

# LQP200-AOC-xxx

## 200G QSFP56 For InfiniBand HDR

### PRODUCT FEATURES

- Supports IBTA InfiniBand HDR
- Up to 200Gb/s data rate
- 4x 50Gb/s PAM4 modulation
- SFF-8665 compliant QSFP56 port
- SFF-8636 compliant I2C management
- Single 3.3V power supply
- 4.5W power dissipation each end, with retiming
- Operating case temp Commercial: 0°C to +70 °C
- Hot pluggable
- RoHS compliant

### APPLICATIONS

- 200Gb/s InfiniBand HDR systems
- Other optical links

### Ordering information

Part No. <sup>note1</sup>	Bit Rate	Laser	Distance <sup>note1</sup>	Fiber Type	DDMI	Connector	Temp <sup>note2</sup>
LQP200-AOC-xxx	4x50Gbps	850nm	1~100m	MMF	YES	N/A	0 ~ +70°C

Note1: on OM3/OM4Fiber, max Length 100m.

Note2: Case Temperature.

## I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V <sub>CC3</sub>	-0.5	-	+3.6	V	
Storage Temperature	T <sub>s</sub>	-5	-	+75	°C	
Operating Humidity	RH	+5	-	+85	%	1

Note1: No condensation.

## II. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T <sub>c</sub>	0	-	+70	°C	
Power Supply Voltage	V <sub>CC</sub>	3.14	3.3	3.47	V	
Power Dissipation	P <sub>d</sub>	-	-	4.5	W	1

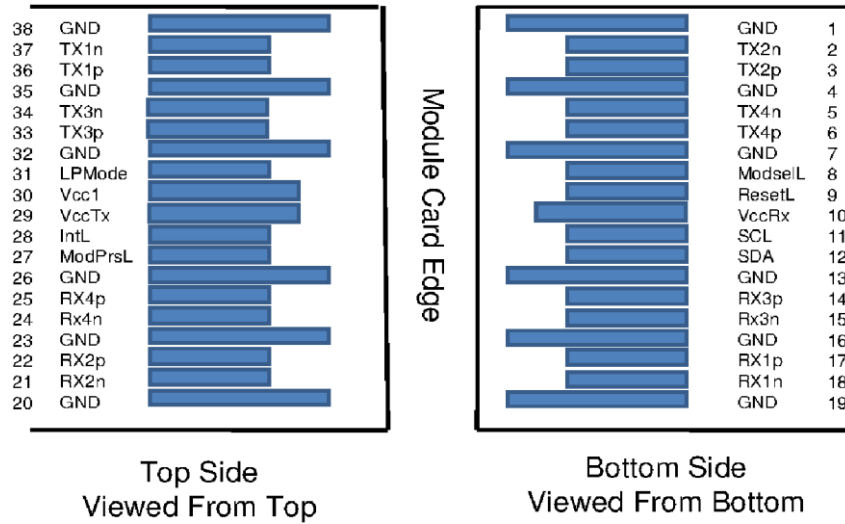
Note1: Per terminal.

## III. Electrical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Notes
<b>Transmitter</b>						
Signaling rate (each lane)	SR	GBd	26.5625 ± 100 ppm			
Differential data input voltage per lane	V <sub>inp-p</sub>	mV	900	-	-	
Differential termination mismatch	-	%	-	-	10	
Single-ended voltage tolerance range	-	V	-0.4	-	3.3	
DC common mode voltage	-	mV	-350	-	2850	
<b>Receiver</b>						
Signaling rate (each lane)	SR	GBd	26.5625 ± 100 ppm			
Differential output voltage	-	mV	-	-	900	
Differential termination mismatch	-	%	-	-	10	
Transition time (min, 20% to 80%)	-	ps	9.5	-	-	
DC common mode voltage	-	mV	-350	-	2850	
Error Bit Rate	BER	-	-	-	2.4E-4	Note1

Note1: PRBS31Q@26.5625Gbd PAM4

## IV. Pin Arrangement



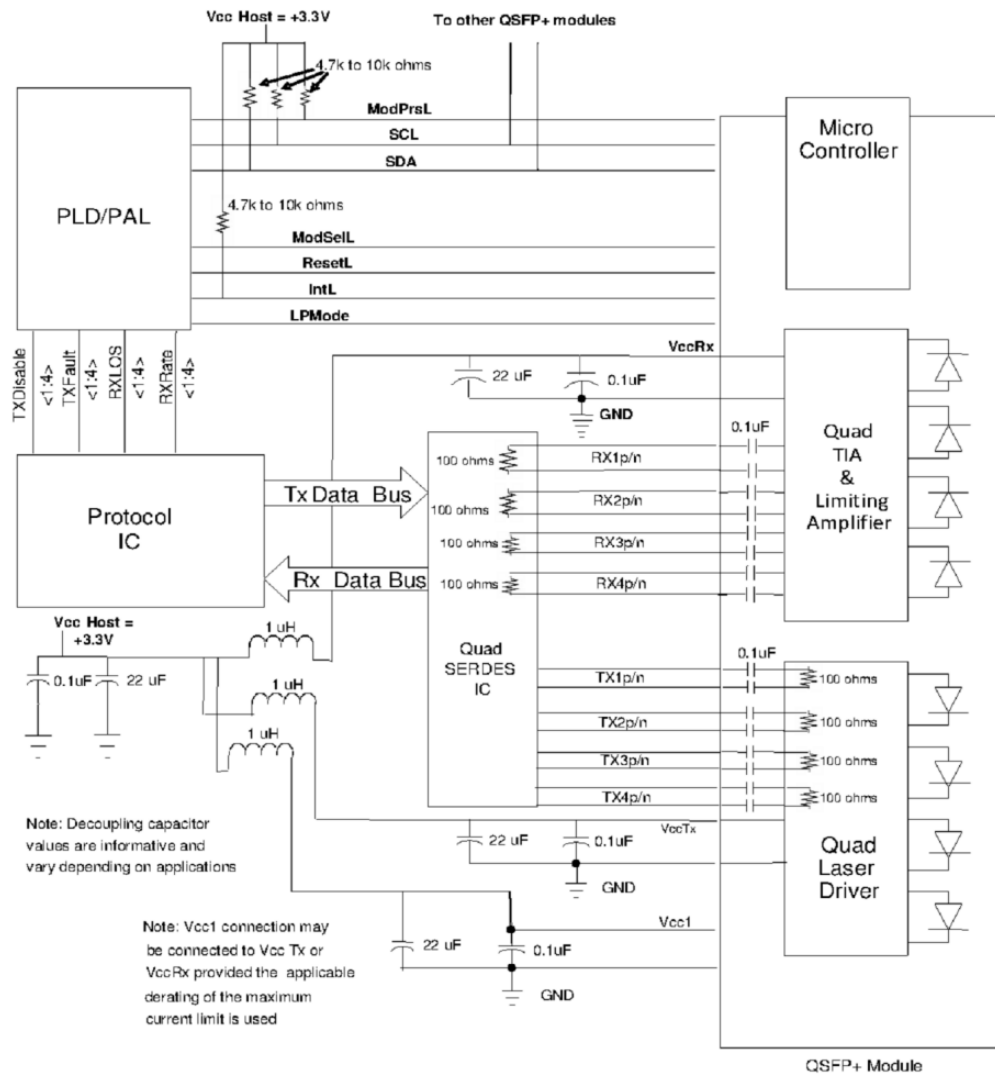
## V. Pin Function Definitions

Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	

26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power supply	
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

Note: 1. Circuit ground is internally isolated from chassis ground.

## VI. Recommended Interface Circuit

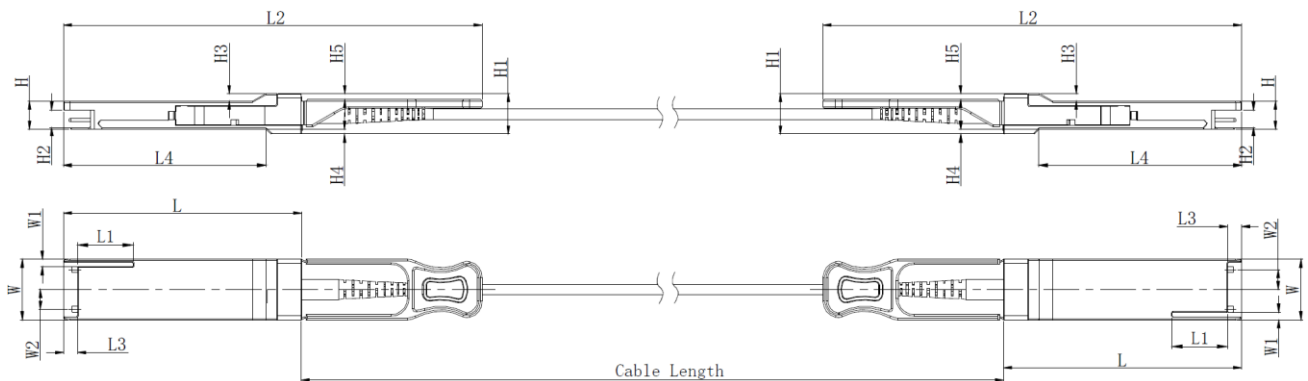


## VII. Monitoring Specification

2-Wire Serial Address 1010000x	
Lower Page 00h	
0	Identifier
1- 2	Status
3- 21	Interrupt Flags
22- 33	Free Side Device Monitors
34- 81	Channel Monitors
82- 85	Reserved
86- 98	Control
99	Reserved
100-104	Hardware Interrupt Pin Masks
105-106	Vendor Specific
107	Reserved
108-110	Free Side Device Properties
111-112	Assigned for use by PCI Express
113	Free Side Device Properties
114-118	Reserved
119-122	Password Change Entry Area (Optional)
123-126	Password Entry Area (Optional)
127	Page Select Byte

Upper Page 00h	Optional Page 01h	Optional Page 02h	Optional Page 03h
128 Identifier	128 CC_APPS	128-255 User EEPROM Data	128-175 Free Side Device Thresholds
129-191 Base ID Fields	129 AST Table Length (TL) 130-131 Application Code Entry 0 132-133 Application Code Entry 1 134-253 other entries		
192-223 Extended ID			176-223 Channel Thresholds
224-255 Vendor Specific ID			224 Tx EQ & Rx Emphasis Magnitude ID
			225 RX output amplitude indicators
			226-241 Channel Controls
			242-251 Channel Monitor Masks
	254-255 Application Code Entry TL		252-255 Reserved

## VIII. Mechanical Drawing



	L	L1	L2	L3	L4	W	W1	W2	H	H1	H2	H3	H4	H5
Max	72.2	-	128	4.35	61.4	18.45	-	6.2	8.6	12.4	5.35	2.5	1.6	2.0
Type	72.0	-	-	4.20	61.2	18.35	-	-	8.5	12.2	5.2	2.3	1.5	1.8
Min	68.8	16.5	124	4.05	61.0	18.25	2.2	5.8	8.4	12.0	5.05	2.1	1.3	1.6

Parameter	Value	Units
Diameter	3±0.2	mm
Minimum bend radius	30	mm
Length tolerance	1 m ≤ length ≤ 4.5 m: +15 / -0	cm
	5 m ≤ length ≤ 14.5 m: +30 / -0	cm
	Length ≥ 15.0 m: +2% / -0	m
Cable color	Aqua	

#### Cable Length

## Revision History

Version No.	Date	Description
1.0	June 24, 2020	Preliminary datasheet