

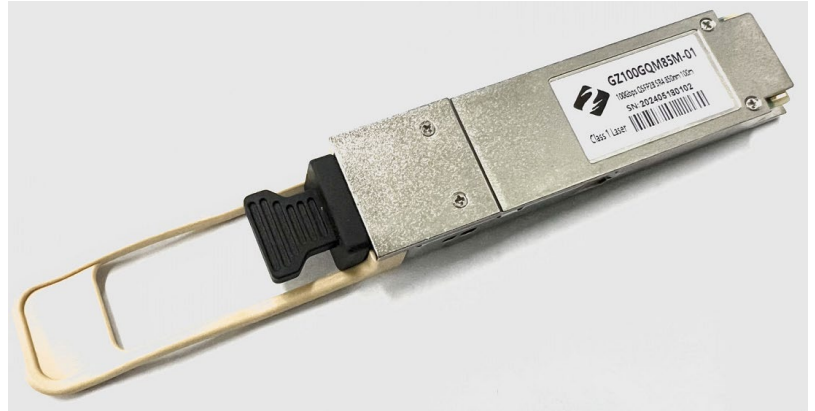


# GZ100GQM85M-01

## 100Gbps QSFP28 850nm 100m Optical Transceiver

### Features

- Order Informa Support 100GBASE-SR4/100G Fiber Channel application
- Compliant to QSFP28 Electrical MSA SFF-8636
- Multi rate of up to 25.78125Gbps
- Transmission distance up to 100m (OM4)
- +3.3V single power supply
- Low power consumption
- Operating case temp  
Commercial: 0°C to +70 °C
- RoHS 6 compliant



### Applications

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

### 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>	-10	-	+85	°C	
Operating Humidity	RH	+5	-	+85	%	1
Receiver Damage Threshold per Lane	P <sub>IND</sub>	+3.4	-	-	dBm	

Note: 1 No condensation

### 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	
Bit Rate	BR	10.3125	25.78125	-	Gbps	

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## 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	
<b>Transmitter</b>						
Differential Data Input Swing	$V_{in,P-P}$	200	-	1600	mV <sub>PP</sub>	
Input Differential Impedance	$Z_{IN}$	90	100	110	$\Omega$	
<b>Receiver</b>						
Differential Data Output Swing	$V_{out}$	200	-	1000	mV	
Output Differential Impedance	$Z_D$	90	100	110	$\Omega$	

## Optical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Notes
<b>Optical transmitter Characteristics</b>						
Bit Rate	BR	Gbps	10.3125	25.78125	-	
Center Wavelength Range	$\lambda_c$	nm	830	850	870	
RMS Spectral Width	$\Delta\lambda$	nm	-	-	0.65	
Average Launch power Tx_off	P <sub>off</sub>	dBm	-	-	-30	
Launch Optical Power	P <sub>0</sub>	dBm	-6.0			1
Extinction Ratio	ER	dB	2	-	-	
<b>Optical Receiver Characteristics</b>						
Bit Rate	BR	Gbps	10.3125	25.78125	-	
Sensitivity@BER=E-12	BER	dBm	-	-	-5.2	
Sensitivity@BER=5E-5	BER	dBm	-	-	-10.3	
Overload Input Optical Power	P <sub>IN</sub>	dBm	2.5	-	-	2
Center Wavelength Range	$\lambda_c$	nm	820	-	880	
LOS Assert	-	dBm	-30	-	-	
LOS De-Assert	-	dBm	-	-	-12	
LOS Hysteresis	-	dB	0.5	-	-	

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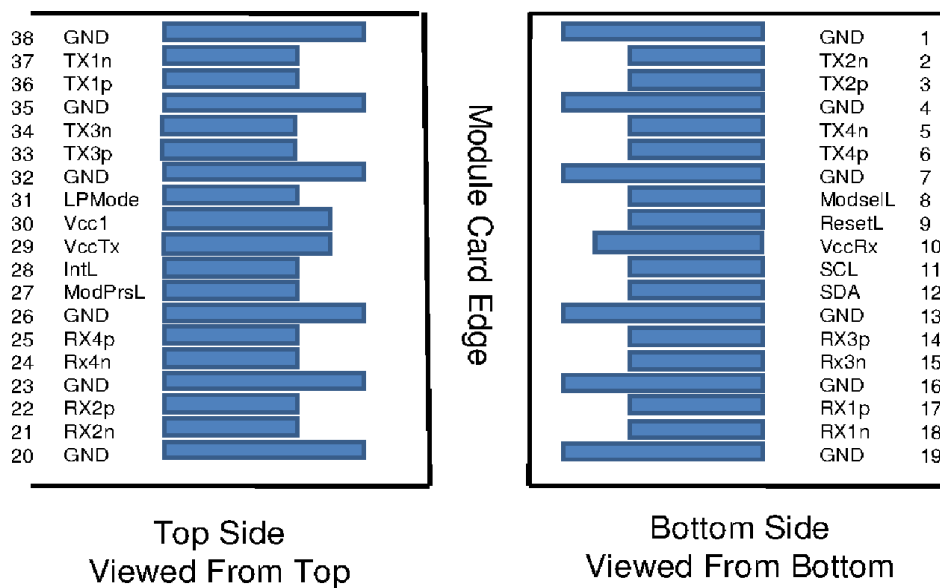
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**Note:**

1. Coupled into 50/125 MMF.
2. Measured with PRBS 2<sup>31</sup>-1 test pattern @25.78125Gbps.BER=E-12

**Pin arrangement**



**Figure 1, Pin View**

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**Table 6-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	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	

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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

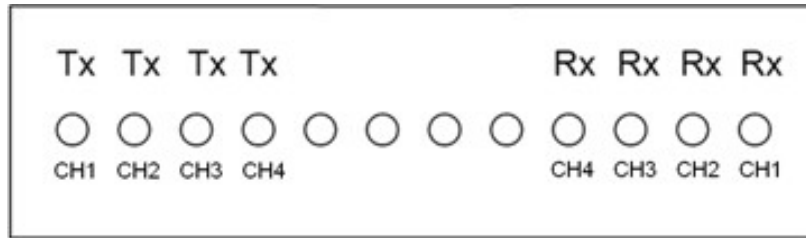


Figure 2, Optical interface arrangement. Lens upwards.

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

Figure 3, Memory Map

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## Recommended Interface Circuit

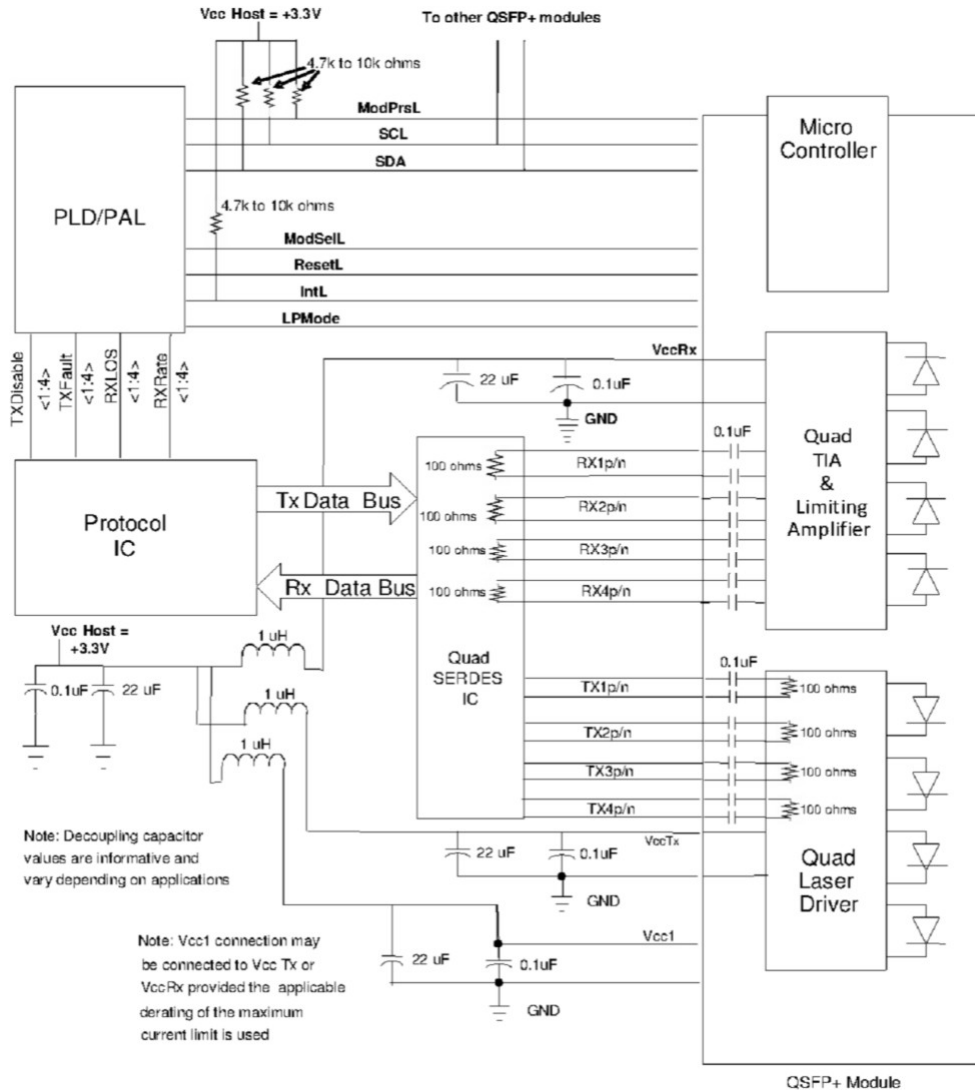


Figure 4, Recommended Interface Circuit

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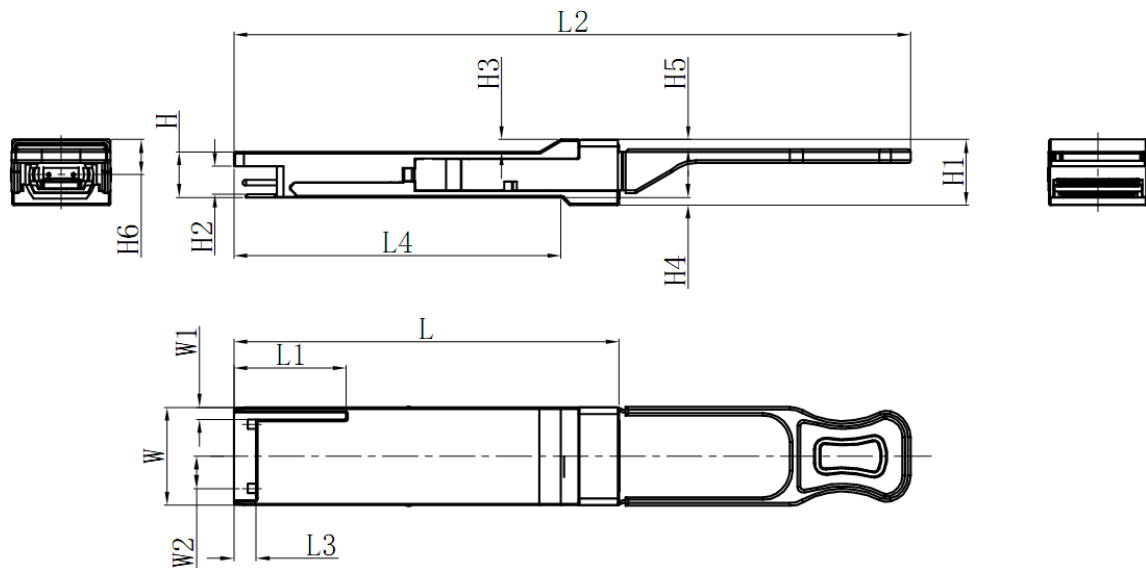
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## Mechanical



Unit mm

	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	-

Figure 5, Mechanical Diagram

## Order Information

Part. No	Specifications									
	Rate Gb/s	Tx	Tx WL nm	Po dBm	Rx	Sen. dBm	Temp °C	Reach m	Other	
GZ100GQM85M-01	103.1	VCSEL	850	-6~+1	PIN	<-10.3	0~70	1~100	MPO 1x12	

### Note:

1. OM4 fiber, 70m for OM3 fiber
2. Case Temperature
3. Sensitivity@BER=5E-5

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## Warnings

### Handing Precautions:

This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Please 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.

### Notice:

The information provided on this page contains the product target specifications which are subject to change without notice.

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