

100G EDR QSFP28 Active Optical Cable Transceiver

AOC-Q4Q4-xxx

Features

- Support 100GBASE-SR4/EDR application
- Compliant to QSFP28 Electrical MSA SFF-8636
- Multi rate of up to 25.78125Gbps
- +3.3V single power supply
- Low power consumption
- UL certification cables (optional)
- Operating case temp
Commercial: 0°C to +70°C
- RoHS 6/6 compliant



Applications

- 100GBASE-SR4 at 25.78125Gbps per lane
- InfiniBand QDR, EDR
- Other optical links

Absolute Maximum Ratings

Table1- Absolute Maximum Ratings

Form Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	Vcc3	-0.5		+3.6	V	
Storage Temperature	Ts	-10		+70	°C	
Operating Humidity	RH	+5		+85	%	1

Note: 1 No condensation

Recommended Operating Conditions

Table 2- Recommended operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	Tc	0	-	+70	°C	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Dissipation	Pd	-	-	2.5	W	
Bit Rate	BR	10.3125	25.78125	-	Gbps	

Note: 1 Per terminal

Electrical Characteristics

Table 3- Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Units	Notes
ModSelL	Module Select	VOL	0	-	0.8	V	
	Module Unselect	VOH	2.5	-	Vcc	V	
Low Power	Mode LPMode	VIL	0	-	0.8	V	
	Normal Operation	VIH	2.5	-	Vcc+0.3	V	
ResetL	Reset	VIL	0	-	0.8	V	
	Normal Operation	VIH	2.5	-	Vcc+0.3	V	
ModPrsL	Normal Operation	VOL	0	-	0.4	V	
IntL	Interrupt	VOL	0	-	0.4	V	
	Normal Operation	VOH	2.4	-	Vcc	V	
Electrical transmitter Characteristics							
Differential Data Input Swing		Vout	200	-	1600	mV	
Input Differential Impedance		ZD	90	100	110	Ω	
Electrical Receiver Characteristics							
Differential Date Output Swing		Vin,p-p	200	-	800	mVpp	
Output Differential Impedance		BER			E-12		1
Input Differential Impedance		ZIN	90	100	110	Ω	

 Note: 1 PRBS2³¹-1@25.78125Gbps

Recommended Interface Circuit

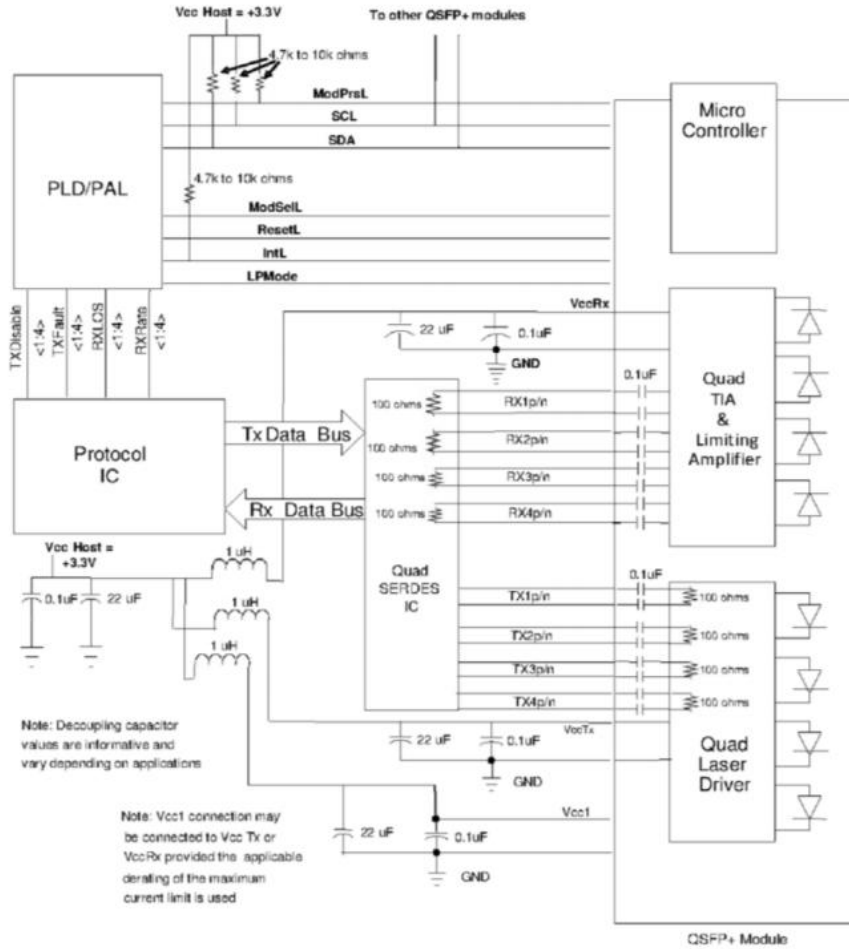


Figure 1, Recommended Interface Circuit

Pin arrangement

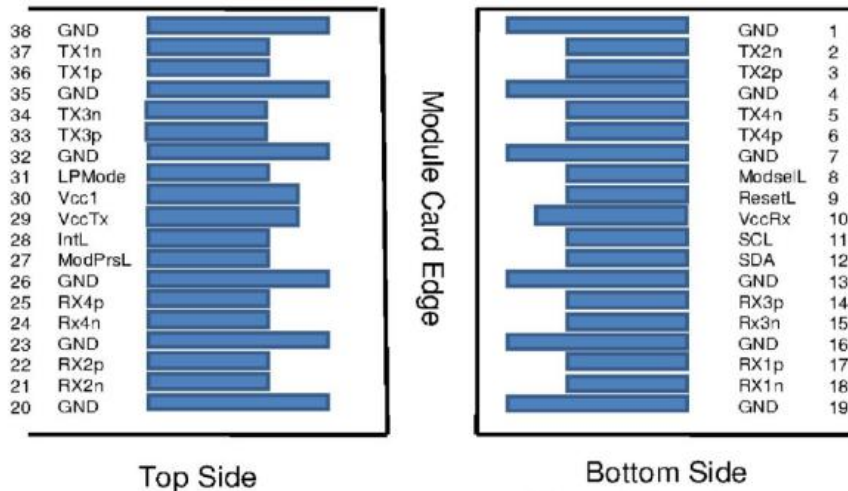


Figure 2, Pin View

Table 4-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
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Note: 1. Circuit ground is internally isolated from chassis ground.

Monitoring Specification

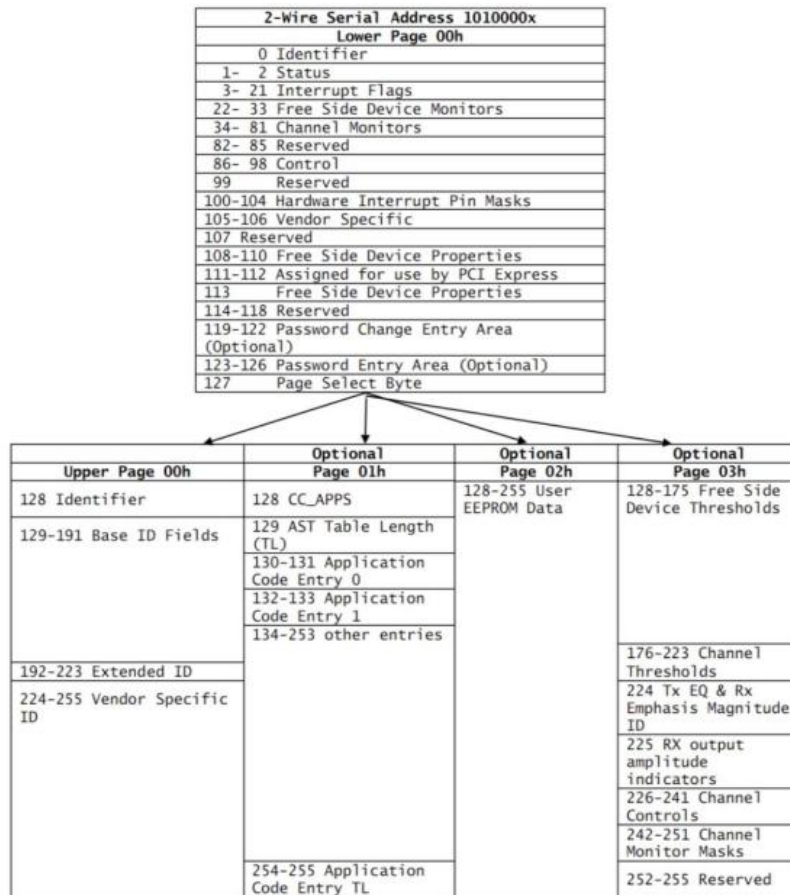
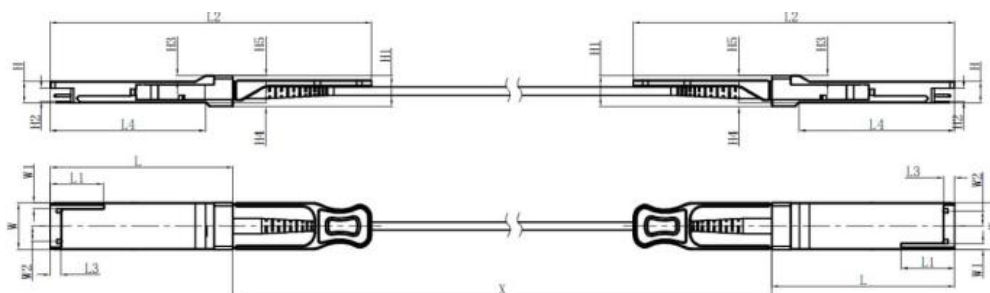


Figure 3, Memory Map

Mechanical



Unit mm

	L	L1	L2	L3	L4	W	W1	W2	H	H1	H2	H3	H4	H5	H6
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	6.55
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	-

Figure 4, Mechanical Diagram

Table 5- Cable Length

Cable Length (Unit: m)	Tolerant (Unit: cm)
< 1.0	+5/-0
1.0~4.5	+15/-0
5.0~14.5	+30/-0
≥ 15.0	+2%/-0

Warnings

Handling Precautions : This device is susceptible to damage as a result of electrostatic discharge (ESD).

A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Ordering Information

Part No.	Bit Rate (Gbps)	Laser (nm)	Distance	Fiber Type	Connector	Temp
AOC-Q4Q4-xxx	103.125	850	0.5~150m	MMF	N/A	0°C~+70°C

Note: 1 Case Temperature

Revision History

Revision	Initiated	Approved	content	Revision History	Release Date
V1.0	Jacky	Nicky.Wen	Released	The latest version	May/2017
V1.1	HT.huang	Nicky.Wen	Released	Update format	Apr/2018
V1.2	HT.huang	Nicky.Wen	Released	updated version	Oct/2018
V1.3	HT.Huang	Nicky.Wen	Released	Version update encryption	Jan/2019

Further Information