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产 品 规 格 书

Product Specification Sheet

DTS3101L-C(D)02

RoHS Compliant 155Mbps 1310nm 2KM Multimode Datacom SFP Optical Transceiver

Product Features

- Transceiver unit with independent
  - 1310nm FP Laser diode transmitter
  - InGaAs PIN photodiode receiver
- Up to 155Mbps data rate operation
- Up to 2KM on 50/125μm MMF, 1KM on 62.5/125μm
- Standard serial ID information compliant with SFP MSA
- Digital Diagnostic Monitor Interface
- Very low EMI and excellent ESD protection
- +3.3V single power supply
- RoHS compliant
- Case operating temperature

  Commercial: 0℃ to +70℃
  Extended: -10℃ to +80℃
  Industrial: -40℃ to +85℃

Applications

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

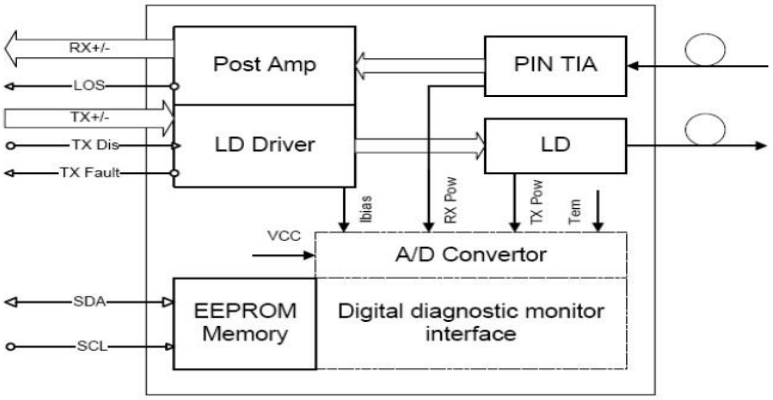
Standard

- SFP MSA (Version Sept.14 2000*)* compliant
- SFF-8472 (Rev 9.3, Aug. 2002) Digital Diagnostic Monitoring Interface for Optical Transceivers compliant
- Telcordia GR-253-CORE Compliant
- ITU-T G.957 and G.958 Compliant
- Telcordia GR-468-CORE compliant

Description

Datocom **DTS3101L-C(D)02** optical transceivers are designed for optical interfaces for data communications with multi mode 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）（℃）	
DTS3101L-C(D)02	155	Single mode fiber	1310	2	0~70	commercial
DTS3101L-E(D)02	155	Single mode fiber	1310	2	-10~80	extended
DTS3101L-I(D)02	155	Single mode fiber	1310	2	-45~85	industrial

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			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. Input Voltage Swing			500		2400	mVpp	1
Tx Disable Input	H	V_{IH}	2.0		Vcc+0.3	V	
	L	V_{IL}	0		0.8		
Tx Fault Output	H	V_{OH}	2.0		Vcc+0.3	V	2
	L	V_{OL}	0		0.8		
Input Diff. Impedance		Zin		100		Ω	

● Receiver

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Diff. Output Voltage Swing			370		1800	mVpp	3
Rx LOS Output	H	V_{OH}	2.0		Vcc+0.3	V	2
	L	V_{OL}	0		0.8		

Note 1) TD+/- are internally AC coupled with 100Ω differential termination inside the module.
Note 2) Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7k to 10kΩ resistors on the host board. Pull up voltage between 2.0V and Vcc+0.3V.
Note 3) RD+/- outputs are internally AC coupled, and should be terminated with 100Ω (differential) at the user SERDES.

Optical Characteristics

● Transmitter

Parameter	Symbol	Min.	Type	Max.	Unit	Notes
Ave. Output Power (Enable)	Po	-15		-8	dBm	1
Extinction Ratio	ER	8.2			dB	1
Rise/Fall Time (20%-80%)	Tr-Tf			2.5	ns	2
Wavelength Range		1270	1310	1360	nm	
Spectral Width (RMS)				4	nm	
Output Optical Eye	ITU G.957 Compliant					

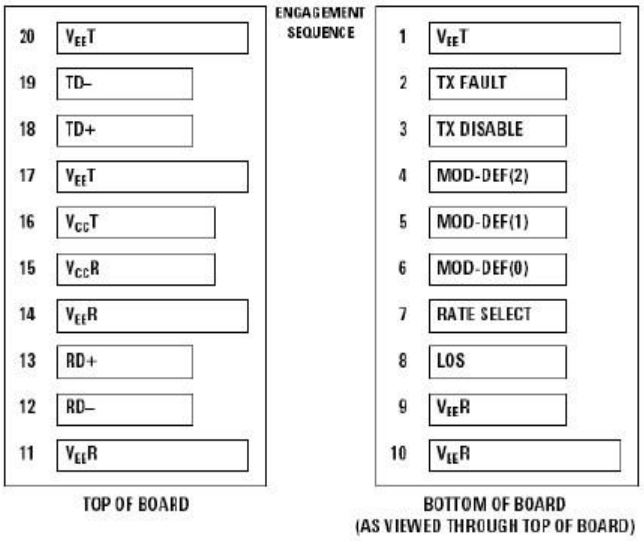
● Receiver

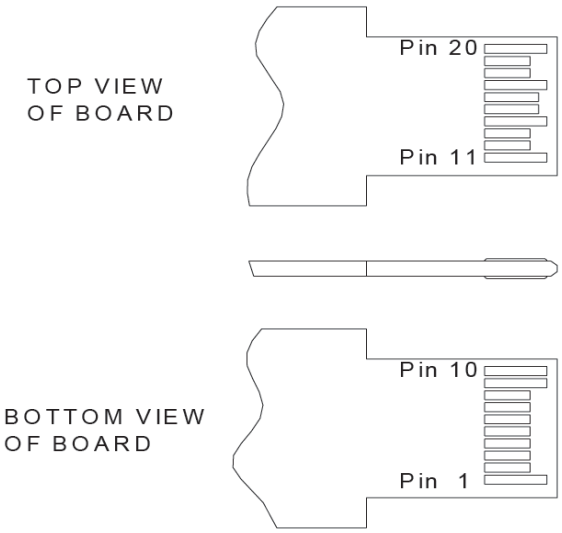
Parameter	Symbol	Min.	Type	Max.	Unit	Notes
Operating Wavelength		1270		1610	nm	
Sensitivity	Pimin			-32	dBm	3
Min. Overload	Pimax	-8			dBm	3
LOS Assert	Pa	-45			dBm	

LOS De-assert	Pd			-34	dBm	
LOS Hysteresis	Pd-Pa	0.5		6	dB	

Note 1) Measured at 155 Mb/s with PRBS 2^{23} – 1 NRZ test pattern.
Note 2) Unfiltered, measured with a PRBS 2^{23}-1 test pattern @155Mbps
Note 3) Measured at 155 Mb/s with PRBS 2^{23} – 1 NRZ test pattern for BER < $1x10^{-10}$

Pin Definitions and Functions





PIN #	Name	Function	Notes
1	VeeT	Tx ground	
2	Tx Fault	Tx fault indication, Open Collector Output, active “H”	Note 1
3	Tx Disable	LVTTL Input, internal pull-up, Tx disabled on “H”	Note 2
4	MOD-DEF2	2 wire serial interface data input/output (SDA)	Note 3
5	MOD-DEF1	2 wire serial interface clock input (SCL)	Note 3
6	MOD-DEF0	Model present indication	Note 3
7	Rate select	No connection	
8	LOS	Rx loss of signal, Open Collector Output, active “H”	Note 4
9	VeeR	Rx ground	
10	VeeR	Rx ground	
11	VeeR	Rx ground	
12	RD-	Inverse received data out	Note 5
13	RD+	Received data out	Note 5
14	VeeR	Rx ground	
15	VccR	Rx power supply	
16	VccT	Tx power supply	
17	VeeT	Tx ground	
18	TD+	Transmit data in	Note 6
19	TD-	Inverse transmit data in	Note 6

20	VeeT	Tx ground	

Note 1) 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.

Note 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 4.7 – 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

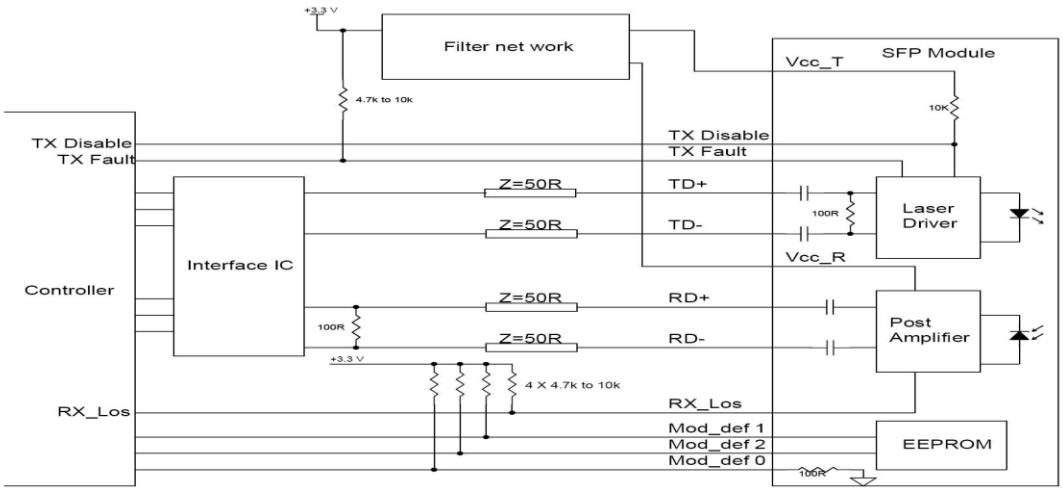
Note 3) Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7K – 10KΩ resistor on the host board. The pull-up voltage shall be between 2.0V~Vcc+0.3V.
Mod-Def 0 has been grounded by the module to indicate that the module is present
Mod-Def 1 is the clock line of two wire serial interface for serial ID
Mod-Def 2 is the data line of two wire serial interface for serial ID

Note 4) When high, this output indicates loss of signal (LOS). Low indicates normal operation.

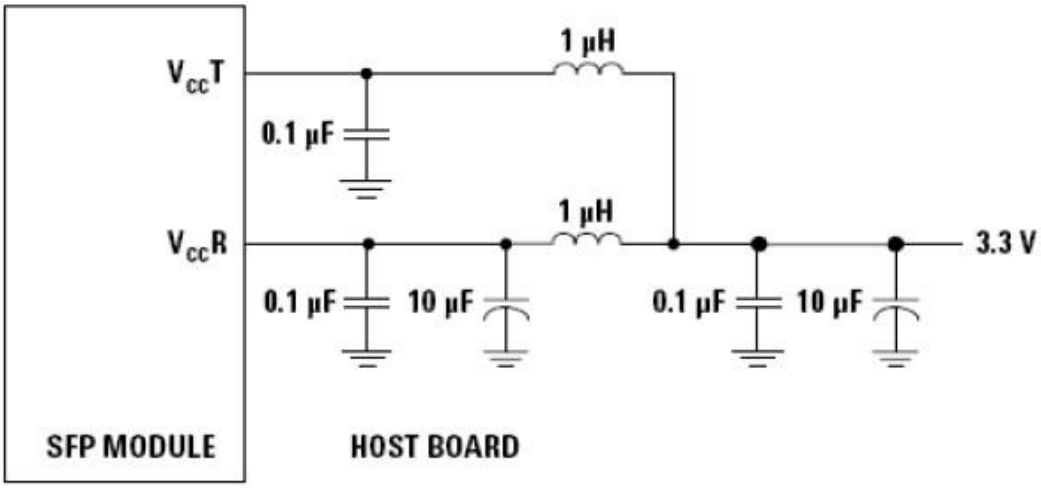
Note 5) RD+/-: These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.

Note 6) 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

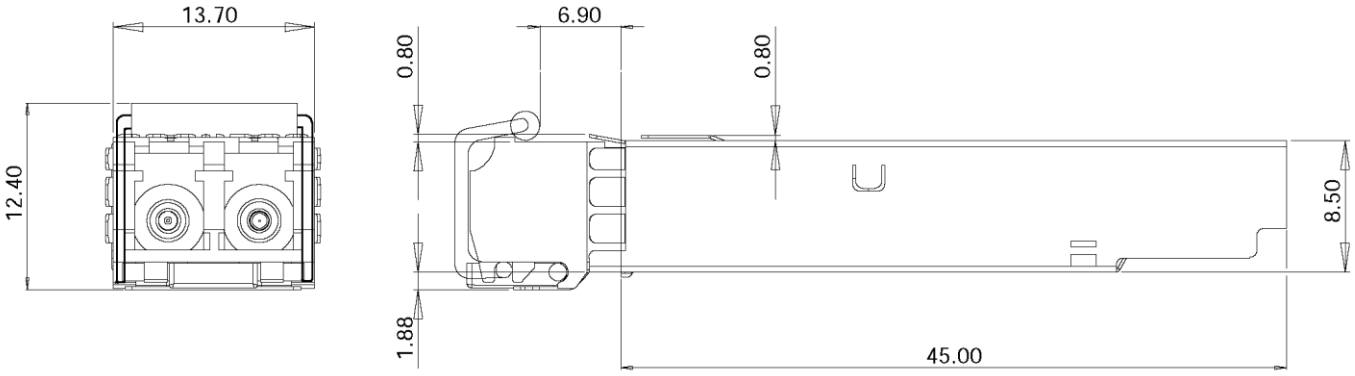


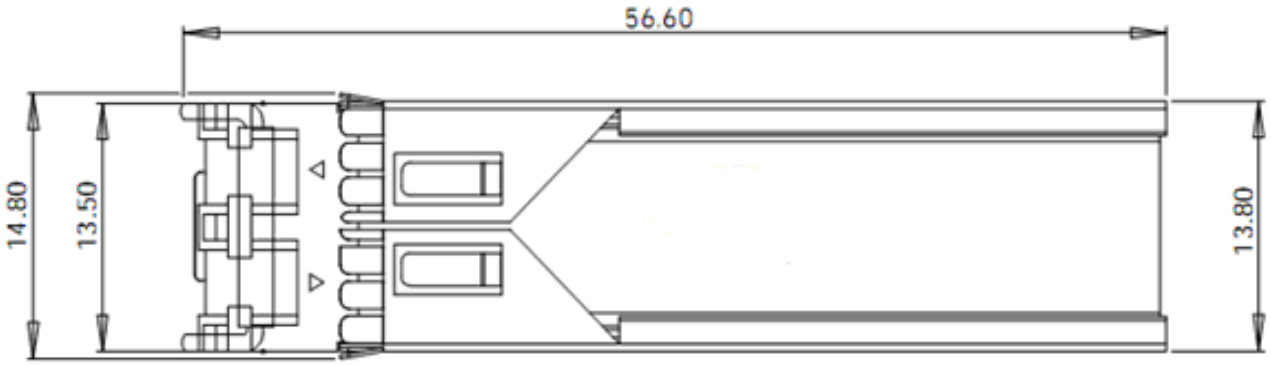
Recommended power supply filter



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

DTS3101L-CN02	Dual Fiber SFP, 155Mbps, 1310nm, 2KM, without DDM
DTS3101L-CD02	Dual Fiber SFP, 155Mbps, 1310nm, 2KM, with DDM

FOR MORE INFORMATION

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