TOPSTAR TECHNOLOGY INDUSTRIAL CO., LIMITED

产 品 规 格 书

Product Specification Sheet

TOP-SFP-155M-80D

RoHS Compliant 155Mbps 1550nm 80KM Single-mode Optical Transceiver

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Product Features

- Transceiver unit with independent
- 1550nmDFBLaser diode transmitter
- In GaAsPIN photo diode receiver
- Up to 155Mbps data rate operation
- Up to 80KMon9/125μmSMF
- 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

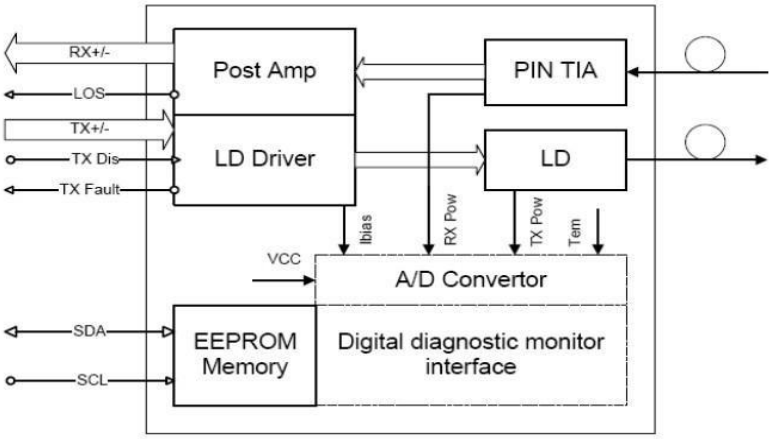
Standard

- 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 80KM 1550nm optical transceivers are designed for optical interfaces for data communications with single mode fiber(SMF).The transceiver designs are optimized for high performance and cost effective to supply customers the best solutions for telecom applications.

Functional Diagram



Ordering information

Productpart Number	Date Rate (Mbps)	Media	Wavelength(nm)	Transmission Distance(km)	TemperatureRange（Tcase）（℃）	
TOP-SFP-155M-80D-c	155	*Singlemode*	1550	80	0~70	*commercial*
SFP 155M 80KM 1550-e	155	*Singlemode*	1550	80	-10~80	*extended*
SFP 155M 80KM 1550-i	155	*Singlemode*	1550	80	-45~85	*Industrial*

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max	Unit	Notes
SupplyVoltage	V	-0.5	3.60	V	
StorageTemperature		-40	85	℃	
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	
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		186	mVp	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		180	mVp	3
RxLOS Output	H	VO	2.0		Vcc	V	2
	L	VO	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 (Enable)	Po	-5		0	dBm	1
ExtinctionRatio	ER	8.2			dB	1
Sidemode Suppression Ratio	SMSR	30			dB	
Rise/FallTime(20%-80%)	Tr-Tf			2.5	ns	2
Wavelength Range		1530	1550	1570	nm	
Spectral Width(RMS)				4	nm	
Output Optical Eye	ITU G.957Compliant					

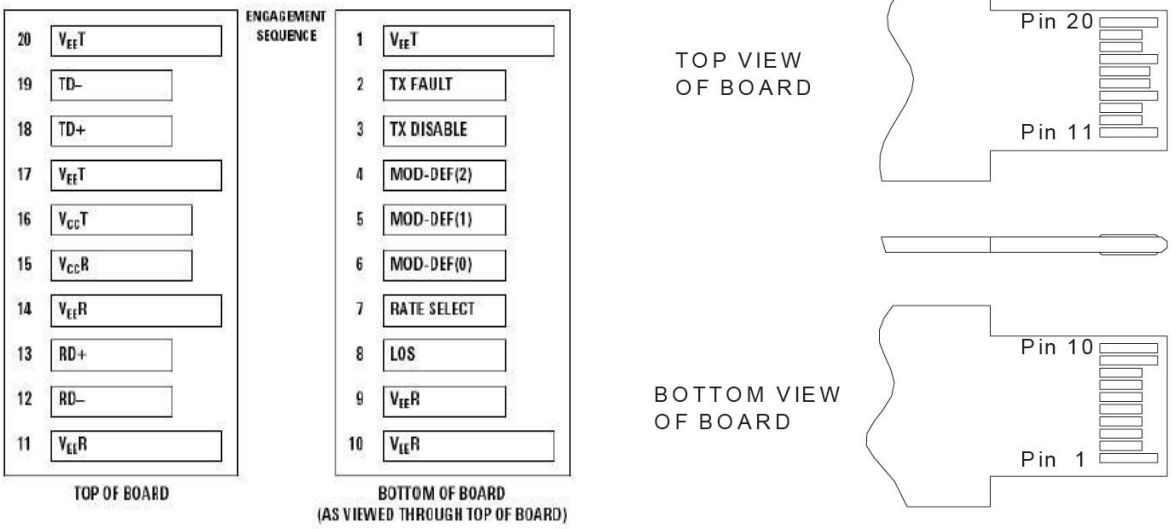
Receiver

Parameter	Symbol	Min.	Type	Max.	Unit	Notes
OperatingWavelength		1270		1610	nm	
Sensitivity	Pimin			-34	dBm	3
Min. Overload	Pimax	-8			dBm	3
Optical PathPenalty				1	dB	

LOSAssert	Pa	-40			dBm	
LOSDe-assert	Pd			-35	dBm	
LOSHysteresis	Pd-Pa	0.5		6	dB	

Note1)Measured at155Mb/s with PRBS223–1NRZ test pattern.
Note2)Unfiltered, measured with a PRBS223-1test pattern@155Mbps
Note3)Measured at155Mb/s with PRBS223–1NRZ test pattern for BER<1x10-10

Pin Definitions and Functions

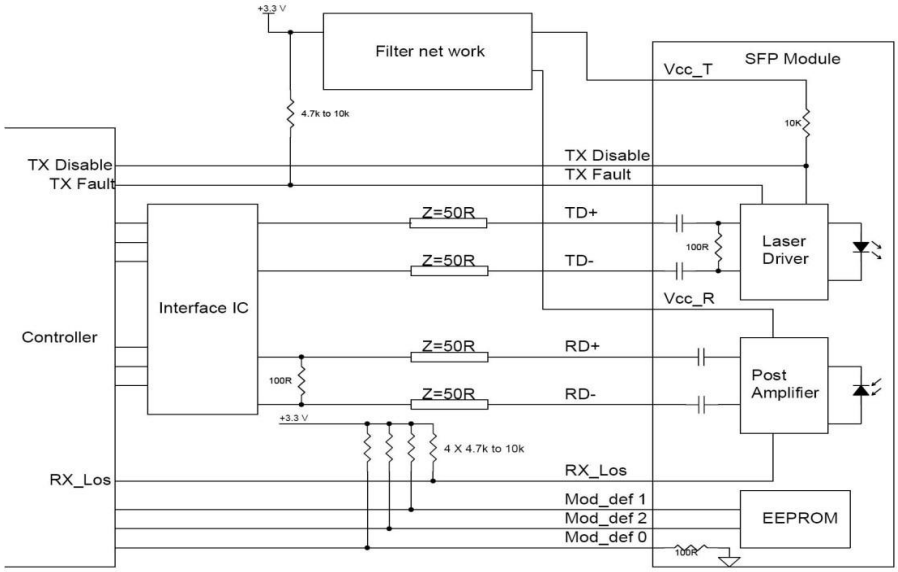


PIN #	Name	Function	Notes
1	VeeT	Tx ground	
2	Tx Fault	Txfaultindication,OpenCollectorOutput,active“H”	Note1
3	TxDisable	LVTTLInput,internalpull-up,Txdisabledon“H”	Note2
4	MOD-DEF2	2wireserialinterfacedatainput/output(SDA)	Note3
5	MOD-DEF1	2wireserialinterfaceclockinput(SCL)	Note3
6	MOD-DEF0	Modelpresentindication	Note3
7	Rateselec	Noconnection	
8	LOS	Rxlossofsignal,OpenCollectorOutput,active“H”	Note4
9	VeeR	Rxground	
10	VeeR	Rxground	
11	VeeR	Rxground	
12	RD-	Invereceiveddataout	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	

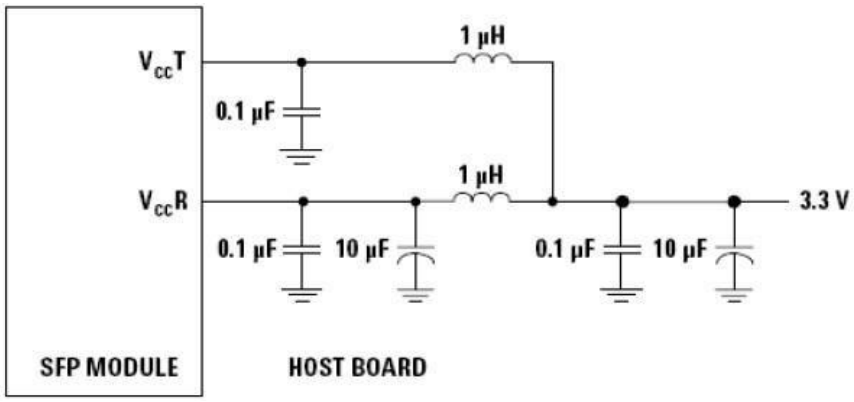
Note1)When high,this output indicates a laser fault of some kind.Low indicates normal operation.And should be pulled up with a 4.7 –10KΩresistor on the host board.
Note2)TXdisable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a4.7–10KΩ resistor. 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–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-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 with 100Ω(differential)at the userSERDES.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

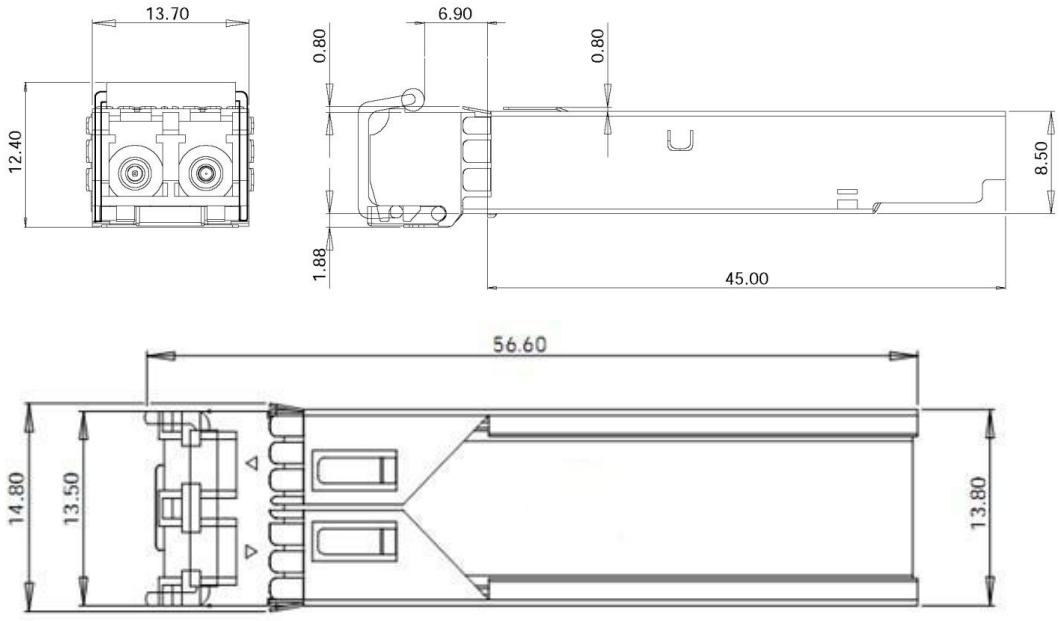


Recommended power supply filter



Note: Inductors with DC resistance of less than 1Ωshould be used in order to maintain the required voltage at the SFP input pin with3.3Vsupplyvoltage. 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 m A greater than the steady state value.

Package Dimensions



Ordering Information& Related Products

TOP-SFP-155M-80	Dual Fiber SFP,155Mbps, 1550nm,80KM,without DDM
TOP-SFP-155M-80D	Dual Fiber SFP,155Mbps, 1550nm,80KM,withDDM

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