



## GZ40GQPM31L-E0

### 40Gbps QSFP+ 140m MMF LX4 Transceivers

#### FEATURES

- Compliant with QSFP+ form factor
- Uncooled 4x10Gb/s CWDM transmitter
- Supports Infiniband SDR, DDR and QDR
- Wide Operating Temperature(0°C~70°C)
- Maximum link length of 140 m on OM3, 160 m on OM4 ,1km on SMF

#### APPLICATIONS

- Data Center Backbone
- Ethernet Switches
- High-speed Servers
- High-performance Computing Clusters
- SAN, Routers, Hubs, Load Balancer

#### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Conditions	Min.	Max.	Unit
Storage Temperature	T <sub>Storage</sub>		-40	+85	°C
Relative Humidity	RH		0	+85	%

#### RECOMMENDED OPERATING CONDITIONS (T=25°C, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Case Temperature	T <sub>c</sub>		0	40	70	°C
Power Supply Voltage	V <sub>CC</sub>		3.15	3.3	3.45	V
Signaling Rate each Channel				10.3125		Gbps
Two Wire Serial (TWS) Interface Clock Rate			---	---	400	kHz
Power Supply Noise			---	---	50	mVpp
Supply Noise Rejection			---	---	100	mV
Receiver Differential Data Output			---	100		Ohm
Link Distance on OM3	D		---	---	140	m
Link Distance on OM4	D				160	m
Link Distance on SMF	D				1000	m

#### ELECTRICAL CHARACTERISTICS (T=25°C, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power Consumption					3.5	W
Supply Current	I <sub>CC</sub>				1050	mA

#### TRANSMITTER CHARACTERISTICS (T=25°C, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Signaling rate, each lane (range)	GBb			10.3125		GBb
Center Wavelength	λ <sub>0</sub>		1264.5		1277.5	nm

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	$\lambda 1$		1284.5		1297.5	nm
	$\lambda 2$		1304.5		1317.5	nm
	$\lambda 3$		1324.5		1337.5	nm
Side-mode suppression ratio	SMSR		30			dB
Total average launch power					10.3	dBm
Average launch power, each lane	Pf		-10.3		2.3	dBm
Optical Modulation Amplitude (OMA), each lane	TxOMA		-6		3.5	dBm
Difference in launch power between any two lanes (OMA)					6.5	dB
Transmitter and Dispersion Penalty	TDP				2.6	dB
Launch power in OMA minus TDP, each lane	Tx-TDP		-7.8			dBm
Average launch power of OFF transmitter, each lane					-30	dBm
Extinction ratio	ER		3.5			dB
Optical return loss tolerance					20	dB
Transmitter reflectance					-12	dB

### RECEIVER CHARACTERISTICS (T=25°C, unless noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Signaling rate, each lane (range)	GBb			10.3125		GBb
Center Wavelength	$\lambda 0$		1264.5		1277.5	nm
	$\lambda 1$		1284.5		1297.5	nm
	$\lambda 2$		1304.5		1317.5	nm
	$\lambda 3$		1324.5		1337.5	nm
Damage threshold			3.3			dBm
Average power at receiver input, each lane			-12.7		2.3	dBm
Receive power, each lane (OMA)					3.5	dBm
Difference in receive power between any two lanes (OMA)					7.5	dBm
Receiver reflectance					-26	dB
Receiver sensitivity (OMA)	S <sub>OMA</sub>	BER@10e-12			-10.5	dBm
LOS Assert	LOS <sub>A</sub>		-28			dBm
LOS De-Assert	LOS <sub>D</sub>				-12	dBm
LOS Hysteresis			0.5		6	dB

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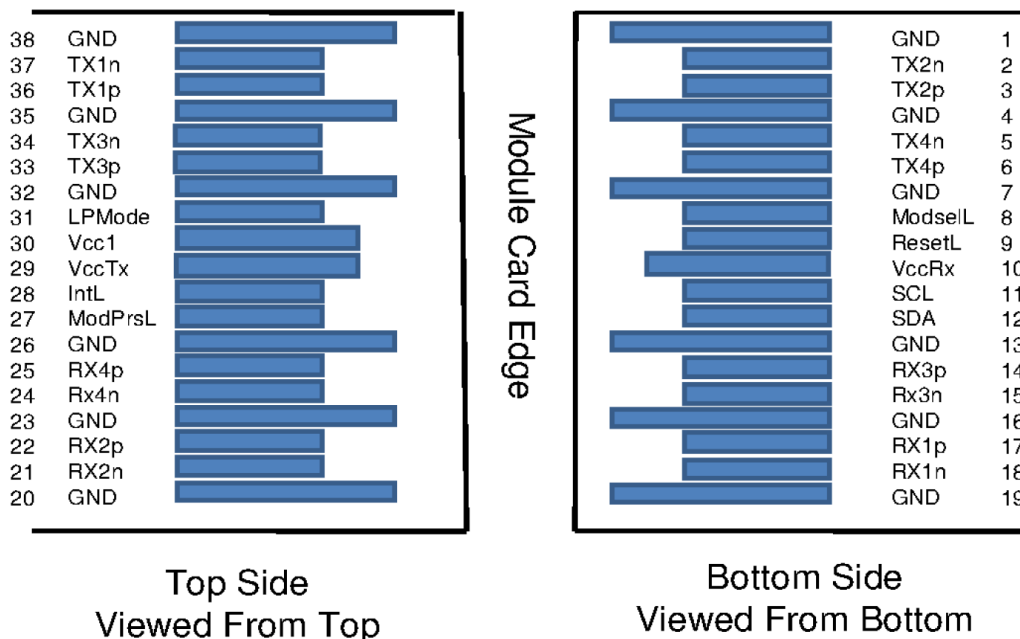
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## PIN ASSIGNMENT



## PIN DESCRIPTION

PIN	Logic	Symbol	Name/Description	Note
1		GND	Ground	
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data output	
4		GND	Ground	
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data output	
7		GND	Ground	
8	LVTTL-I	ModSelL	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		VccRx	<input type="checkbox"/> 3.3V Power Supply Receiver	
11	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
12	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
13		GND	Ground	
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	

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16		GND	Ground	
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	
20		GND	Ground	
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	
27	LVTTL-O	ModPrsL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		VccTx	+3.3 V Power Supply transmitter	
30		Vcc1	+3.3 V Power Supply	
31	LVTTL-I	LPMODE	Low Power Mode	
32		GND	Ground	
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Output	
35		GND	Ground	
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Output	
38		GND	Ground	

## Digital Diagnostic Monitor Accuracy

The following characteristics are defined over recommended operating conditions

Parameter	Accuracy	Unit
Internally measured transceiver temperature	+/-3	deg.C
Internally measured transceiver supply voltage	+/-3	%
Measured Tx bias current	+/-10	%
Measured Tx output power	+/-3	dB
Measured Rx received average optical power	+/-3	dB

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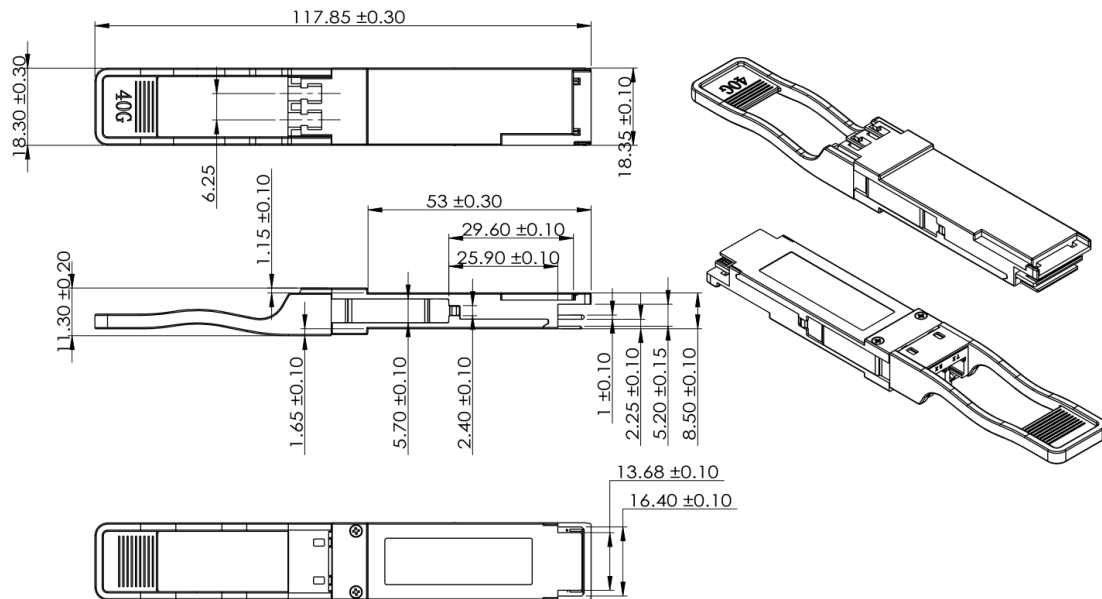
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## OUTLINE DIMENSIONS



## Ordering Information

Part. No	Specifications								
	Rate Gb/s	Tx	Tx WL nm	Po dBm	Rx	Sen. dBm	Temp °C	Reach m	Other
GZ40GQPM311L-E0	41.25	CWDM	1264.5-1337.5	-10.3~+2.3	PIN	<-12.7	0~70	140~1000	RoHS

### Note:

1. OM3 fiber 140m and OM4 fiber 160m;
2. SMF fiber 1000m.

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## Warnings

### Handling 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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