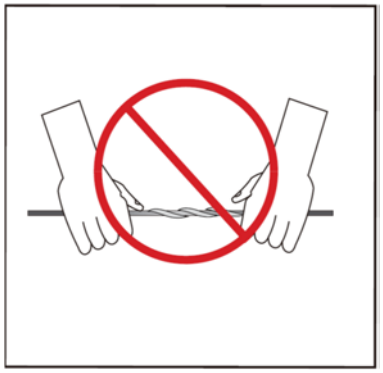
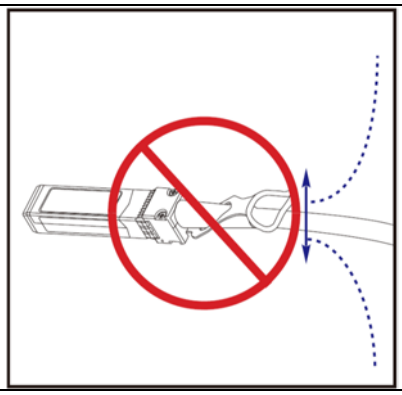
1. GND is the symbol for signal and supply (power) common for QSFP modules. All are common within the QSFP module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal common ground plane.

2. VccRx, Vcc1 and VccTx are the receiving and transmission power suppliers and shall be applied concurrently. Recommended host board power supply filtering is shown below. VccRx, Vcc1 and VccTx may be internally connected within the QSFP transceiver module in any combination. The connector pins are each rated for a maximum current of
500mA.

Dimensions



Important Notice

		
Holding the QSFP connector by its sides, insert the connector into the port on the switch	Do not handle by cable	DO NOT Over-bend the cable behind the connector
		
DO NOT twist the cable	DO NOT kink the cable	DO NOT bend up and down the cable

Ordering Information

Model Number	Part Number	AWG	Length
200G QSFP56 DAC-1M	OPQS56-T-01-PEV	30	1M
200G QSFP56 DAC-2M	OPQS56-T-02-PEV	30	2M
200G QSFP56 DAC-2.5M	OPQS56-T-B5-PCV	28	2.5M
200G QSF56 DAC-3M	OPQS56-T-03-PBV	26	3M

Modification History

Revision	Date	Description
A1	Jan. 2022	Initial Release

Note: All information contained in this document is subject to change without notice.