深圳市光智通信技术有限公司
Shenzhen Optical Smart Communication Technology Co., Ltd.

GZ1GPS55L-80X

1.25Gbps SFP 1550nm 80km Transceivers

Features：

- Up to 1.25Gbps data rate
- Duplex LC receptacle optical interface compliant
- Single +3.3V power supply
- Hot-pluggable
- Receiver Loss of Signal Output
- Serial ID module on MOD (0-2)
- International Class 1 laser safety certified
- Transmitter disable input
- Optional operating temperature range: 0~+70℃/-40~85℃
- Up to 80km transmission distance on 9/125um SMF
- ROHS Compliant

Applications：

- Gigabit Ethernet
- SDH
- Switched backplane applications

Standard:

- Compliant with SFP MSA (INF-8074i)
- Compliant with SFF-8472 v12.2
- Compliant with IEEE802.3z Gigabit Ethernet

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T_{stg}	°C	-40	+85
Relative Humidity	RH	%	5	95
Power supply Voltage	Vcc	V	-0.5	4

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ.	Max	Note
Case Operating Temperature	Tc	°C	0		70	C-Temp

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Range			-40		85	I-Temp
Power Supply Voltage	Vcc	V	3.135	3.3	3.465	
Data Rate	-	Gb/s	-	1.25	-	

Specifications (Tc=25℃, BOL, unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Electrical Characteristics						
Supply Current	Icc	mA	-	-	300	
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	-2		+3	80km
Center Wavelength	λc	nm	1530	1550	1570	
Spectral Width(20dB)	Δλ	nm			1	
Side Mode Suppression Ratios	SMSR	dB	30			
Extinction Ratio	ER	dB	8.2			
Eye Diagram	Complies with IEEE802.3z eye masks when filtered					
Pout of OFF transmitter	Poff	dBm	-	-	-35	
Optical receiver Characteristics						
Center Wavelength Range	λc	nm	1260		1600	
Receiver Sensitivity 1	Sen	dBm			-28	80km
Overload Input Optical Power	Psat	dBm	-3			
LOS De-assert	LosD	dBm			-28	
LOS Assert	LosA		-38			
LOS Hysteresis		dB	0.5	3	5	2

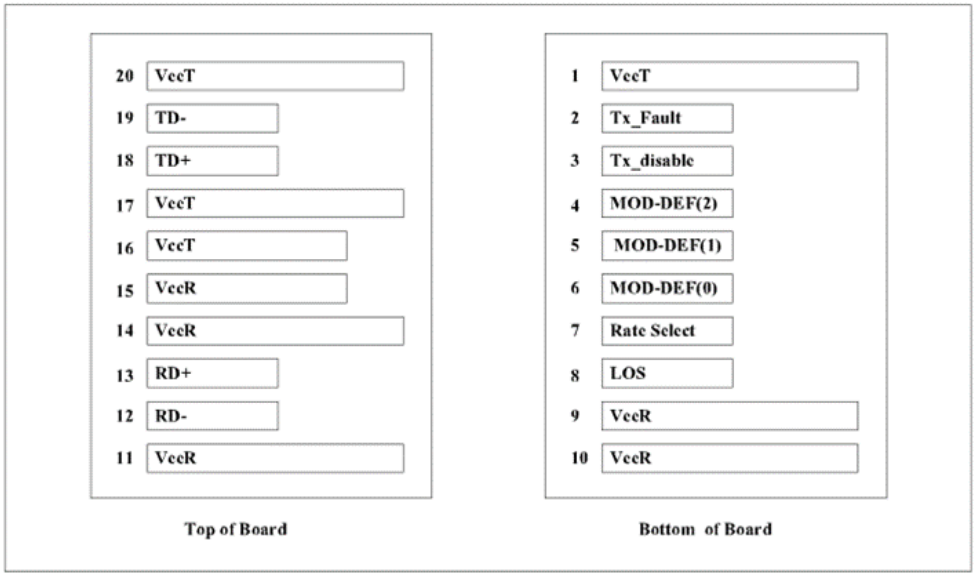
Notes:

1. Measured with a PRBS 2^{23}-1 test pattern, @1.25Gb/s, EX=10dB, 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℃	℃	
Voltage		+/-5%	V	
IBias		+/-10%	mA	
Rx power		+/-3	dBm	@25℃
Tx power		+/-3	dBm	@25℃

Pin Assignment



As Viewed Through Top of Board

Pin Description

Pin	Name	Function/Description	Engagement order	Notes
1	VeeT	Transmitter Ground	1	
2	TX Fault	Transmitter Fault Indication	3	1
3	TX Disable	Transmitter Disable-Module disables on high or open	3	2
4	MOD_DEF2	Module Definition 2-Two wire serial ID interface	3	3
5	MOD_DEF1	Module Definition 1-Two wire serial ID interface	3	3
6	MOD_DEF0	Module Definition 0-Two wire serial ID interface	3	3

7	Rate Select	Not Connected	3	
8	LOS	Loss of Signal	3	4
9	VeeR	Receiver Ground	1	
10	VeeR	Receiver Ground	1	
11	VeeR	Receiver Ground	1	
12	RD-	Inverse Received Data out	3	5
13	RD+	Received Data out	3	5
14	VeeR	Receiver Ground	1	
15	VccR	Receiver Power —— +3.3V±5%	2	6
16	VccT	Transmitter Power —— +3.3 V±5%	2	6
17	VeeT	Transmitter Ground	1	
18	TD+	Transmitter Data In	3	7
19	TD-	Inverse Transmitter Data In	3	7
20	VeeT	Transmitter Ground	1	

Notes：

1. TX Fault is open collector/drain output which should be pulled up externally with a 4.7K -10KΩresistor on the host board to supply <VccT+0.3V or VccR+0.3V. When high, this output indicates a laser fault of some kind. Low indicates normal operation. In the low state, the output will be pulled to <0.8V.
2. TX Disable input is used to shut down the laser output per the state table below. It is pulled up within the module with a 4.7-10K resistor.

   Low (0-0.8V): Transmitter on

   Between (0.8V and 2V): Undefined

   High (2.0-VccT): Transmitter Disabled

   Open : Transmitter Disabled
3. Mod-Def 0, 1, 2. These are the module definition pins. They should be pulled up with a 4.7 -10K resistor on the host board to supply less than VccT+0.3V or VccR+0.3V.

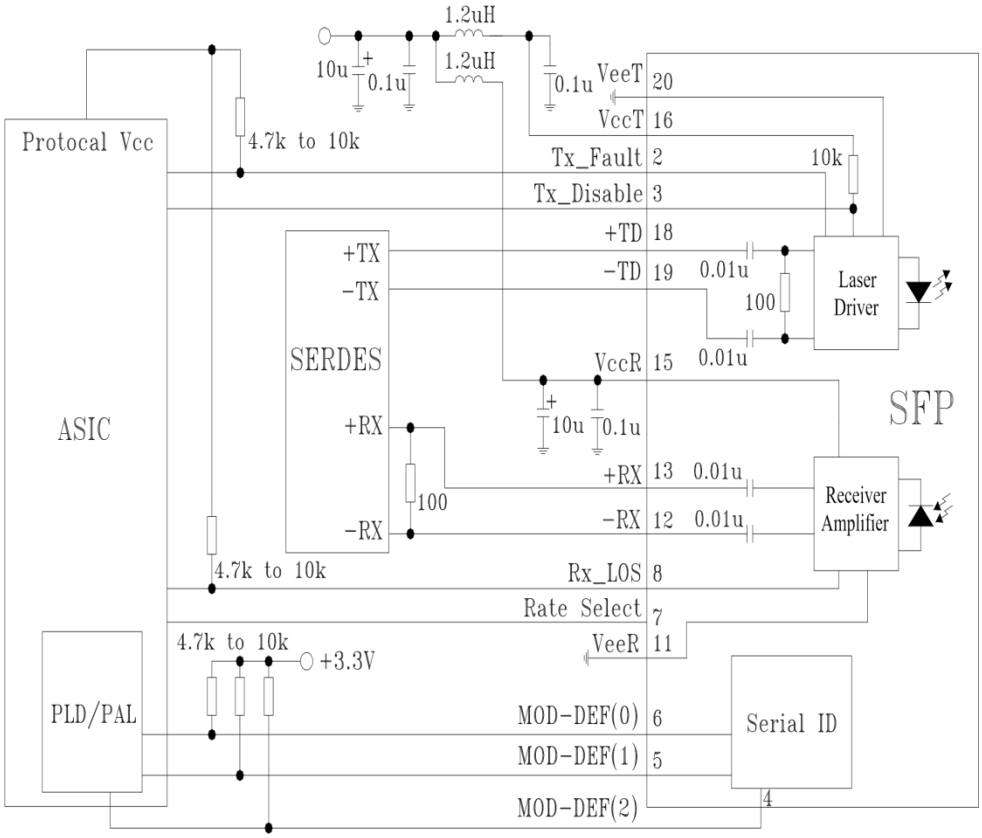
   Mod-Def 0 is grounded by the module to indicate that the module is present.

   Mod-Def 1 is clock line of two wire serial interface for optional serial ID.

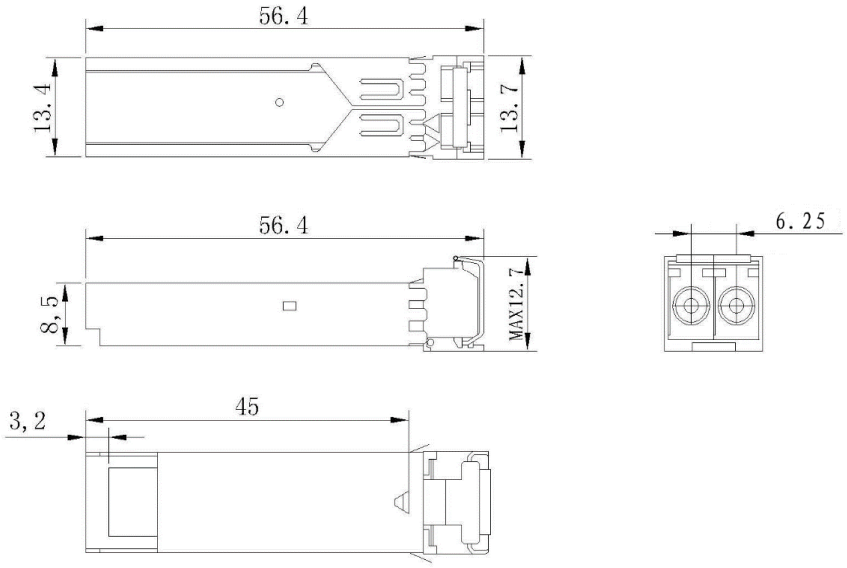
   Mod-Def 2 is data line of two wire serial interface for optional serial ID.

4. LOS (Loss of signal) is an open collector/drain output which should be pulled up externally with a 4.7-10K resistor on the host board to supply <VccT+0.3V or VccR+0.3V. When high, this output indicates the received optical power is below the worst case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to <0.8V.
5. RD-/+: These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100Ω differential at the user SERDES. The AC coupling is done inside the module and thus not required on the host board.
6. VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V±5% at the SFP connector pin. The in-rush current will typically be no more than 30Ma above steady state supply current after 500ns.
7. TD-/+: These are the differential transmitter inputs. They are AC coupled differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on host board

Typical Application Circuit



Mechanical Dimensions



Outline Drawing

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 ℃	Reach km	Other
GZ1GPS55L-80	1.25	DFB LD	1550	-2~+3	PIN/TIA	<-28	0~70	80	RoHS
GZ1GPS55L-80I	1.25	DFB LD	1550	-2~+3	PIN/TIA	<-28	-40~85	80	RoHS

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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.