

# 100G QSFP28 Active Optical Cable

## Features

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



## Applications

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

## Absolute Maximum Ratings

Table1- 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>	-20	-	+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	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>	-	-	2.5	W	1
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	$V_{OL}$	0	-	0.8	V
	Module Unselect	$V_{OH}$	2.5	-	$V_{CC}$	V
LPMode	Low Power Mode	$V_{IL}$	0	-	0.8	V
	Normal Operation	$V_{IH}$	2.5	-	$V_{CC}+0.3$	V
ResetL	Reset	$V_{IL}$	0	-	0.8	V
	Normal Operation	$V_{IH}$	2.5	-	$V_{CC}+0.3$	V
ModPrsL	Normal Operation	$V_{OL}$	0	-	0.4	V
IntL	Interrupt	$V_{OL}$	0	-	0.4	V
	Normal Operation	$V_{OH}$	2.4	-	$V_{CC}$	V
<b>Electrical transmitter Characteristics</b>						
Differential Data Input Swing	$V_{in, p-p}$	200	-	1600	mV	
Output Differential Impedance	$Z_{in}$	90	100	110	$\Omega$	
<b>Electrical Receiver Characteristics</b>						
Differential Data Output Swing	$V_{out}$	200	-	800	mV	
Bit Error Rate	BER	-	-	E-12	-	1
Input Differential Impedance	$Z_D$	90	100	110	$\Omega$	

Note: 1 PRBS2^31-1@25.78125Gbps

## Recommended Interface Circuit

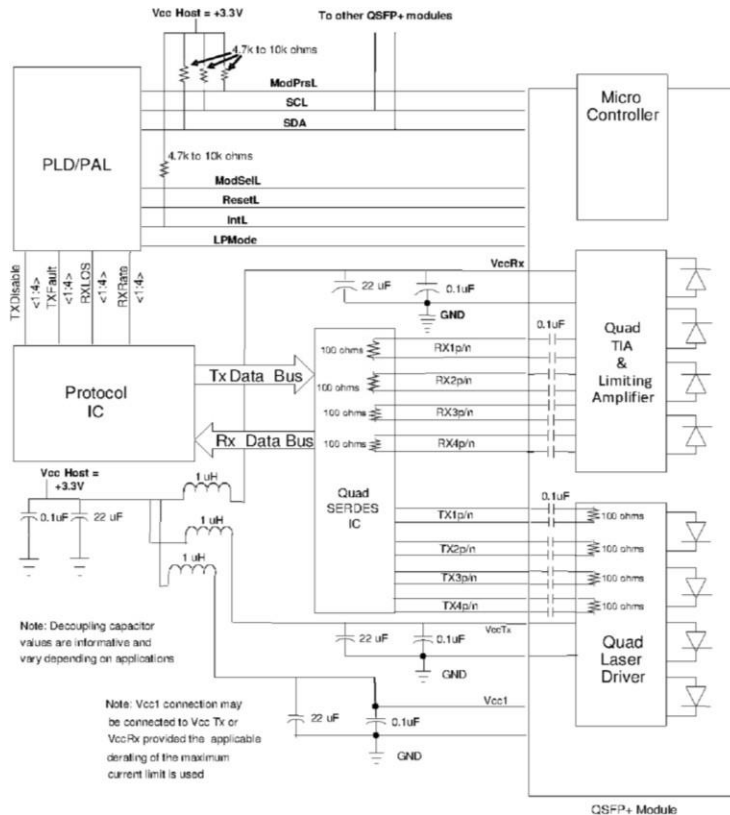


Figure 1, Recommended Interface Circuit

## Pin arrangement

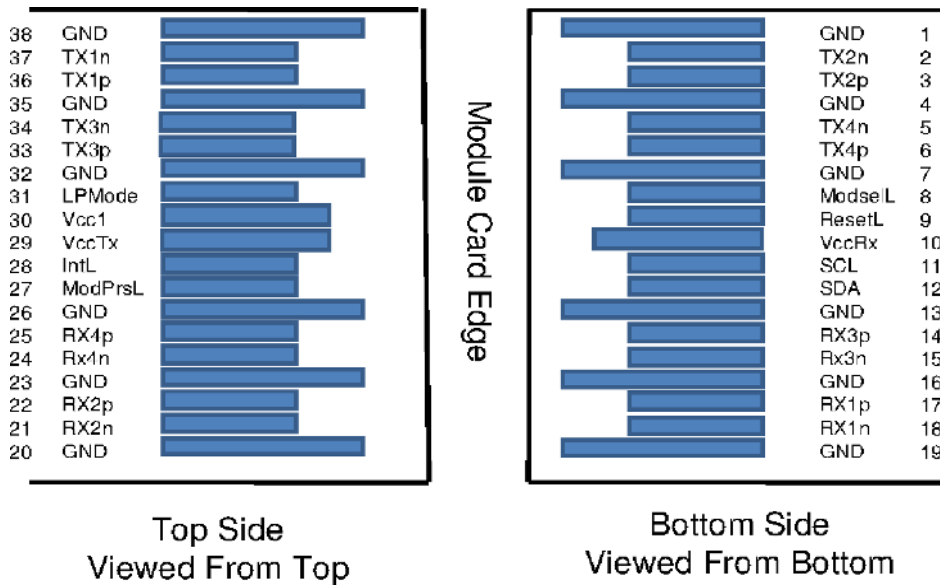


Figure 2, Pin View

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	

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

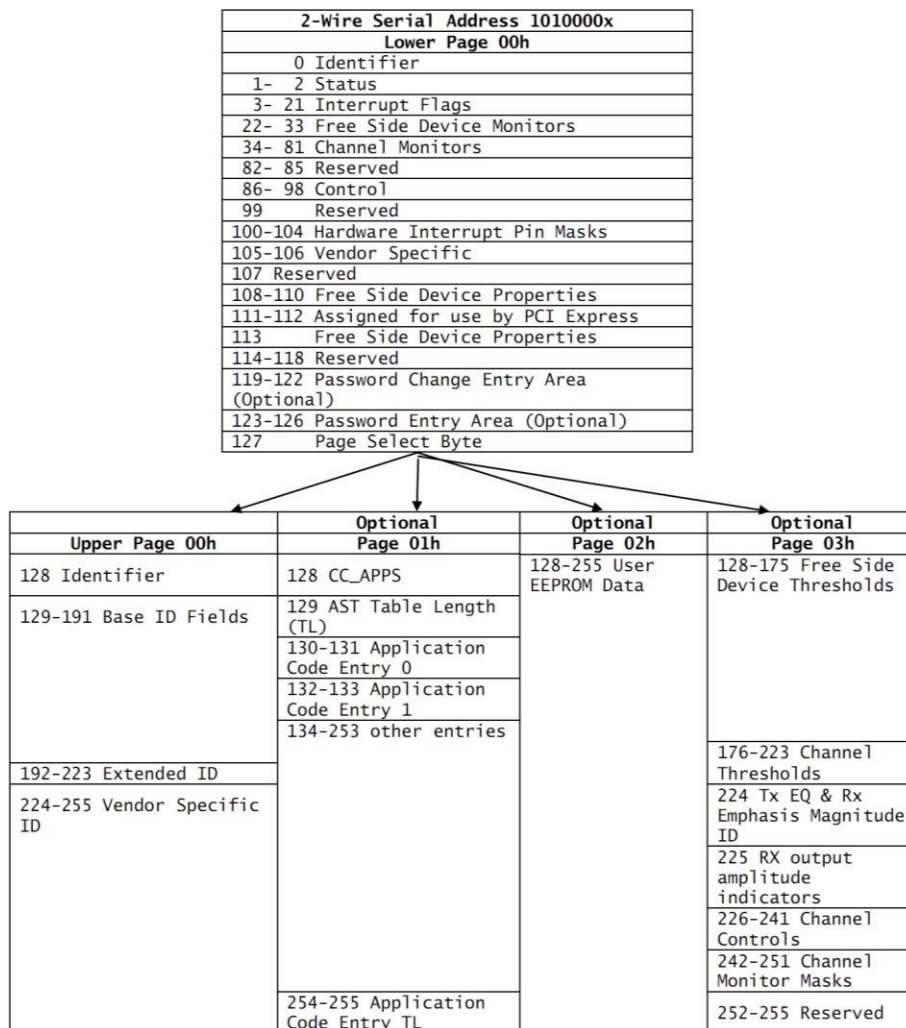


Figure 3, Memory Map

## Mechanical Design Diagram

Unit mm

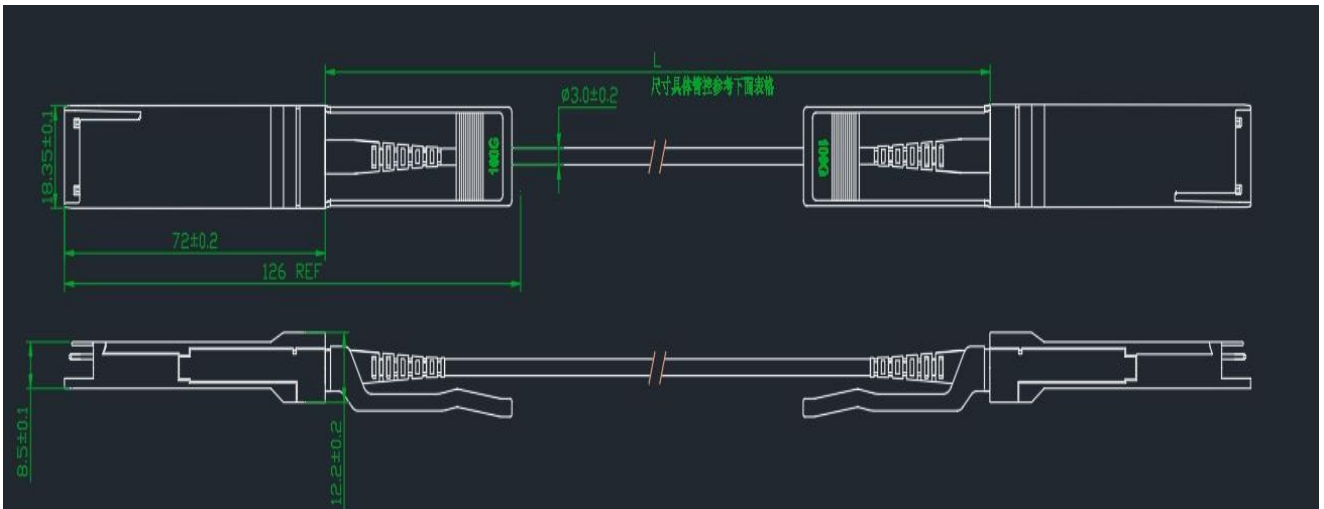


Figure 4, Mechanical Design Diagram

Table 5- Cable Length

Cable Length L (Unit: m)	Tolerant (Unit: cm)
$\leq 1.0$	+7/-0
$1.0 < L < 7.0$	+10/-0
$7 \leq L$	+2%L/-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.