

GLQ1M0C85

40Gb/s QSFP+ SR4 Optical Transceiver

Features:

- Support 40GBASE-SR4/QDR application
- Compliant to QSFP+ Electrical MSA SFF-8436
- Multi-rate of up to 10.3125Gbps
- Transmission distance up to 150m(OM3)
- +3.3V single power supply
- Low power consumption
- Operating case temp Commercial: 0°C to +70 °C
- RoHS 6/6 compliant



Applications

- Proprietary High Speed Interconnections
- Infiniband QDR and DDR interconnects
- Data Center

General Description

The Gearlink's GLQ1M0C85 is a Four-Channel, Plug-gable, Parallel, Fiber-Optic QSFP+ Transceiver for InfiniBand QDR/DDR/SDR, 12G/10G/8G/4G/2G fiber channel, PCIe and SAS Applications. The QSFP full-duplex optical module offers 4 independent transmit and receive channels, each capable of 10.3Gbps operation for an aggregate data rate of 45.2Gbps 150m using OM3 fiber. These modules are designed to operate over multi-mode fiber systems using 850nm VCSEL laser array. An optical fiber ribbon cable with an MPO/MTP connector can be plugged into the QSFP module receptacle. QSFP+ SR4 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	V _{CC3}	-0.5	-	+3.6	V	
Storage Temperature	T _s	-10	-	+85	°C	
Operating Humidity	RH	+5	-	+85	%	1
Receiver Damage Threshold per Lane	P _{IND}	+3.4	-	-	dBm	

Note:

1. No condensation

commended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T _c	0	-	+70	°C	
Power Supply Voltage	V _{CC}	3.14	3.3	3.47	V	
Power Dissipation	P _d	-	-	1.5	W	
Bit Rate	BR	1.25	10.3125	-	Gbps	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
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	
Transmitter						
Differential Data Input Swing	V _{in,P-P}	200	-	1600	mV _{PP}	
Input Differential Impedance	Z _{IN}	80	100	120	Ω	
Receiver						
Differential Date Output Swing	V _{out}	350	-	1000	mV	
Output Differential Impedance	Z _D	80	100	120	Ω	

Optical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Optical transmitter Characteristics						
Bit Rate	BR	Gbps	1.25	10.3125	-	
Center Wavelength Range	λ _c	nm	830	850	870	
RMS Spectral Width	Δλ	nm	-	-	0.65	
Average Launch power Tx_off	P _{off}	dBm	-	-	-30	
Launch Optical Power	P ₀	dBm	-6.0			1

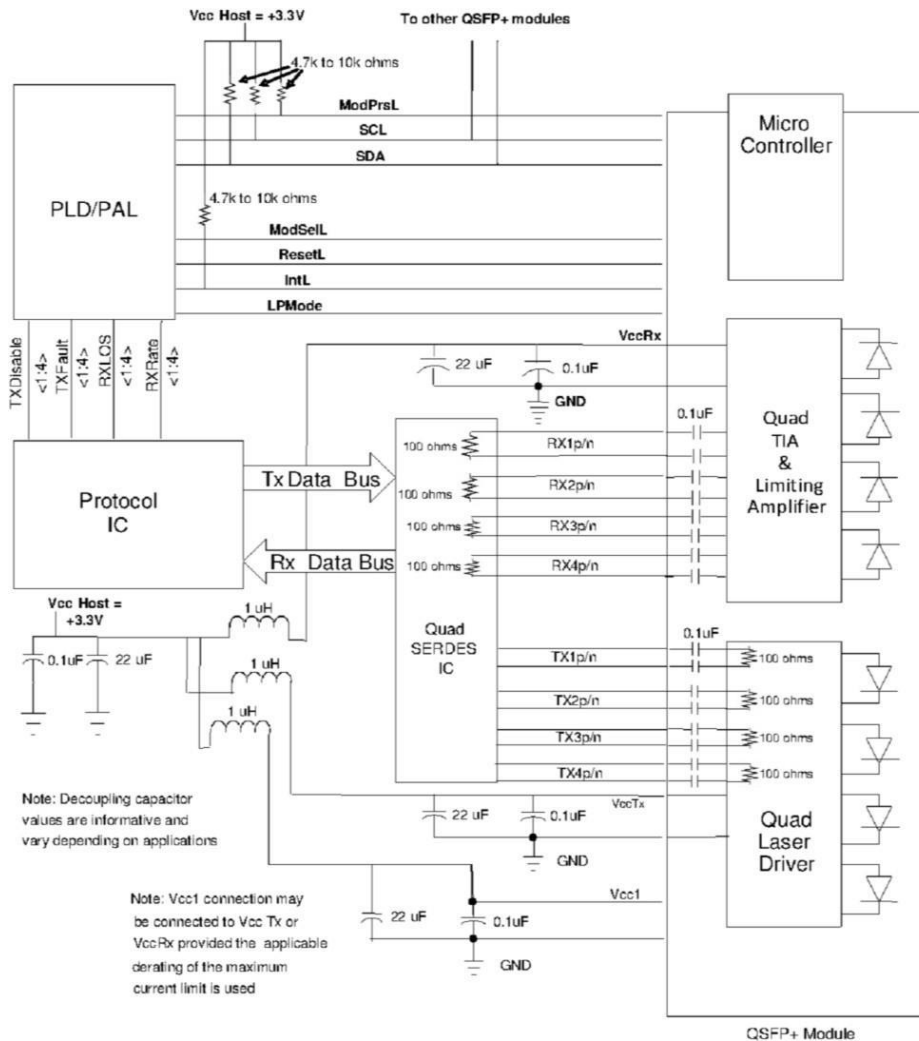
Extinction Ratio	ER	dB	3	-	-	
Optical Receiver Characteristics						
Bit Rate	BR	Gbps	1.25	10.3125	-	
Sensitivity@BER=E-12	BER	dBm	-	-	-10.2	
Overload Input Optical Power	PIN	dBm	2.5	-	-	2
Center Wavelength Range	λ_c	nm	820	-	880	
LOS Assert	-	dBm	-30	-	-	
LOS De-Assert	-	dBm	-	-	-12	
LOS Hysteresis	-	dB	0.5	-	-	

Note:

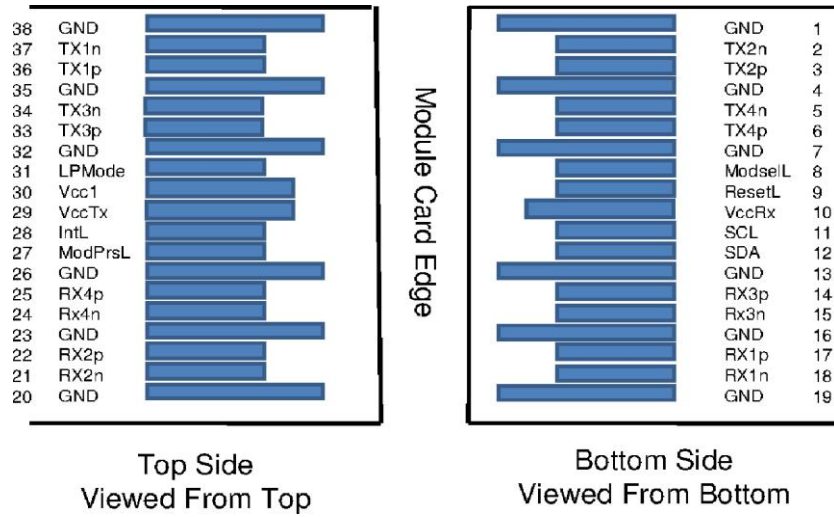
1.Coupled into 50/125 MMF.

2.Measured with PRBS²³¹-1 test pattern @ 10.3125Gbps.BER=E-12

Recommended Interface Circuit



Pin arrangement



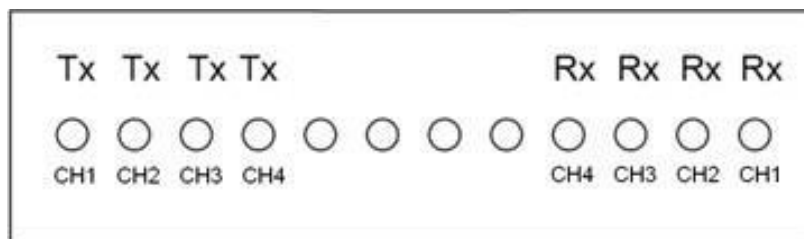
Pin Description

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

Note:

1. Circuit ground is internally isolated from chassis ground.

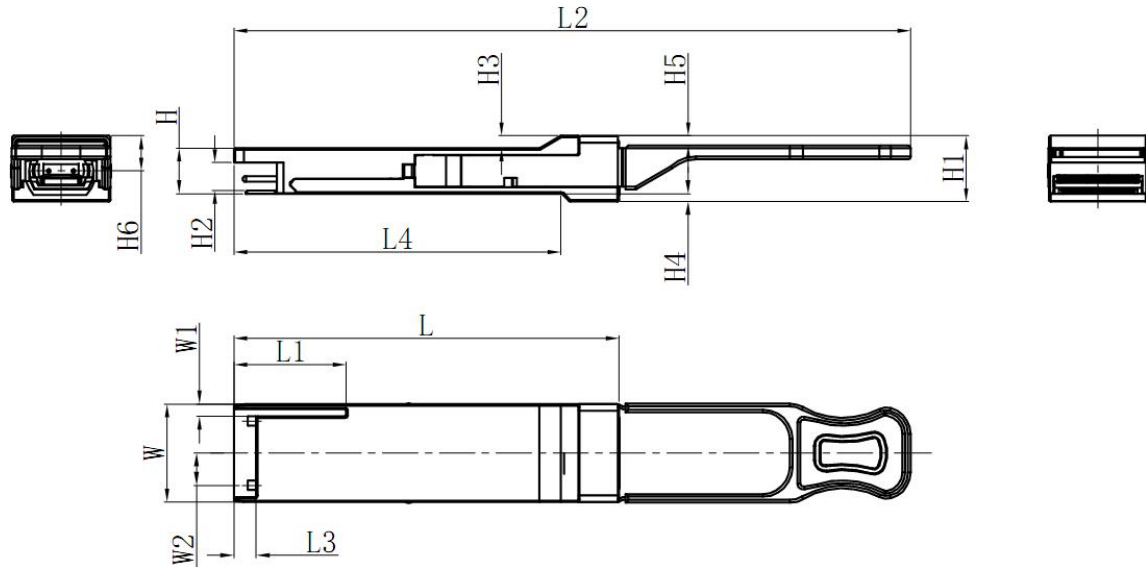
Optical interface arrangement


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

Mechanical Dimensions



	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	-

ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all other electrical input pins, tested per MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

Laser Safety

This is a Class 1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

Order Information

GLQ1M0C85	QSFP+ SR4 150m on OM3 fiber optical transceiver with full real- time digital diagnostic monitoring
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