

## LQD-AOC12200-5M

### QSFP56 to 2xQSFP56 Active Optical Cable

#### Features

- Active optical cable with breakout from QSFP56 200G to two QSFP56 100G
- Up to 53.125Gbps data rate per channel PAM4 modulation
- Integrated 850nm VCSEL array and PD array
- DDM function implemented
- Hot-pluggable
- Low power dissipation: : <4W on 200G end, <3W on 100G end
- Commercial operating case temperature range: 0°C to 70 °C
- Compliant with ROHS2.0

#### Applications

- Data centers and Cloud Network
- 200G InfiniBand HDR systems

#### Standards

- IEEE 802.3cd
- InfiniBand 4xHDR
- SFF 8679
- CMIS4.0 or SFF8636



## Absolute Maximum Ratings

Product	Electrical mode	Protocol	Nominal Rate			Specifications		Link
			Aggregate (Gbps)	Electrical Lanes(Gbaud)	ppm	High Speed Electrical	Pre-FEC Max BER	
200G end	4X50	IEEE802.3cd	212.5	26.5625 PAM4	±100	200GAUI-4	1E-6 for InfiniBand HDR; 2.4E-4 for 200GBASE-SR4	0.5~100m
Per 100G end	2X50	IEEE802.3cd	106.25	26.5625 PAM4	±100	200GAUI-4		

Parameter	Symbol	Unit	Min	Max
Case Operating Temperature	Top	°C	0	70
Storage Temperature Range	Ts	°C	-40	85
Relative Humidity	RH	%	0	85
Power Supply Voltage	Vcc	V	-0.5	3.6

## Recommended Operating Conditions

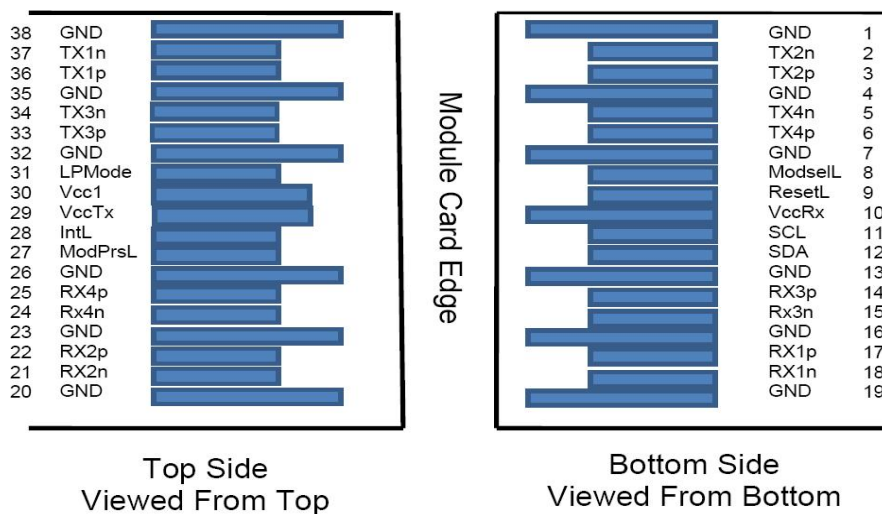
Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature Range	Tca	°C	0	/	70
Power Supply Voltage	Vcc	V	3.135	3.3	3.465

## Electric Ports Definition

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Supply Voltage	VCC	V	3.135	3.3	3.465	
Power Consumption	PC	W			4	200G end
					3	100G end
<b>Transmitter</b>						
Input Differential Impedance	$R_{IN}$	$\Omega$	80	100	120	
Single Ended Data Input Swing	$V_{IN}$	mVp-p	90		500	
Transmit Disable Voltage	$V_{DIS}$	V	2		$V_{CCHOST}$	
Transmit Enable Voltage	$V_{EN}$	V	$V_{EE}$		$VEE+0.8$	
Transmit Fault Assert Voltage	$V_{FA}$	V	2		$V_{CCHOST}$	
Transmit Fault De-Assert Voltage	$V_{FDA}$	V	$V_{EE}$		$V_{EE}+0.8$	
<b>Receiver</b>						
Single Ended Data Output Swing	$V_{OD}$	mVp-p	200		500	
LOS Fault	$V_{LOSFT}$	V	2		$V_{CCHOST}$	
LOS Normal	$V_{LOSNR}$	V	$V_{EE}$		$V_{EE}+0.8$	
Differential termination mismatch		%			10	
<b>IIC communication</b>						
IIC Clock frequency	-	KHZ	/	100	400	
clock stretching	-	us	/	/	500	

## Pin Description

The electrical interface to the transceiver is a 38 pins edge connector. The 38 pins provide high speed data, low speed monitoring and control signals, I2C communication, power and ground connectivity. The top and bottom views of the connector are provided below, as well as a table outlining the contact numbering, symbol and full description.



Pin	Symbol	Name/Description
1	GND	Ground
2	Tx2n	Channel 2 Transmitter Inverted Data Input
3	Tx2p	Channel 2 Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Channel 4 Transmitter Inverted Data Input
6	Tx4p	Channel 4 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	Channel 3 Receiver Non-Inverted Data Output
15	Rx3n	Channel 3 Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Channel 1 Receiver Non-Inverted Data Output
18	Rx1n	Channel 1 Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Channel 2 Receiver Inverted Data Output
22	Rx2p	Channel 2 Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Channel 4 Receiver Inverted Data Output
25	Rx4p	Channel 4 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	Channel 3 Transmitter Non-Inverted Data Input
34	Tx3n	Channel 3 Transmitter Inverted Data Input
35	GND	Ground

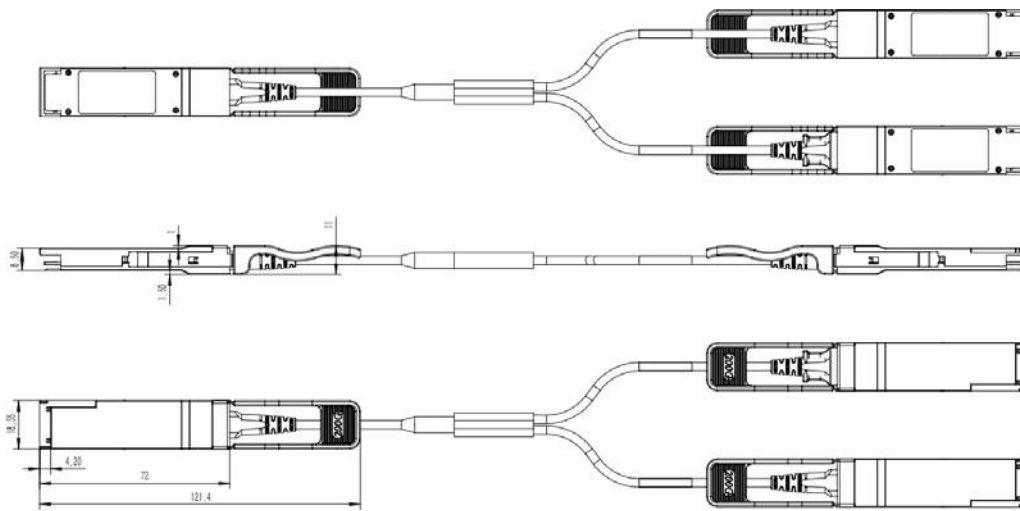
36	Tx1p	Channel 1 Transmitter Non-Inverted Data Input
37	Tx1n	Channel 1 Transmitter Inverted Data Input
38	GND	Ground

### Module Memory Map

Compatible with CMIS rev 4.0/ SFF8636

### Package Outline

The mechanical specifications are based on QSFP56 transceiver module specification, substituting the optical connectors with a cable connecting three ends.



### Cable Breakout point

Total Length (m)	Breakout * 2*100G (m)
1	0.5
2	0.5
3	1
5	2
7	3
X (X≥10)	3

**Standard Cable lengths for each PN**

<b>Part Number</b>	<b>Description</b>
LQ-AOC12200-1M	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 1M
LQ-AOC12200-3M	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 3M
LQ-AOC12200-5M	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 5M
LQ-AOC12200-7M	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 7M
LQ-AOC12200-10	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 10M
LQ-AOC12200-15	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 15M
LQ-AOC12200-20	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 20M
LQ-AOC12200-30	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 30M
LQ-AOC12200-40	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 40M
LQ-AOC12200-50	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 50M
LQ-AOC12200-xx	200G QSFP56 SR4 AOC FanOut To 2*100G QSFP56 SR2 xxM