



TOPSTAR TECHNOLOGY INDUSTRIAL CO., LIMITED

产品规格书

Product Specification Sheet

TOP-SFP-155M-MMD

RoHS Compliant 155Mbps 850nm 550m Multi-mode Optical Transceiver



E-MAIL: lisa@topsfp.com





Product Features

- Transceiver unit with independent
- 850nmFPLaser diode transmitter
- In Ga As PIN photo diode receiver
- Up to155Mbps data rate operation
- Up to <2KM on5 0/125μm MMF,1KM on 62.5/125μm
- Standard serial ID information compliant with SFPMSA
- Digital Diagnostic Monitor Interface
- Very low EMI and excellent ESD protection
- +3.3V single power supply
- RoHS compliant
- Case operating temperature Commercial:0°Cto+70°C Extended:-10°Cto+80°C Industrial:-40°Cto+85°C

Applications

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

Standard

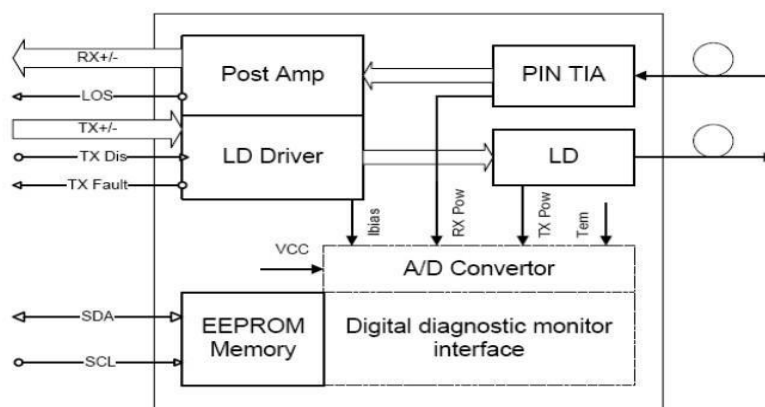
- SFPMSA(VersionSept.142000) compliant
- SFF-8472(Rev9.3,Aug.2002)Digital Diagnostic Monitoring Interface for Optical Transceivers compliant
- TelcordiaGR-253-CORECompliant
- ITU-TG.957andG.958Compliant
- TelcordiaGR-468-COREcompliant



Description

SFP 155M <2KM 850nm optical transceivers are designed for optical interfaces for data communications with multimode fiber (MMF). The transceiver designs are optimized for high performance and cost effective to supply customers the best solutions for telecom applications.

Functional Diagram



Ordering information

Product part Number	Data Rate (Mbps)	Media	Wavelength (nm)	Transmission Distance(km)	Temperature Range (Tcase) (°C)	
TOP-SFP-155M-MMDc	155	Single mode	850	<2	0~70	commercial
TOP-SFP-155M-MMDe	155	Single mode	850	<2	-10~80	extended
TOP-SFP-155M-MMDi	155	Single mode	850	<2	-45~85	industrial

**Absolute Maximum Ratings**

Parameter	Symbol	Min.	Max	Unit	Notes
SupplyVoltage	Vcc	-0.5	3.60	V	
StorageTemperature		-40	85	°C	
RelativeHumidity		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			155		Mb/s	
SupplyVoltage	Vcc	3.1	3.3	270	V	
SupplyCurrent	Icc			300	mA	
Operating Case Temperature	Tc	0		70	°C	
		-10		80		
		-40		85		

Electrical Input/Output Characteristics**Transmitter**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Diff.InputVoltageSwing		370		1800	mVpp	1
TxDisableInput	H	VI	2.0	Vcc+	V	
	L	V	0	0.8		
TxFault Output	H	VOH	2.0	Vcc+	V	2
	L	VOL	0	0.8		
InputDiff.Impedance	Zi		100		Ω	

Receiver

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Diff.OutputVoltageSwing		370		1800	mVpp	3



RxLOS Output	H	VOH	2.0		Vcc+	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 4.7kto10kΩ 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	Po	-8		-4	dBm	1
ExtinctionRatio	ER	8.2			dB	1
Rise/FallTime(20%-80%)	Tr-Tf			2.5	ns	2
WavelengthRange		830	850	860	nm	
SpectralWidth(RMS)				4	nm	
OutputOptical Eye	ITU G.957Compliant					

Receiver

Parameter	Symbol	Min.	Type	Max.	Unit	Notes
OperatingWavelength		770	850	860	nm	
Sen	Pimin			-26	dBm	3
Min. Overload	Pimax	-8			dBm	3
LOSAssert	Pa	-40			dBm	
LOSDe-assert	Pd			-27	dBm	
LOSHysteresis	Pd-PPaPa	0.5		6	dB	

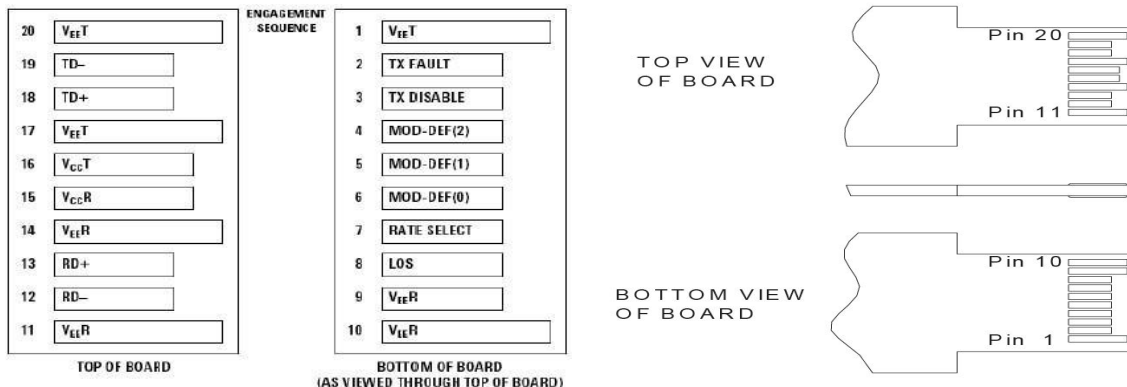
Note1)Measured at 155Mb/s with PRBS223–1NRZ test pattern.

Note2)Unfiltered, measured with a PRBS223-1 test pattern @155Mbps

Note3)Measured at 155Mb/s with PRBS223–1NRZ test pattern for BER<1x10-10



Pin Definitions and Functions



PIN #	N	F	Not
1	V	Tx ground	
2	Tx Fault	Txfaultindication, OpenCollectorOutput, active“H”	Note1
3	TxDisable	LVTTLInput, internalpull-up, Txdisabledon“H”	Note2
4	MOD-DEF2	2wireserialinterfacedatainput/output(SDA)	Note3
5	MOD-DEF1	2wireserialinterfaceclockinput(SCL)	Note3
6	MOD-DEF0	Modelpresentindication	Note3
7	Rateselect	Noconnection	
8	LOS	Rxlossofsignal, OpenCollectorOutput, active“H”	Note4
9	VeeR	Rxground	
10	VeeR	Rxground	
11	VeeR	Rxground	
12	RD-	Inversereceiveddataout	Note5
13	RD+	Receiveddataout	Note5
14	VeeR	Rxground	
15	VccR	Rxpower supply	
16	VccT	Txpowersupply	
17	VeeT	Tx ground	
18	TD+	Transmitdatain	Note6
19	TD-	Inversetransmitdatain	Note6
20	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 –10KΩresistor on the host board.

Note2)TXdisable is an input that is used to shut down the transmitter optical output .It is pulled up within the module with a 4.7–10KΩresistor. 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



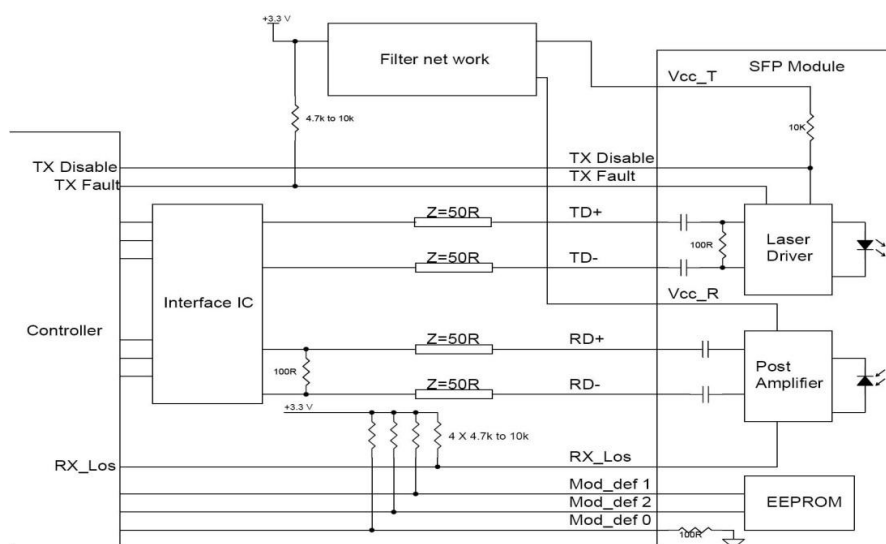
Note3) Mod-Def0,1,2. These are the module definition pins. They should be pulled up with a 4.7K–10KΩ resistor on the host board. The pull-up voltage shall be between 2.0V~Vcc+0.3V. Mod-Def0 has been grounded by the module to indicate that the module is present
Mod-Def1 is the clock line of two wire serial 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 coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.

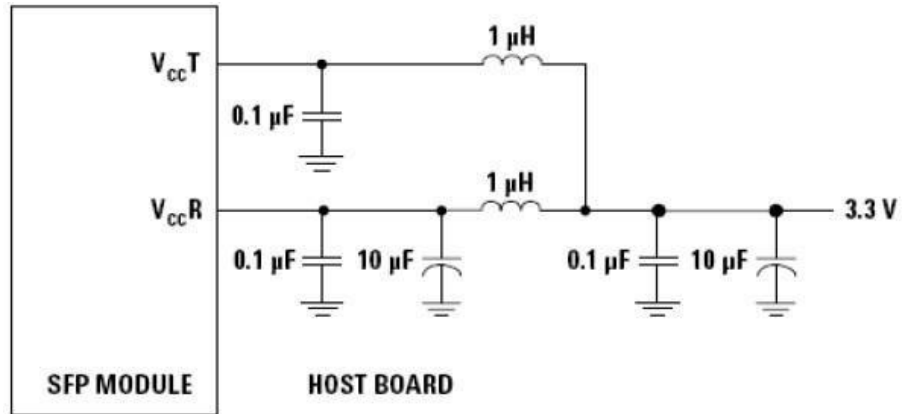
Note6) TD+/-: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board.

Typical Interface Circuit



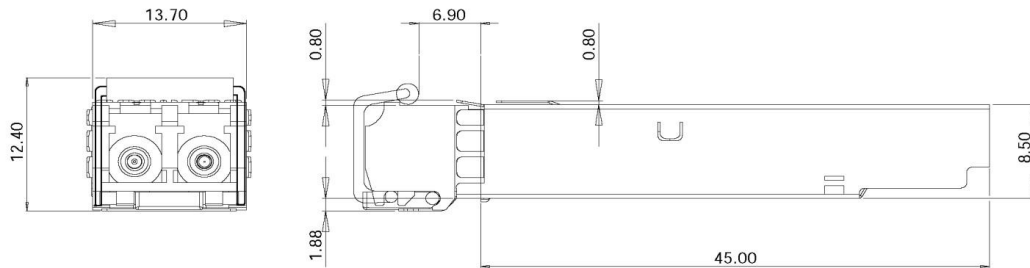


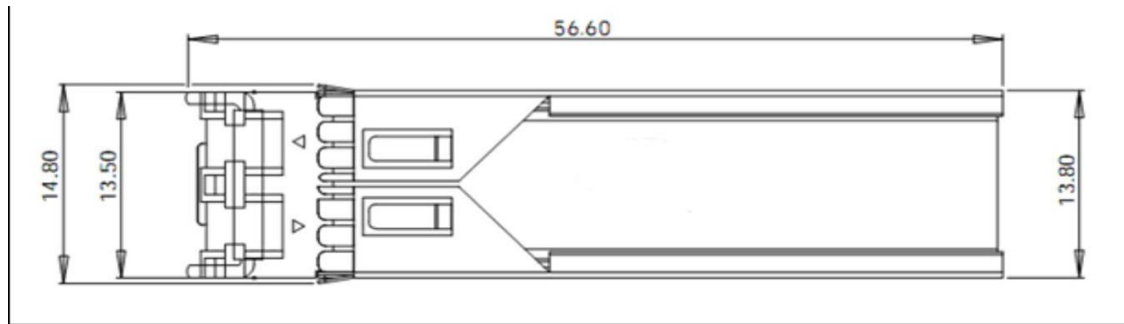
Recommended power supply filter



Note: Inductors with DC resistance of less than 1Ω should be used in order to maintain the required voltage at the SFP input pin with 3.3V supply voltage. When the recommended supply filtering network is used, hot plugging of the SFP transceiver module will result in an inrush current of no more than 30 mA greater than the steady state value.

Package Dimensions





Ordering Information & Related Products

TOP-SFP-155M-MM	Dual Fiber SFP, 155Mbps, 850nm, 2KM, without DDM
TOP-SFP-155M-MMD	Dual Fiber SFP, 155Mbps, 850nm, 2KM, with DDM



Topstar Technology Industrial Co., Ltd

**Add: F5, Rongcheng Building, 28 Yayuan Road Wuhe Community,
BanTian Street, Shenzhen, China**

Tel: +86 755 8255 2969 Email:lisa@topsfp.com

Skype: lisalin6565 Whatsapp: +86 13798265065

Wechat: 251081707

Facebook and Linked in: Topstar Technology Industrial Co., Ltd

