TOPSTAR TECHNOLOGY INDUSTRIAL CO., LIMITED

产 品 规 格 书

Product Specification Sheet

TOP-SFP-1.25G-MMD

RoHS Compliant 1.25Gbps 850nm 550m Multi-mode Optical Transceiver

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Product Features

- Transceiver unit with independent
- VCSEL laser transmitter and PIN photo-detector
- Up to 1.25Gbps data rate operation
- Up to 550M transmission distance at 1.25Gbps
- Standard serial ID information compliant with SFP MSA
- SFP MSA package with duplex LC connector
- Digital Diagnostic Monitor Interface
- Very low EMI and excellent ESD protection
- +3.3V single power supply
- RoHS compliant
- Case operating temperature: Commercial: 0°C to +70°C Extended: -10°C to +80°C Industrial: -40°C to +85°C

Applications

- Switch/Router
- SAN/Server
- Other optical transmission systems

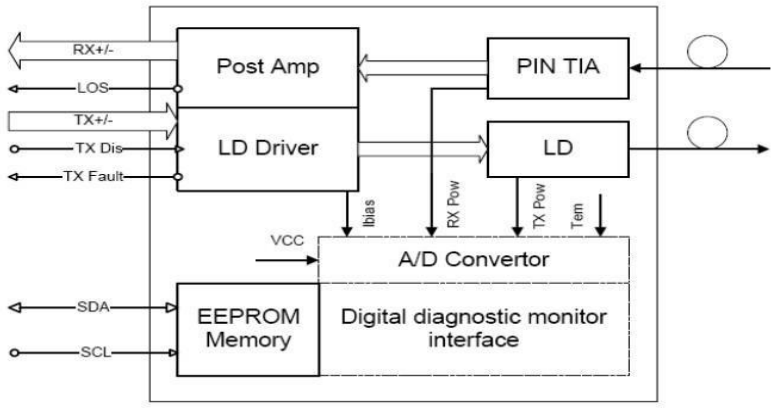
Standard

- SFP MSA (Version Sept.14 2000) compliant
- SFF-8472 (Rev 9.3, Aug. 2002) Digital Diagnostic Monitoring Interface for Optical Transceivers compliant
- IEEE 802.3z compliant
- ANSI specifications for Fiber Channel compliant
- Telcordia GR-468-CORE compliant

Description

TOP-SFP-1.25G-MMD optical transceivers is designed for GE/1 x FC optical interface for data communications with multi mode fiber (MMF). It operates at 1.25Gbps for GE. The transceiver design is optimized for high performance and cost effective to supply customers the best solutions for datacom applications.

Functional Diagram



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max	Unit	Notes
Supply Voltage	Vcc	-0.5	3.60	V	
Storage Temperature		-40	85	℃	
Relative Humidity		5	95	%	

Note:Stress in excess of the maximum absolute ratings can cause permanent damage to the module.

General Operating Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	Gigabit Ethernet			1.25		Gb/s	
	Fiber Channel			1.0625			
Supply Voltage		Vcc	3.1	3.3	3.5	V	
Supply Current		Icc			270	mA	
Operating Case Temperature		Tc	0		70	℃	
			-10		80		
			-45		85		

Electrical Input/Output Characteristics

•Transmitter

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Diff.InputVoltageSwing			300		1600	mVpp	1
TxDisableInput	H	VIH	2.0		Vcc+0.3	V	
	L	VIL	0		0.8		
TxFault Output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.5		
InputDiff.Impedance		Zin		100		Ω	

Receiver

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Diff.Out put Voltage Swing			400		1o00	mVpp	3
RxLOS Output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		

Note1)TD+/-are internally AC coupled with100Ωdifferential termination inside the module.
Note2)TxFault and RxLOS are open collector outputs, which should be pulled up with 4.7k to10kΩ resistors on
the host board. Pull up voltage between2.0VandVcc+0.3V.
Note3)RD+/-outputs are internally AC coupled, and should be terminated with100Ω(differential)at the user SERDES.

Optical Characteristics

●Transmitter

Parameter	Symbol	Min.	Type	Max.	Unit	Notes
Ave.OutputPower (Enable)	Po	-9		-3	dBm	1
Total Jitter	1.25G			0.431	UI	
ExtinctionRatio	ER	9			dB	1
Rise/FallTime(20%-80%)	Tr-Tf			0.26	ns	2
WavelengthRange		840	850	860	nm	
SpectralWidth(RMS)				0.65	nm	
OutputOptical Eye	Compliantwith IEEE802.3z(class 1laser safety)					

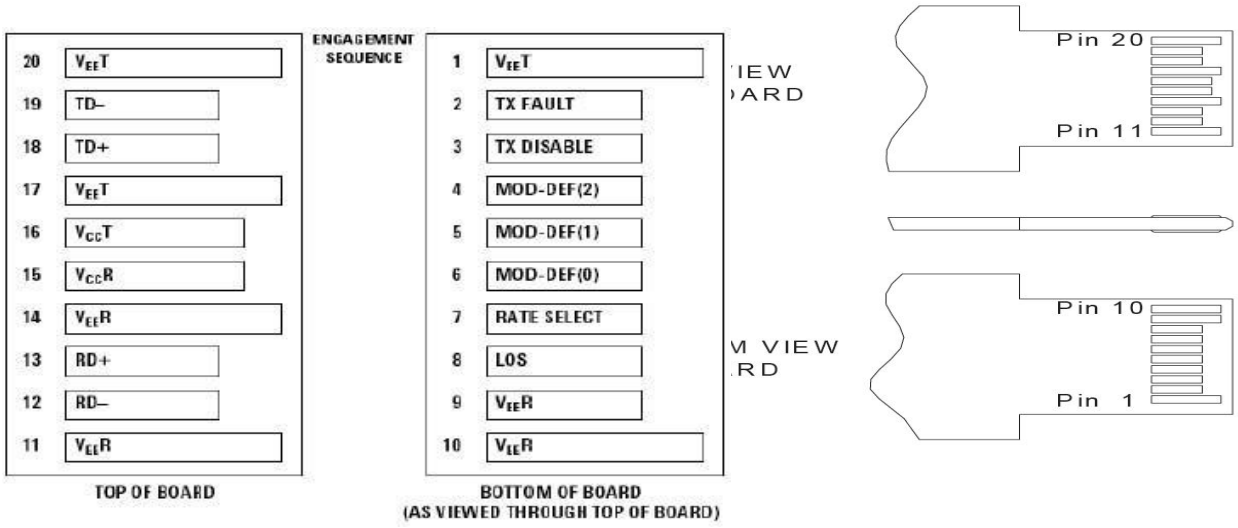
●Receiver

Parameter	Symbol	Min.	Type	Max.	Unit	Notes
OperatingWavelength		770		860	nm	
Sensitivity	Pimin			-20	dBm	3
Min. Overload	Pimax	0			dBm	3

Total Jitter	1.25G			0.749	UI	
LOSAssert	Pa	-33			dBm	
LOSDe-assert	Pd			-23	dBm	
LOSHysteresis	Pd-Pa	0.5		6	dB	

Note1)Measured at1250Mb/s with PRBS27–1NRZ test pattern. Note2)Unfiltered, measured with a PRBS27-1test pattern@1.25Gbps
Note3)Measured at1250 Mb/s with PRBS27–1NRZ test pattern for BER<1x10-12

Pin Definitions and Functions



PIN #	Na	F	Not
1	VeeT	Tx ground	
2	Tx Fault	Tx fault indication, Open Collector Output, active “H”	Note1
3	Tx Disable	LVTTL Input, internal pull-up, Tx disabled on “H”	Note2
4	MOD-DEF2	2 wire serial interface data input/output (SDA)	Note3
5	MOD-DEF1	2wireserialinterfaceclockinput(SCL)	Note3
6	MOD-DEF0	Modelpresentindication	Note3
7	Rateselect	Noconnection	
8	LOS	RxlossofsignalOpenCollectorOutputactive“H”	Note4
9	VeeR	Rxground	
1	VeeR	Rxground	
1	VeeR	Rxground	
1	RD-	Inversereceiveddataout	Note5

1	RD+	Receiveddataout	Note5
1	VeeR	Rxground	
1	VccR	Rxpower supply	
1	VccT	Txpowersupply	
1	VeeT	Tx ground	
1	TD+	Transmitdatain	Note6
1	TD-	Inversetransmitdatain	Note6
2	VeeT	Tx ground	

Note1) When high, this output indicates a laser fault of some kind. Low indicates normal operation. And should be pulled up with a 4.7 –10KΩ resistor on the host board.

Note2)TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7–10KΩ resistor. Its states are:
Low(0–0.8V): Transmitter on (>0.8,<2.0V): Undefined
High(2.0V~Vcc+0.3V): Transmitter Disabled Open: Transmitter Disabled

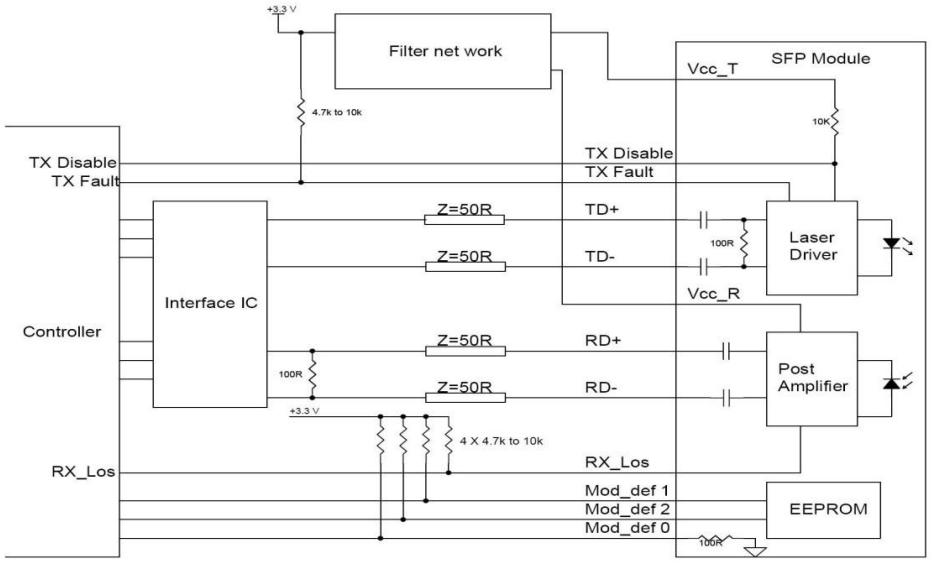
Note3)Mod-Def0,1,2.These are the module definition pins. They should be pulled up with a 4.7K–10KΩresistor on the host board. The pull-up voltage shall be between 2.0V~Vcc+0.3V. Mod-Def0has been grounded by the module to indicate that the module is present
Mod-Def1is the clock line of two wire serial interface for serial ID
Mod-Def2 is the data line of two wire serial interface for serial ID

Note4)When high, this output indicates loss of signal (LOS).Low indicates normal operation.

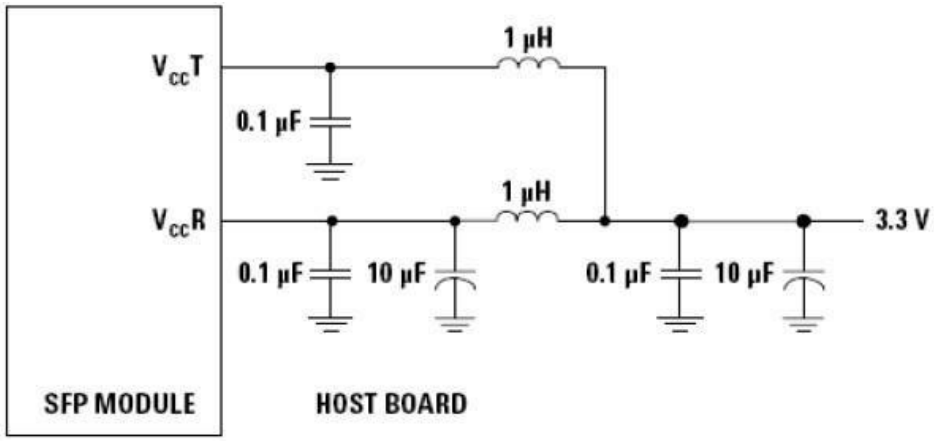
Note5)RD+/-: These are the differential receiver outputs. They are AC coupled100Ωdifferential lines which should be terminated with100Ω(differential)at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.

Note6)TD+/-:These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ωdifferential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board.

Typical Interface Circuit

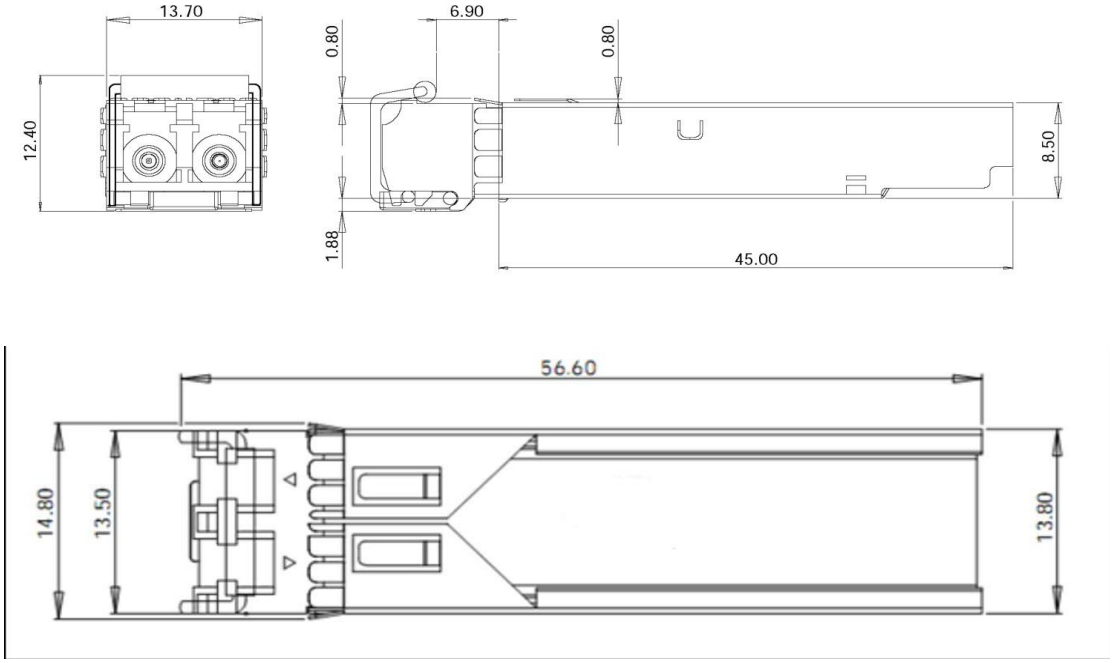


Recommended power supply filter



Note: Inductors with DC resistance of less than 1Ωshould be used in order to maintain the required voltage at the SFP input pin with3.3Vsupplyvoltage. When there commended supply filtering network is used, hot plugging of the SFP transceiver module will result in an inrush current of no more than 30 m A greater than the steady state value.

Package Dimensions



Ordering Information& Related Products

Product part Number	Data Rate (Mbps)	Media	Wavelength (nm)	Transmission Distance(km)	Temperature Range （Tcase）（℃）	
TOP-SFP-1.25G-MMC	1250	Mutil-mode	850	550m	0~70	commercial
TOP-SFP-1.25G-MME	1250	Mutil-mode	850	550m	-10~80	extended
TOP-SFP-1.25G-MMI	1250	Mutil-mode	850	550m	-45~85	industrial

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