

200Gb/s QSFP56 Active Optical Cable

Features

- 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 re-timing
- Operating case temp Commercial: 0°C to +70 °C
- Hot pluggable
- RoHS compliant

Applications

- Other optical links

Absolute Maximum Ratings

Table1-Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	V _{CC3}	-0.5	-	+3.6	V	
Storage Temperature	T _S	-5	-	+70	°C	
Operating Humidity	RH	+5	-	+85	%	1

Note:

[1] No condensation

Recommended Operating Conditions

Table2-Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Operating Case Temperature	T _C	0	-	+70	°C	
Power Supply Voltage	V _{CC}	3.14	3.3	3.47	V	
Power Dissipation	P _d	-	-	4.5	W	1

Note:

[1] Per terminal

Characteristics

Table3-Electrical Characteristics

Parameter	Symbol	Unit	Min.	Typical	Max.	Note
Transmitter						
Signaling rate (each lane)	SR	GBd	26.5625 ± 100 ppm			
Differential data input voltage per lane	V _{in,pp,diff}	mV	900	-	-	
Differential termination mismatched	-	%	-	-	10	
Single-ended voltage tolerance range	-	V	-0.4	-	3.3	
DC common mode voltage	-	mV	-350	10	2850	
Receiver						
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	
Bit Error Ratio	BER	-	-	-	2.4E-4	Note1

Note:

[1] PRBS31Q@26.5625Gbd PAM4

Recommended Interface

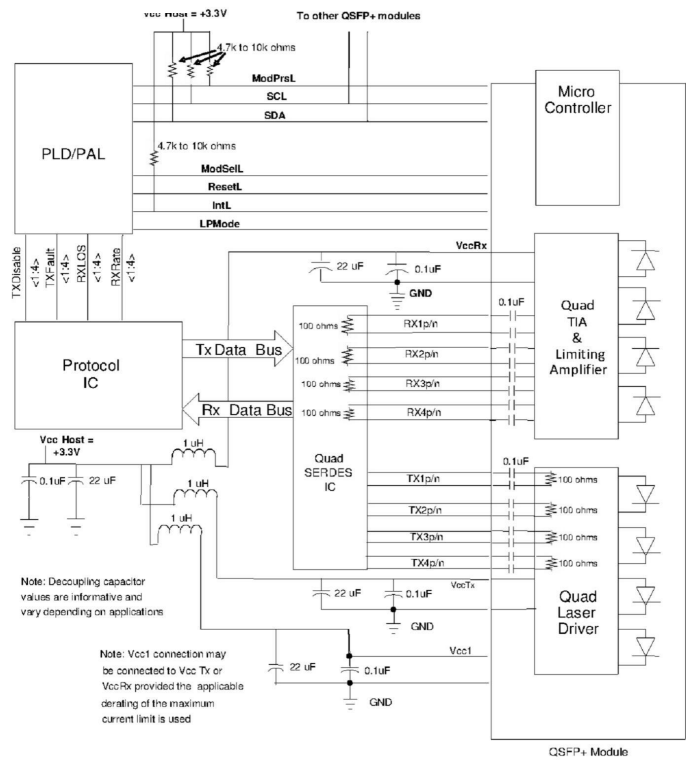


Figure 1 Recommended Interface Circuit

Pin arrangement

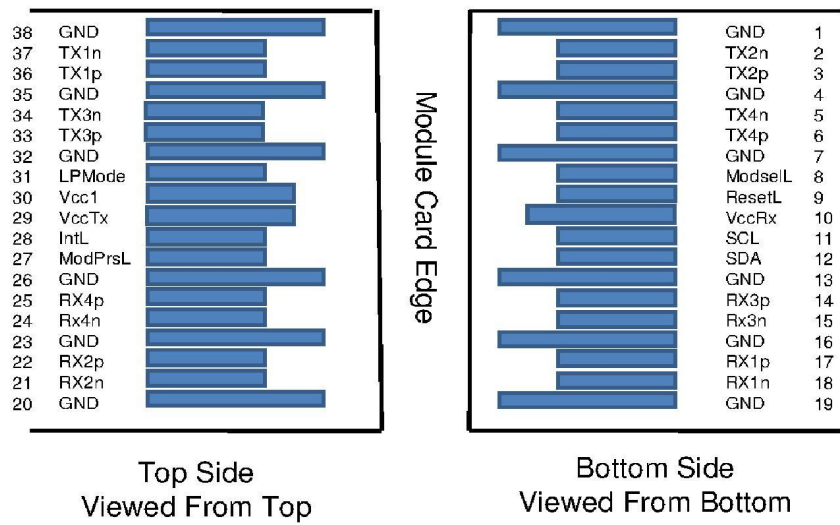


Figure 2 Pin View

Pin Descriptions

Table4- Pin Function Definition

Pin	Logic	Symbol	Description	Note
1	G	GND	Ground	1
2	S	Tx2n	Transmitter Inverted Data Input	
3	S	Tx2p	Transmitter Non-Inverted Data Input	
4	G	GND	Ground	1
5	S	Tx4n	Transmitter Inverted Data Input	
6	S	Tx4p	Transmitter Non-Inverted Data Input	
7	G	GND	Ground	1
8	IO	ModSelL	Module Select	
9	IO	ResetL	Module Reset	
10	Power	Vcc Rx	+3.3V Power Supply Receiver	
11	IO	SCL	2-wire serial interface clock	
12	IO	SDA	2-wire serial interface data	
13	G	GND	Ground	1
14	S	Rx3p	Receiver Non-Inverted Data Output	
15	S	Rx3n	Receiver Inverted Data Output	
16	G	GND	Ground	1
17	S	Rx1p	Receiver Non-Inverted Data Output	
18	S	Rx1n	Receiver Inverted Data Output	
19	G	GND	Ground	1
20	G	GND	Ground	1
21	S	Rx2n	Receiver Inverted Data Output	
22	S	Rx2p	Receiver Non-Inverted Data Output	
23	G	GND	Ground	1
24	S	Rx4n	Receiver Inverted Data Output	
25	S	Rx4p	Receiver Non-Inverted Data Output	
26	G	GND	Ground	
27	IO	ModPrsL	Module Present	
28	IO	IntL	Interrupt	
29	Power	Vcc Tx	+3.3V Power supply transmitter	
30	Power	Vcc1	+3.3V Power supply	
31	IO	LPMODE	Low Power Mode	
32	G	GND	Ground	1

33	S	Tx3p	Transmitter Non-Inverted Data Input	
34	S	Tx3n	Transmitter Inverted Data Input	
35	G	GND	Ground	1
36	S	Tx1p	Transmitter Non-Inverted Data Input	
37	S	Tx1n	Transmitter Inverted Data Input	
38	G	GND	Ground	1

Monitoring Specification

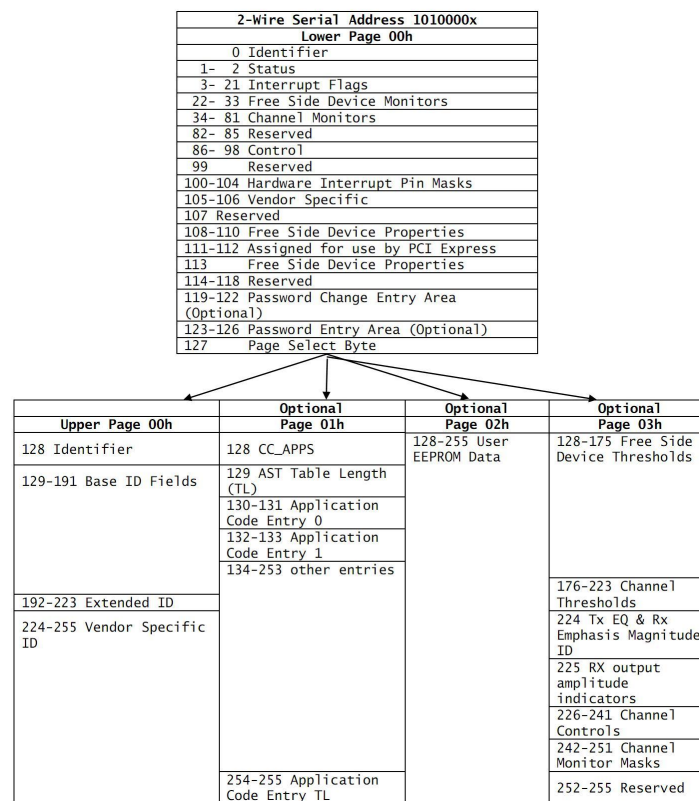


Figure 3 Monitoring Specification

Mechanical

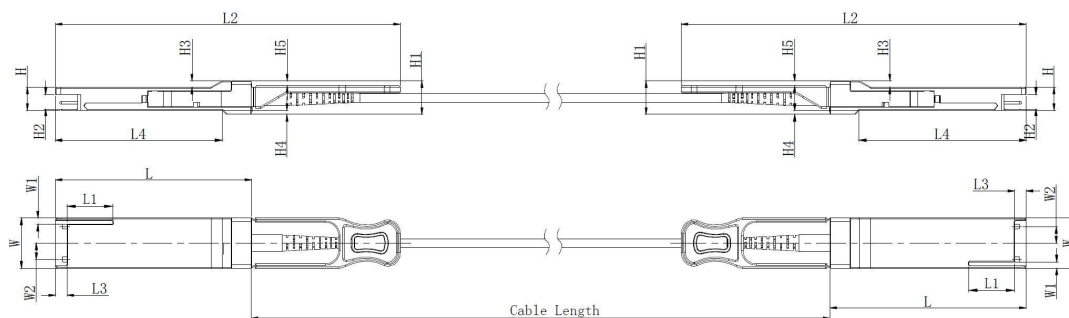


Figure 4 Mechanical Diagram

Unit mm

	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

Regulatory Compliance

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	

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.