

1.25G bps SFP Optical Transceiver, 500m Reach

SFP-GE-SX-88-05



Features:

- SFP package with LC connector
- 850nm VCSEL Laser and PIN photo detector
- Up to 550m transmission on 50/125 um MMF
- +3.3V single power supply
- LVPECL compatible data input/output interface
- Low EMI and excellent ESD protection
- Laser safety standard IEC-60825 compliant
- Compatible with RoHS
- Digital Diagnostic SFF-8472 compliant

Applications

- 1.25 Gb/s 1000Base-SX Ethernet
- Dual Rate 1.063/2.125 Gb/s Fibre Channel
- Wireless – CPRI, OBSAI, LTE

Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	T _{st}	-40	+85	°C
Supply Voltage	V _{cc}	0	+3.6	V
Operating Relative Humidity	RH	5	95	%

Operation Environment

Parameter	Symbol	Min	Typical	Max	Units
Supply Voltage	V _{cc}	3.15	/	3.45	V
Operating Case Temperature	T _c	0	/	+70	°C
Power Dissipation	/	/	/	1	W
Data Rate	/	/	1250	/	Mbps

Optical Characteristics

(Ambient Operating Temperature 0°C to +70°C, V_{cc} = 3.3V)

Parameter	Symbol	Min.	Typ.	Max.	Units
Transmitter Section					
Center Wavelength	λ_o	830	850	860	nm
Average Output Power	P _o	-9	-	-3	dBm
Extinction Ratio	E _r	8	-	/	dB
Rise/Fall Time(20%~80%)	Tr/Tf	/	/	150	ps
Total jitter	T _j	/	/	0.43	UI
Optical Eye Diagram	IEEE 802.3z and ANSI Fibre Channel Compatible				
Receiver Section					
Center Wavelength	λ_o	830	/	860	nm
Receiver Sensitivity	R _{sen}	/	/	-19	dBm
Receiver Overload	R _{ov}	-3	/	/	dBm
Return Loss	/	12	/	/	dB
LOS Assert	LOSA	-36	/	/	dBm
LOS Dessert	LOSD	/	/	-20	dBm
LOS Hysteresis		0.5	/	5	/

Electrical Characteristics

(Ambient Operating Temperature 0°C to +70°C, V_{cc} = 3.3V)

Parameter	Symbol	Min.	Typ.	Max.	unit	
Transmitter Section						
Input Differential Impedence	Z _{in}	90	100	110	Ohm	
Data Input Swing Differential	V _{in}	500	/	2400	mV	
TX Disable	Disable	/	20	/	V _{cc}	V
	Enable	/	0	/	0.8	V
TX Fault	Assert	/	20	/	V _{cc}	V
	Deassert	/	0	/	0.8	V
Receiver Section						
Output differential impedance	Z _{out}		100	/	Ohm	
Data Input Swing Differential	V _{out}	370	/	2000	mV	
Rx_LOS	Assert	/	20	/	V _{cc}	V
	Deassert	/	0	/	0.8	V

Eeprom Information AO

Addr	Field Size (Bytes)	Name of Field	HEX	Description
0	1	Identifier	03	SFP
1	1	Ext Identifier	04	MOD4
2	1	Connector	07	LC
3-10	8	Transceiver	00 00 00 02 12 00 0D 01	Transmitter Code
11	1	Encoding	01	8B10B
12	1	BR, nominal	0D	1250M bps
13	1	Reserved	00	/
14	1	Length (9um)-km	00	/
15	1	Length (9um)	00	/
16	1	Length (50um)	37	550m
17	1	Length (62.5um)	1B	270m
18	1	Length (copper)	00	/
19	1	Reserved	00	/
20-35	16	Vendor name	57 49 4E 54 4F 50 20 20 20 20 20 20 20 20 20 20	OEM
36	1	Reserved	00	/
37-39	3	Vendor OUI	00 00 00	/
40-55	16	Vendor PN	XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX	ASC II
56-59	4	Vendor rev	31 2E 30 20	V1.0
60-61	2	Wavelength	03 52	850nm
62	1	Reserved	00	/
63	1	CC BASE	XX	Check sum of byte 0-62
64-65	2	Options	00 1A	LOS, TX_DISABLE, TX_FAULT
66	1	BR, max	32	50%
67	1	BR, min	32	50%
68-83	16	Vendor SN	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Unspecified
84-91	8	Vendor date code	XX XX XX 20	Year, Month, Day
92-94	3	Reserved	00	/
95	1	CC_EXT	XX	Check sum of byte 64-94
96-255	160	Vendor specific	/	/

Pin Description

Pins	Name	Description	Notes
1	V _{eeT}	Transmitter Ground	/
2	Tx Fault	Transmitter Fault Indication	1
3	Tx Disable	Transmitter Disable	2
4	MOD DEF2	Module Definition 2	3
5	MOD DEF1	Module Definition 1	3
6	MOD DEFO	Module Definition 0	3
7	Rate Select	Not Connected	/
8	LOS	Loss of Signal	4
9	V _{eeR}	Receiver Ground	/
10	V _{eeR}	Receiver Ground	/
11	V _{eeR}	Receiver Ground	/
12	RD-	Inv. Received Data Output	5
13	RD+	IReceived Data Output	5
14	V _{eeR}	Receiver Ground	/
15	V _{ccR}	Receiver Power	/
16	V _{ccT}	Transmitter Power	/
17	V _{eeT}	Transmitter Ground	/
18	TD+	Transmit Data Input	6
19	TD-	Inv. Transmit Data Input	6
20	V _{eeT}	Transmitter Ground	/

Notes

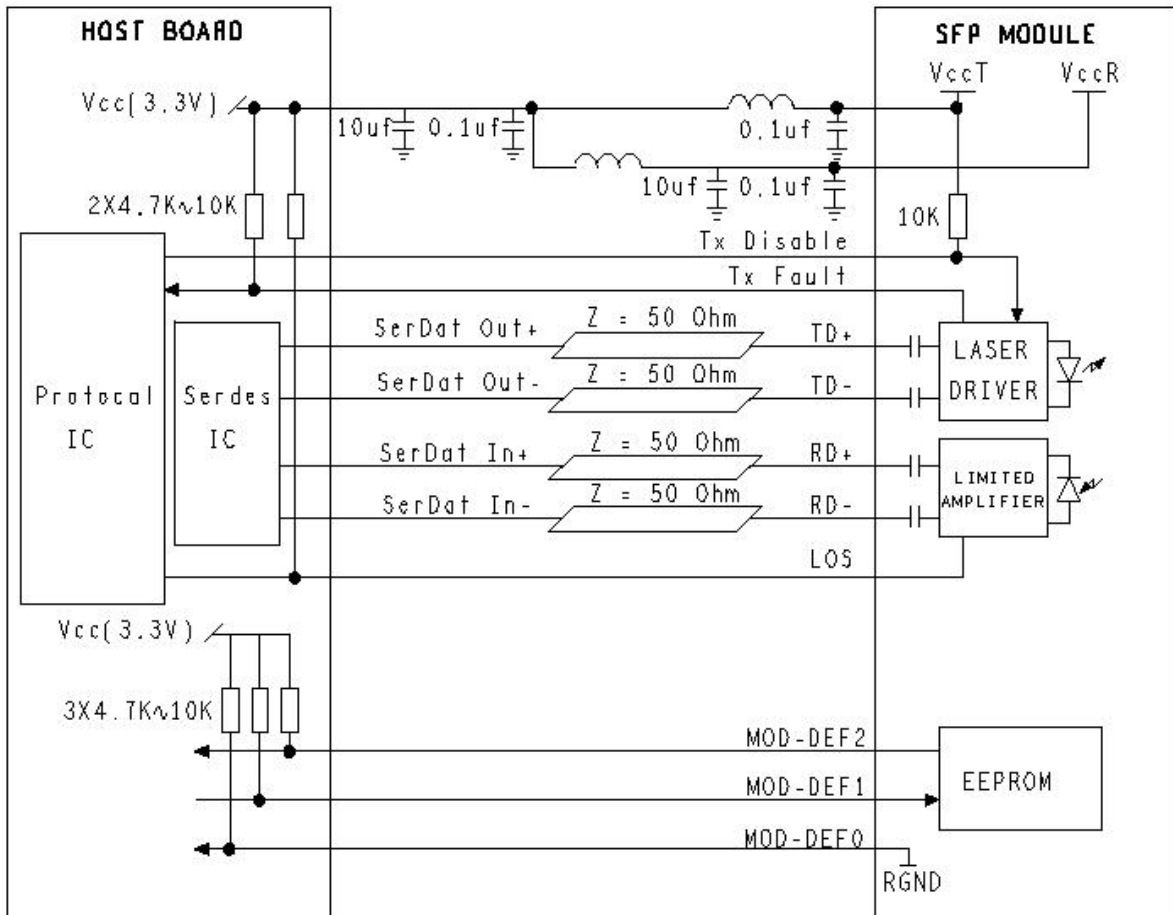
- TX Fault is an open collector output, which should be pulled up with a 4.7k~10k resistor on the host board to a voltage between 2.0V and V_{cc}+0.3V. Logic 0 indicates normal operation; logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
- TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7k~10k resistor. Its states are:
 Low (0~0.8V): Transmitter on
 (>0.8V, <2.0V): Undefined
 High (2.0~3.465V): Transmitter Disabled
 Open: Transmitter Disabled
- MOD-DEF 0,1,2 are the module definition pins. They should be pulled up with a 4.7k~10k resistor on the host board. The pull-up voltage shall be V_{ccT} or V_{ccR}.
 MOD-DEF 0 is grounded by the module to indicate that the module is present

MOD-DEF 1 is the clock line of two wire serial interface for serial ID

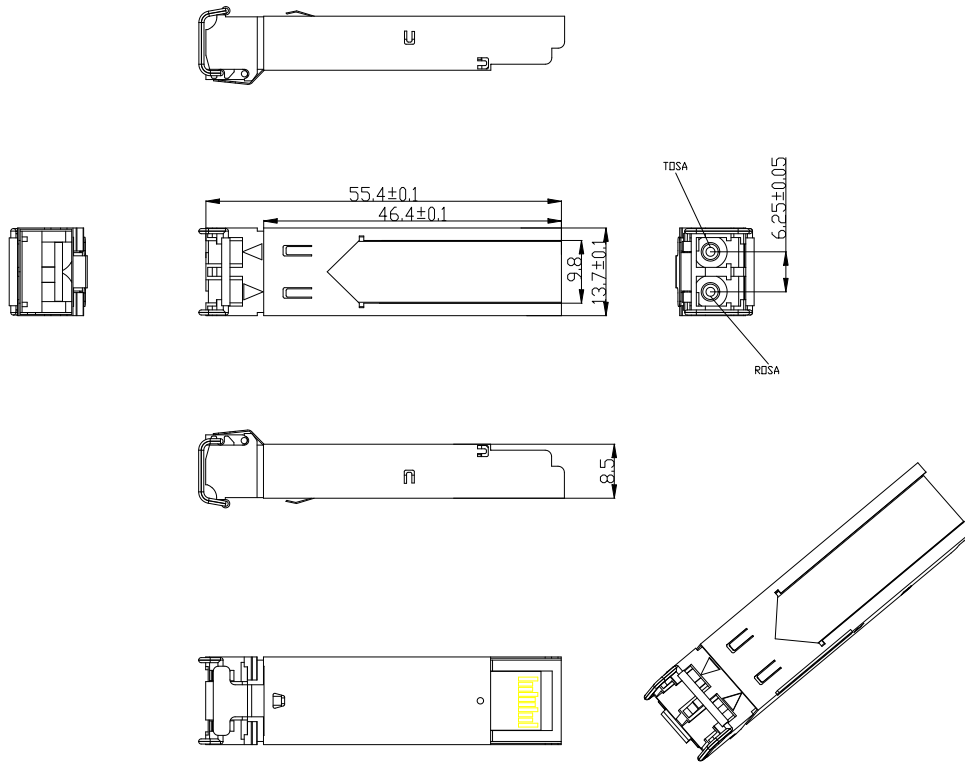
MOD-DEF 2 is the data line of two wire serial interface for serial ID

4. LOS is an open collector output, which should be pulled up with a 4.7k-10k resistor on the host board to a voltage between 2.0V and $V_{cc}+0.3V$. Logic 0 indicates normal operation; logic 1 indicates loss of signal. In the low state, the output will be pulled to less than 0.8V.
5. These are the differential receiver output. They are internally AC-coupled 100 differential lines which should be terminated with 100 (differential) at the user SERDES.
6. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 differential termination inside the module.

Recommended Application Circuit



Outline drawing (mm)



For More Information:

Email: sales@telex.cn

www.telex.cn

www.telexcable.com