



## GZ10GPBXXL-XXX

# 10Gbps BIDI SFP+ 1270nm/1330nm Transceiver

### Features

- Compliant to SFP+ MSA
- ROHS Compliant
- Operating data rate up to 11.3Gbps
- Two types:
  - A: 1270nm DFB Transmitter/ 1330nm Receiver
  - B: 1330nm DFB Transmitter/ 1270nm Receiver
- Single +3.3V±5% power supply
- LC single connector
- Hot pluggable 20pin connector
- Power Dissipation < 1.5W
- Optional 10/20/40/60 transmission distance on 9/125um SMF
- PIN for 10/20/40km, APD for 60km
- Operating Case Temperature Standard: -0°C~+70°C , -40~85°C
- Digital Monitoring SFF-8472 Rev 10 compliant



### Applications

- 10GBASE-LR/LW
- 10G Ethernet
- OBSAI rates 3.072 Gb/s, 6.144Gb/s
- CPRI rates 2.4576 Gb/s, 4.9152Gb/s, 6.144Gb/s,9.8304 Gb/s

### Standards

- IEEE 802.3ae
- SFF-8431 Rev 4
- SFF-8472 Rev 10

### Shenzhen Guangzhi Communication Technology Co., LTD.

Production Address: 5th floor, Building 2, Peninsula Industrial Park, No. 3, Gangbian Tian Road, East Lake High-tech Zone, Wuhan Hubei Province, China.

Contact:Mr.Yang Tel.: +86-18607555895 E-mail: yanghan@optst.com

Website: [www.optst.com](http://www.optst.com)



## Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	Ts	°C	-40	85
Relative Humidity	RH	%	5	95
Supply Voltage	VCC	V	-0.3	4.0

## Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature Range	Tc	°C	-40		85
Power Supply Voltage	Vcc	V	3.14	3.3	3.46
Bit Rate	BR	Gb/s		10.3	
Bit Error Ratio	BER				10E-12

## Specifications(Tc=25°C, BOL, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Electrical Characteristics						
Supply Current	Icc	mA	-	-	450	
Single Ended Data Input Swing	-	mV	-	-	1100	
Single Ended Data Output Swing	-	mV	300	-	600	
TX_fault /LOS output (TTL)	VOH	V	2.0		Vcc	
	VOL		0		0.8	
TX_disable input (TTL)	VOH	V	2.0		Vcc	
	VOL		0		0.8	
Optical transmitter Characteristics						
Launch Optical Power	Po	dBm	-8.2		0.5	10km
			-3		3	20km
			1		7	40km
			1		7	60km
Center Wavelength	$\lambda_c$	nm	1260	1270	1280	1270nm-DFB

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			1320	1330	1340	1330nm-DFB
Spectral Width(20dB)	$\Delta\lambda$	nm			1	DFB LD
Side Mode Suppression Ratios	SMSR	dB	30			DFB LD
Extinction Ratio	ER	dB	3.5			
Pout of OFF transmitter	Poff	dBm	-	-	-40	
Optical receiver Characteristics						
Center Wavelength Range	$\lambda_c$	nm	1320	1330	1340	
			1250	1270	1290	
Receiver Sensitivity	Sen	dBm			-14.4	10km,1
					-15	20km,1
					-16	40km,1
					-19	60km,1
Overload Input Optical Power	Psat	dBm	1			10~40km
			-8			60km
LOS De-assert	LosD	dBm			-30	
LOS Assert	LosA		-38			
LOS Hysteresis		dB	0.5	3	5	2

Notes:

1. Measured with a PRBS  $2^{31}-1$  test pattern, @10.3Gb/s, EX=5dB, BER< $10^{-12}$
2. The LOS Hysteresis to minimize "chatter" on the output line. In principle, hysteresis alone does not guarantee chatter-free operation

## Monitoring Interface

Parameter	Symbol	Spec	Units	Conditions / Notes
Temperature		+/-3°C	°C	
Voltage		+/-5%	V	
IBias		+/-10%	mA	
Rx power		+/-3	dBm	@25°C
Tx power		+/-3	dBm	@25°C

## Pin Assignment

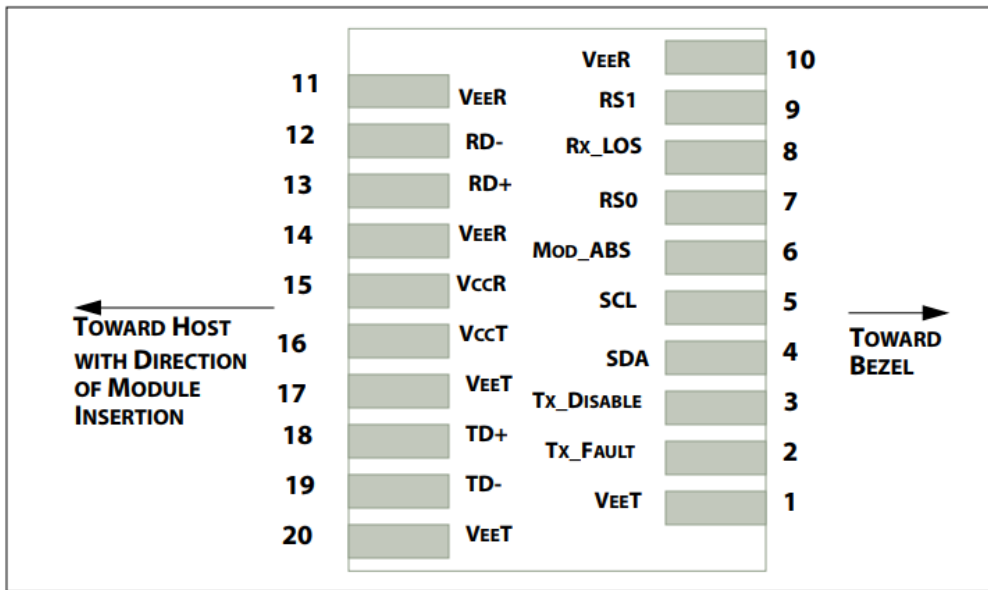
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SFP+ pad assignment top view

## Pin Description

Pin	Name	Function/Description	Notes
1	VeeT	Transmitter Ground	1
2	TX_Fault	Transmitter Fault (LVTTTL-O) - High indicates a fault condition	2
3	TX_Disable	Transmitter Disable (LVTTTL-I) – High or open disables the transmitter	3
4	SDA	Two wire serial interface Data Line (LVCMOS-I/O) (MOD-DEF2)	4
5	SCL	Two wire serial interface Clock Line (LVCMOS-I/O) (MOD-DEF1)	4
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module	5
7	RS0	Rate Select 0 – Not used, Presents high input impedance	6
8	RX_LOS	Receiver Loss of Signal (LVTTTL-O)	2
9	RS1	Rate Select 1 – Not used, Presents high input impedance	6
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	
12	RD-	Inverse Received Data out (CML-O), AC Coupled	
13	RD+	Received Data out (CML-O), AC Coupled	
14	VeeR	Receiver Ground	

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15	VccR	Receiver Power - +3.3V	
16	VccT	Transmitter Power - +3.3 V	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Data In (CML-I), AC Coupled	
19	TD-	Inverse Transmitter Data In (CML-I), AC Coupled	
20	VeeT	Transmitter Ground	1

Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7K $\Omega$  to 10K $\Omega$  pull-up resistor to VccHost.
3. This input is internally biased high with a 4.7K $\Omega$  to 10K $\Omega$  pull-up resistor to VccT.
4. Two-Wire Serial interface clock and data lines require an external pull-up resistor dependent on the capacitance load.
5. This is a ground return that on the host board requires a 4.7K $\Omega$  to 10K $\Omega$  pull-up resistor to VccHost.
6. Rate select can also be set through the 2-wire bus in accordance with SFF-8472 v. 10.2.  
Rx Rate Select is set at Bit 3, Byte 110, Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h.  
Writing a "1" selects maximum bandwidth operation. Rate select is the logic OR of the input state of Rate Select Pin and 2-wire bus.

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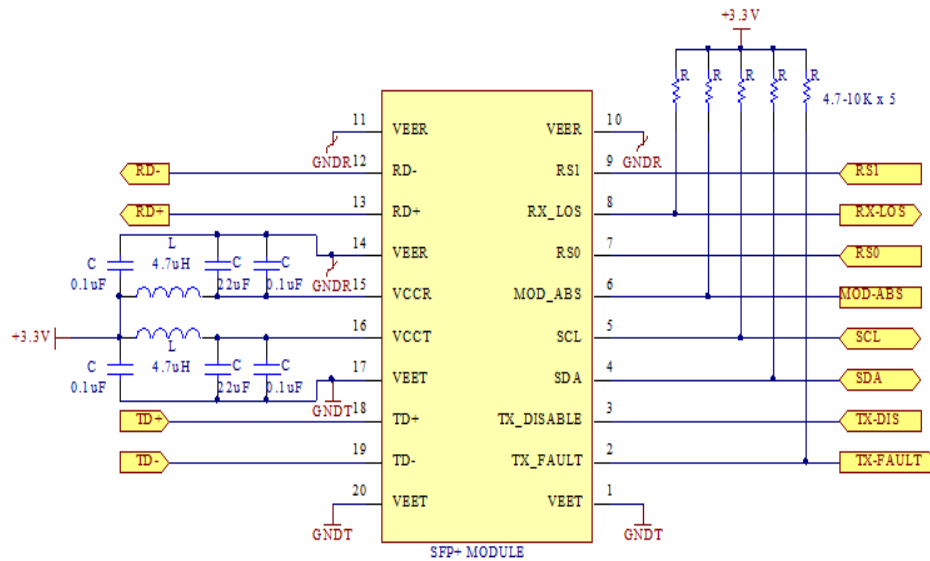
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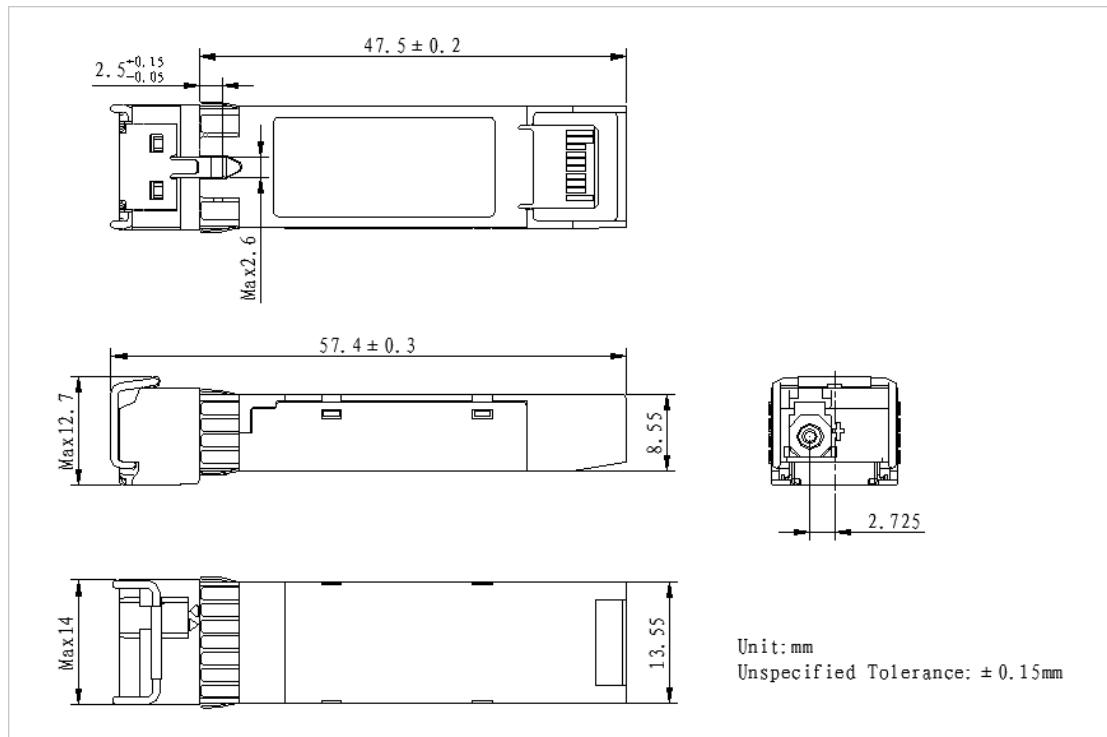
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## Typical Application Circuit



## Mechanical Dimensions



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Notes:

1. Tolerance: +/-0.1mm.
2. Others are according with SFF-8074i/SFF-8432 MSA or customer SPEC.
3. Light port according with fiber connector SPEC.

## Ordering Information

Part. No	Specifications								
	Rate Gb/s	Tx	Tx WL nm	Po dBm	Rx	Sen. dBm	Temp °C	Reach km	Other
GZ10GPB23L-10	10	DFB	1270	-8.2~0.5	PIN	-14.4	0~70	10	RoHS
GZ10GPB32L-10	10	DFB	1330	-8.2~0.5	PIN	-14.4	0~70	10	RoHS
GZ10GPB23L-20	10	DFB	1270	-3~3	PIN	-15	0~70	20	RoHS
GZ10GPB32L-20	10	DFB	1330	-3~3	PIN	-15	0~70	20	RoHS
GZ10GPB23L-40	10	DFB	1270	1~7	PIN	-16	0~70	40	RoHS
GZ10GPB32L-40	10	DFB	1330	1~7	PIN	-16	0~70	40	RoHS
GZ10GPB23L-60	10	DFB	1270	1~7	PIN	-19	0~70	60	RoHS
GZ10GPB32L-60	10	DFB	1330	1~7	PIN	-19	0~70	60	RoHS
GZ10GPB23L-10I	10	DFB	1270	-8.2~0.5	PIN	-14.4	-40~85	10	RoHS
GZ10GPB32L-10I	10	DFB	1330	-8.2~0.5	PIN	-14.4	-40~85	10	RoHS
GZ10GPB23L-20I	10	DFB	1270	-3~3	PIN	-15	-40~85	20	RoHS
GZ10GPB32L-20I	10	DFB	1330	-3~3	PIN	-15	-40~85	20	RoHS
GZ10GPB23L-40I	10	DFB	1270	1~7	PIN	-16	-40~85	40	RoHS
GZ10GPB32L-40I	10	DFB	1330	1~7	PIN	-16	-40~85	40	RoHS
GZ10GPB23L-60I	10	DFB	1270	1~7	PIN	-19	-40~85	60	RoHS
GZ10GPB32L-60I	10	DFB	1330	1~7	PIN	-19	-40~85	60	RoHS

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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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