AOC-QPQ2-XXM

100Gb/s QSFP28 TO 2*50G Active Optical Cable

Features

- Support 100GbE to 2x50GbE application
- Compliant to QSFP28 Electrical MSA SFF-8636
- SFF-8665 compliant QSFP28 port
- Multi rate of up to 25.78125Gbps
- +3.3V single power supply
- Low power consumption
- Operating case temp commercial: 0°C to +70 °C
- RoHS 6/6 compliant

Applications

- 100GbE to 2x50GbE at 25.78125Gbps per lane
- Other optical links

Absolute Maximum Ratings

Table2- Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	Vcc_3	-0.5	-	+3.6	V	
Storage Temperature	T_s	-10	-	+85	°C	
Operating Humidity	RH	+5	-	+85	%	1

Note: 1 No condensation

Recommended Operating Conditions

Table 3- Recommended operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T_C	0	-	+70	°C	
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power dissipation	Pd_{100G}	-	2.3	2.5	W	1

(100GbE retiming on all lanes)						
Power dissipation (50GbE retiming on all lanes)	Pd_{50G}	-	1.5	1.7	W	1
Supply noise tolerance (10 Hz – 10 MHz)	N	66	-	-	mVpp	
Bit Rate	BR	-	25.78125	-	Gbps	

Note: 1 Per terminal

Electrical Characteristics

Table 4- Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Power Dissipation	Pd	-	-	1.5	W	1
Transmit turn-on time	T_{ON}	2000	-	-	ms	
Input Logic Level High	V_{IH}	2.5	-	V_{CC}+0.3	V	
Input Logic Level Low	V_{IL}	0	-	0.8	V	
Output Logic Level High	V_{OH}	2.4	-	V_{CC}	V	
Output Logic Level Low	V_{OL}	0	-	0.4	V	
Electrical transmitter Characteristics						
Differential Date Input Swing	V_{out}	200	-	1600	mV	
Output Differential Impedance	Z_D	90	100	110	Ω	
Average Launch power Tx_off	P_{OFF}	dBm	-	-	-30	
Electrical Receiver Characteristics						
Differential Data Output Swing	$V_{in,P-P}$	200	-	800	mV_{PP}	
Bit Error Rate	BER			E-12		1
Input Differential Impedance	Z_{IN}	90	100	110	Ω	

Note: 1 PRBS2^31-1@25.78125Gbps

Recommended Circuit

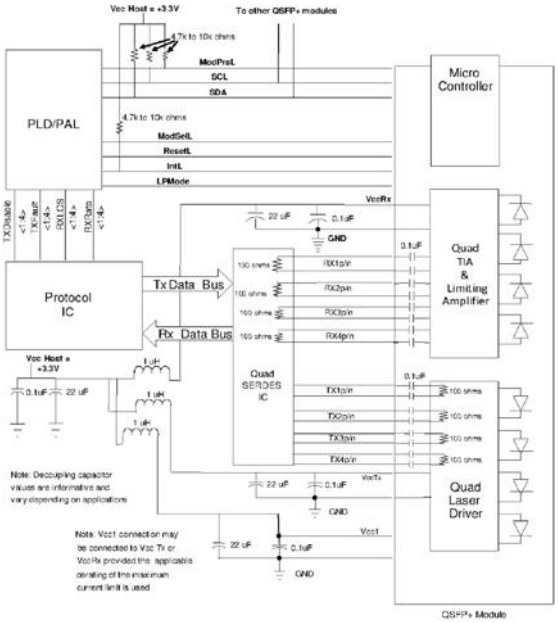


Figure 1, Recommended Interface Circuit

Pin arrangement

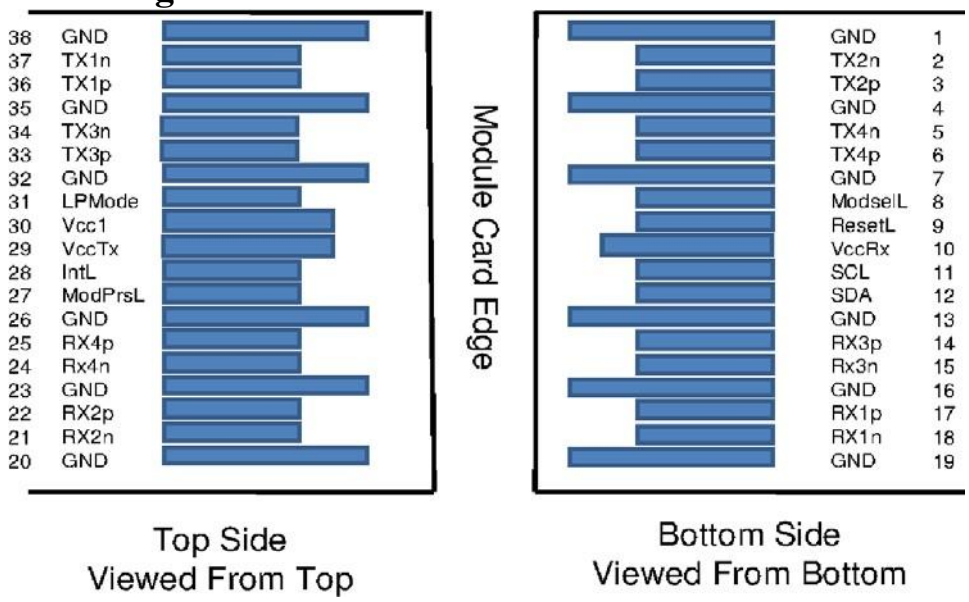


Table 5-Pin Function Definitions

Figure 2, Pin View

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	

Pin	Symbol	Name/Description	Notes
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.

Monitoring Specification

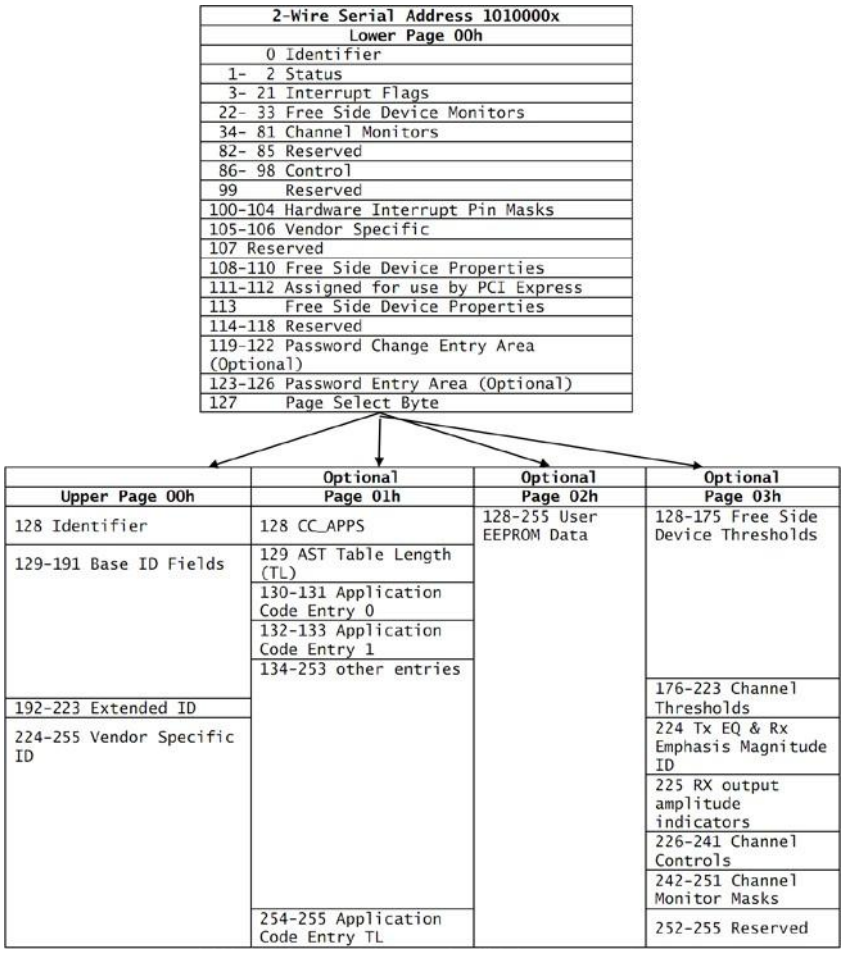
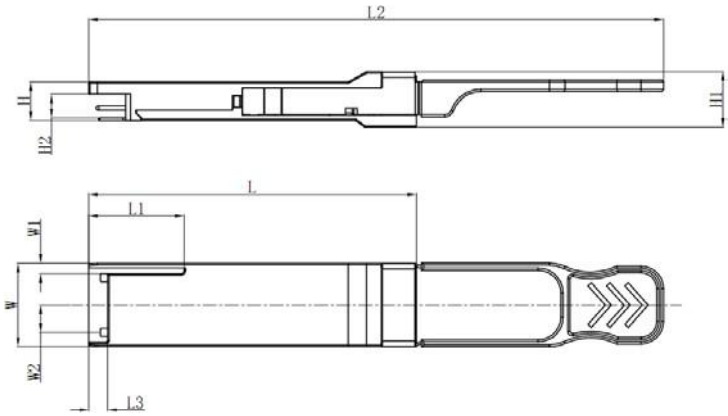


Figure 3, Memory Map

Mechanical



Unit mm

	L	L1	L2	L3	W	W1	W2	H	H1	H2
Max	72.2	-	128	4.35	18.45	-	6.2	8.6	12.0	5.35
Type	72.0	-	-	4.20	18.35	-	-	8.5	11.8	5.2
Min	68.8	16.5	124	4.05	18.25	2.2	5.8	8.4	11.6	5.05

Figure 4, Mechanical Diagram of Per Terminal

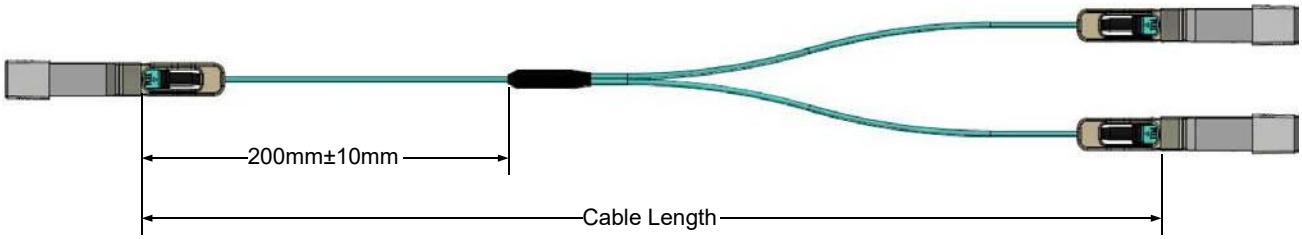


Figure 5, Mechanical Diagram of Cable

Table 6- 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

Table 7: Connectivity Schematic

100Gb/s Side	50Gb/s Side
	Port 1
TX1	RX1
RX1	TX1
TX2	RX2
RX2	TX2
	Port 2
TX3	RX1
RX3	TX1
TX4	RX2
RX4	TX2

Revision history

Version	Initiated	Reviewed	Revision	Release Date
A0	Ling	Zhang	New Release	2018-9-1