

GNQX0ACXX

100Gb/s QSFP28 Active Optical Cable

Features :

- 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
- Support 100GBASE-SR4/EDR



Applications

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

General Description

The GearLink’s QSFP28 active optic cables are a high performance, low power consumption, long reach interconnect solution supporting 100G Ethernet ,or InfiniBand QDR/DDR/SDR, 12.5G/10G/8G/4G/2G fiber channel ,PCIe and SAS. It is compliant with the QSFP28 MSA and IEEE P802.3ba. GearLink’s QSFP28 AOC is an assembly of 4 full-duplex lanes, where each lane is capable of transmitting data at rates up to 25.78125Gb/s, providing an aggregated rate of 104Gb/s. GearLink’s QSFP28 AOC is one kind of parallel transceiver which provides increased port density and total system cost savings.

Absolute Maximum Ratings

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

Note: 1 No condensation

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	1
Bit Rate	BR	10.3125	25.78125	-	Gbps	

Note:

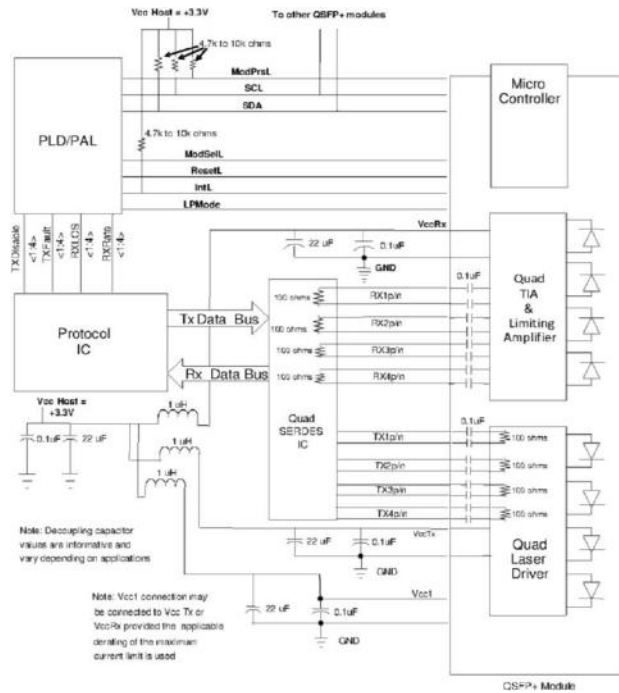
1. Per terminal

Electrical Characteristics

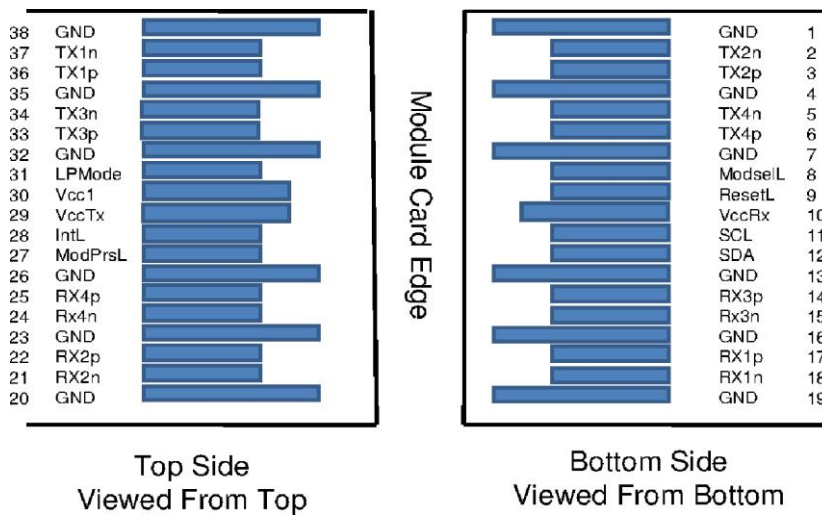
Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
ModSelL	Module Select	VOL	0	-	0.8	V
	Module Unselect	VOH	2.5	-	VCC	V
LPMode	Low Power Mode	VIL	0	-	0.8	V
	Normal Operation	VIH	2.5	-	VCC+0.3	V
ResetL	Reset	VIL	0	-	0.8	V
	Normal Operation	VIH	2.5	-	VCC+0.3	V
ModPrsL	Normal Operation	VOL	0	-	0.4	V
IntL	Interrupt	VOL	0	-	0.4	V
	Normal Operation	VoH	2.4	-	VCC	V
Electrical transmitter Characteristics						
Differential Data Input Swing	Vout	200	-	1600	mV	
Output Differential Impedance	ZD	80	100	120	Ω	
Electrical Receiver Characteristics						
Differential Data Output Swing	Vin,P-P	200	-	800	mVPP	
Bit Error Rate	BER			E-12		1
Input Differential Impedance	ZIN	80	100	120	Ω	

Note: 1 PRBS2^31-1@25.78125Gbps

Recommended Interface Circuit



Pin arrangement



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	LPMMode	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

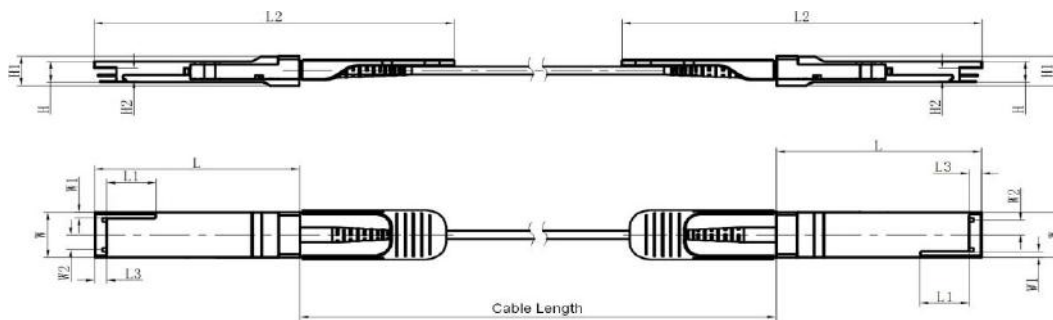
Note: 1. Circuit ground is internally isolated from chassis ground

Monitoring Specification

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)		176-223 Channel Thresholds	
	130-131 Application Code Entry 0			224 Tx EQ & Rx Emphasis Magnitude ID
	132-133 Application Code Entry 1			225 RX output amplitude indicators
	134-253 other entries			226-241 Channel Controls
192-223 Extended ID	254-255 Application Code Entry TL	242-251 Channel Monitor Masks		
224-255 Vendor Specific ID		252-255 Reserved		

Mechanical Dimension



Unit: mm

	L	L1	L2	L3	W	W1	W2	H	H1	H2
MAX	72.2	—	122	4.35	18.45	—	6.2	8.6	12.0	5.35
Typical	72.0	—	—	4.20	18.35	—	—	8.5	11.8	5.2
MIN	68.8	16.5	118	4.05	18.25	2.2	5.8	8.4	11.6	5.05

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

GHSX0ACXX	QSFP28 Active Optical Cable with operate temperature 0°C~70°C
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