



1250Mbps 1310nm Multi-Mode 2km SFP Transceiver BT-SFP-G2M

Description:

The transceiver is a low power, high performance, cost effective module supporting data-rate up to 1.25Gbps/1.0625Gbps and 2km transmission distance. The low jitter and high sensitivity are extinguished features with 1310nm FP laser and PIN/TIA receiver. It incorporates TX_DIS control, TX-FAULT and RX_LOS monitor functions. The devices are Class I laser safety compliant.

Application:

- Gigabit Ethernet
- Switch to switch interface
- 1X Fiber Channel
- Switched backplane applications
- Router/Server interface
- Other optical links

Feature:

- Compliant with IEEE 802.3z
- Compliant with SFP MSA
- Up to 1.25Gbps data rate
- 2km transmission with 50/125um MMF
- 1310nm FP LD and PIN photodetector

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	Tst	-40	+85	°C
Storage Relative Humidity	RHs	-	95	%
Supply Voltage	Vcc	0	6	V
Voltage on any input/output pin	Vio	0	VCC	V



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Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V _{CC}	3.1	3.5	V
Ambient Operating Temperature	T _A	0	70	°C

Performance Specification

Transmitter Characteristics						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	V _{CC}	3.1	3.3	3.5	V	
Differential Input Voltage	V _{IN}	400	-	1600	mV	
Data Rate	Rate	-	1.25	-	Gbps	1
	Rate	-	1.0625	-	Gbps	2
Optical Output Power	P _o	-15	-	-8	dBm	
Extinction Ratio	ER	9	-	-	dB	
Central Wavelength		1270	1310	1355	nm	
RMS Spectral Width		-	-	3	nm	
Optical Rise/Fall Time	T _r /T _f	-	-	0.26	ns	3
Eye Diagram	IEEE 802.3z and ANSI Fibre Channel Compliant					

Receiver Characteristics						
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	V _{CC}	3.1	3.3	3.5	V	
Differential Output Voltage	V _{OUT}	400	-	2000	mV	4
Data Rate	Rate	-	1.25	-	Gbps	1
	Rate	-	1.0625	-	Gbps	2
Sensitivity	S	-	-	-22	dBm	5



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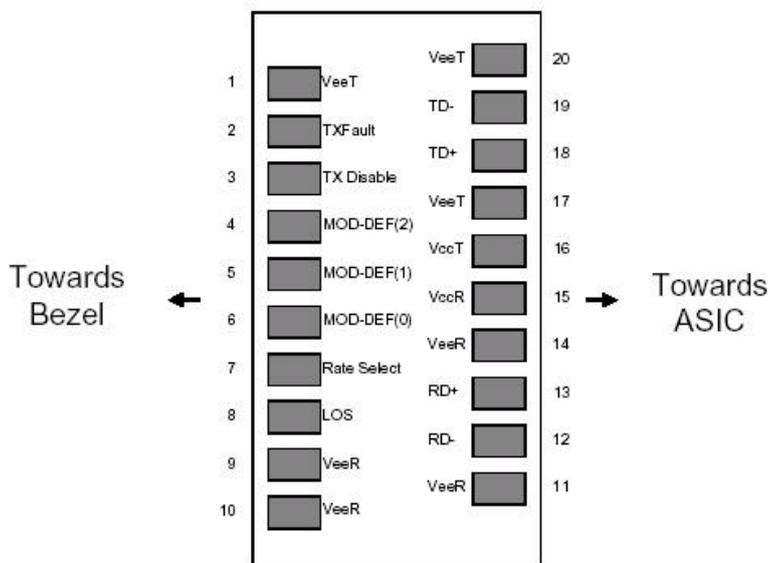
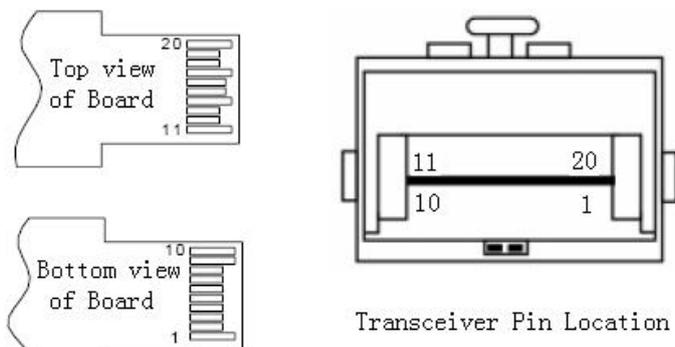
Optical Input Overload	P _{OL}	0	-	-	dBm	
Central Wavelength		1100	-	1600	nm	
LOS (Loss of Signal)	Optical Decreased	-35	-	-	dBm	
	Optical Increased	-	-	-23	dBm	
LOS Hysteric	P _H	0.5	-	5	dB	

Notes:

1. Gigabit Ethernet
2. 1X Fiber Chanel
3. 20%~80%
4. Internally AC coupled.

Average received power where the BER = 10⁻¹², measured with a 2⁷-1 NRZ test pattern.

Transceiver Pin Locations





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Pin Descriptions

Pin	Name	Description	Plug Sequence	Note
1	VEET	Transmitter Ground	1	
2	TX Fault	Transmitter Indication Fault	3	1
3	TX Disable	Transmitter Disable	3	2
4	MOD-DEF2	Module Definition 2	3	3
5	MOD-DEF1	Module Definition 1	3	3
6	MOD-DEF0	Module Definition 0	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	2	
16	VccT	Transmitter Power	2	
17	VeeT	Transmitter Ground	1	
18	TD+	Transmit Data In	3	6
19	TD-	Inverse Transmit Data In	3	6
20	VeeT	Transmitter Ground	1	

Notes:

1. TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ



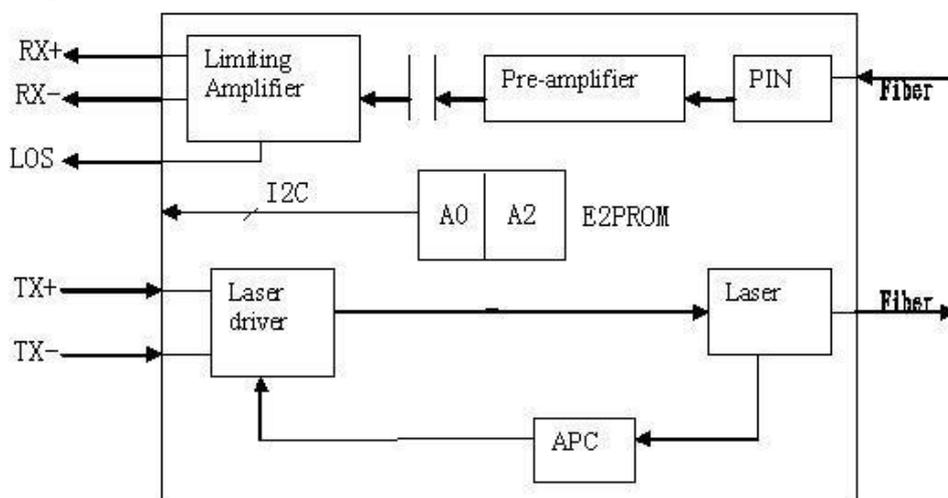
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resistor on the host board to a voltage between 2.0V and $V_{cc}+0.3V$. Logic 0 indicates normal operation; logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.

2. 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 Ω resistor. Its states are:
Low (0~0.8V): Transmitter on (>0.8V, <2.0V): Undefined
High (2.0~3.5): Transmitter Disabled
Open: Transmitter Disabled
3. MOD-DEF 0, 1, 2 are the module definition pins. They should be pulled up with a 4.7k~10k Ω 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 Ω 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 outputs. They are AC-coupled 100 Ω differential lines which should be terminated with 100 Ω (differential) at the user SERDES.
6. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 Ω differential termination inside the module.

Block Diagram



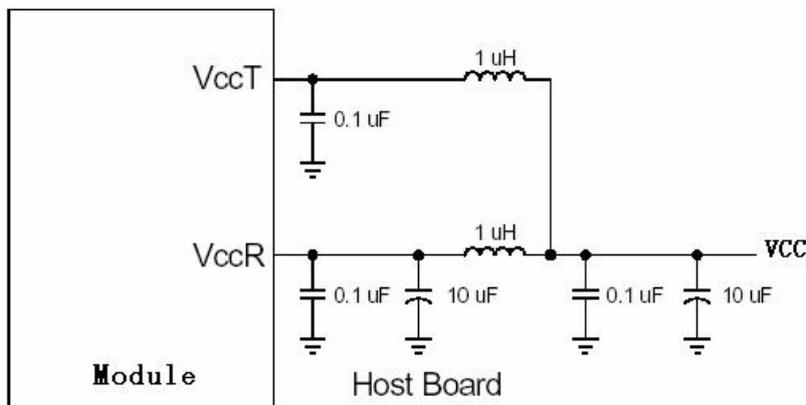


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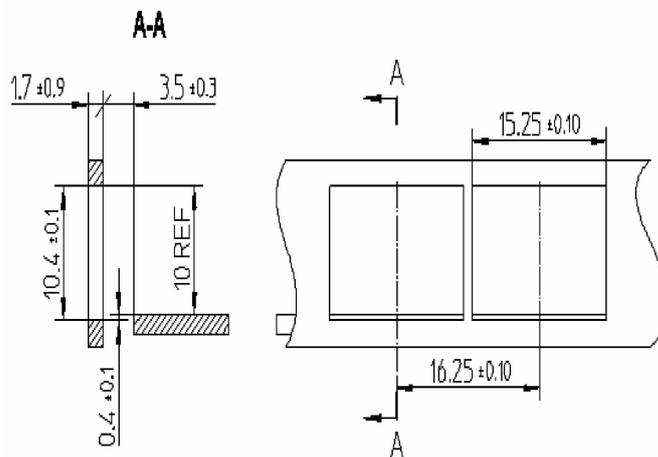
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Power Supply

The Transceiver includes internal circuit components to filter power supply noise. Under some conditions of EMI and power supply noise, external power supply filtering may be necessary. If receiver sensitivity is found to be degraded by power supply noise, the filter network illustrated in the following figure may be used to improve performance. The values of the filter components are general recommendations and may be changed to suit a particular system environment. Shielded inductors are recommended.



Recommended Front Panel Layout Opening for LC

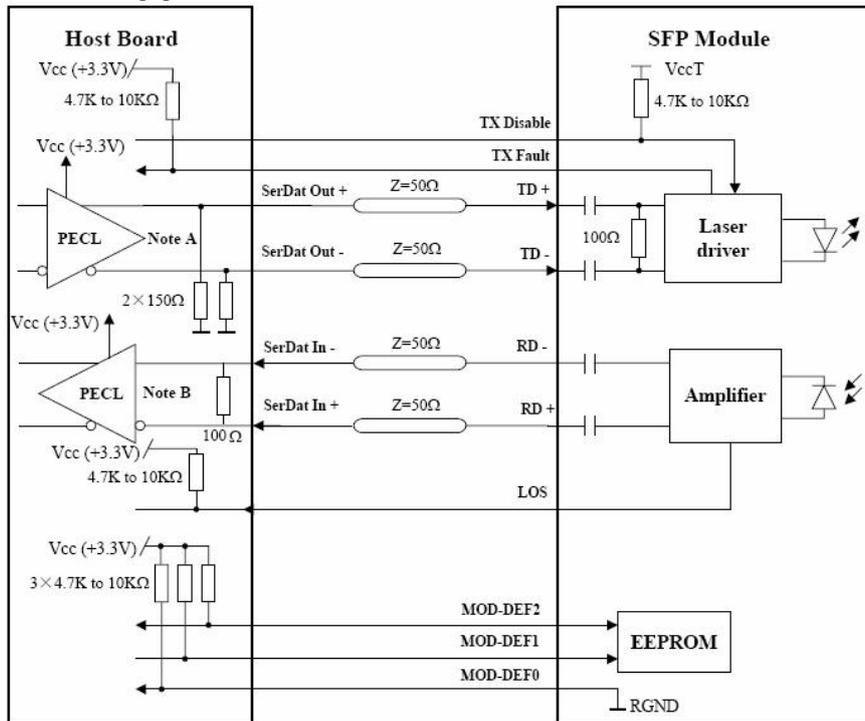




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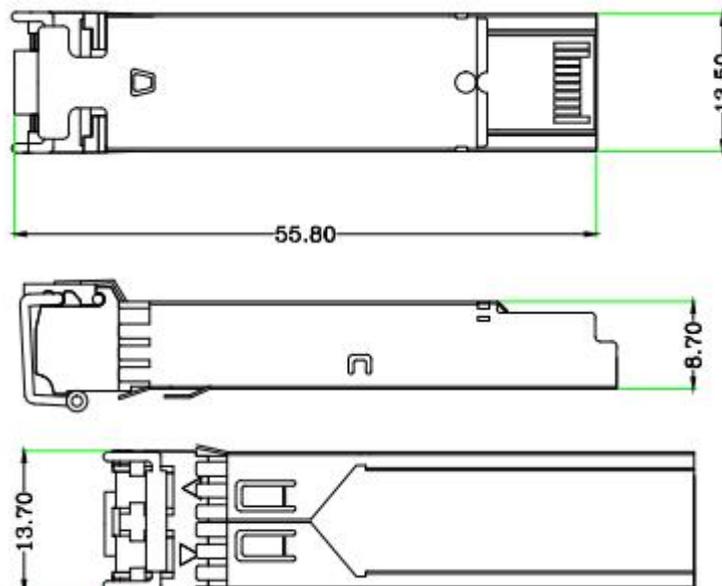
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Recommended Application Circuits



Outline Specification

Dimensions Unit:mm



Tolerance: X.X±0.10 X.XX±0.05 X.XXX±0.01



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Figure4

Digital Diagnostic Memory Map

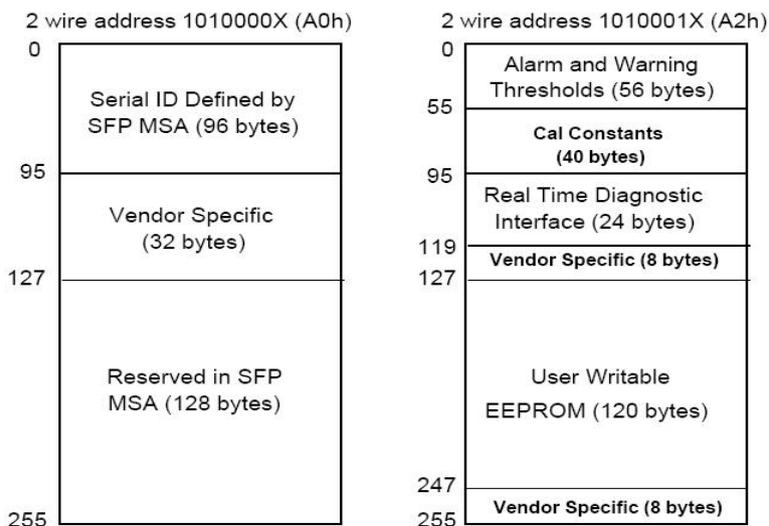


Figure5

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