UK - SFP MONOMODO 20 KM 1310 NM. DTS3112L - C(D)20

100030907201

Description

Datocom 1 DTS3112L-C(D)20 optical transceivers are designed for GE/1 x FC optical interface for data communications with single mode fiber (SMF), and multimode fiber (MMF) as well. They operate at both 1.25Gbps for GE and 1.0625Gbps for 1xFC. The transceiver designs are optimized for high performance and cost effective best solutions for datacom applications.

RoHS Compliant

1.25Gbps 1310nm 20KM Singlemode
SFP Optical Transceiver.

Applications

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

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Product Features

- Transceiver unit with independent.
- FP laser transmitter and PIN photo-detector.
- Dual Data-rate of 1.25Gbps/1.0625Gbps Operation.
- Up to 20KM transmission distance on 9/125µm SMF.
- 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.
- Wide operating temperature range.
- RoHS compliant.
- Case operating temperature
  - Commercial: 0°C to +70°C
  - Extended: -10°C to +80°C
  - Industrial: -40°C to +85°C

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.

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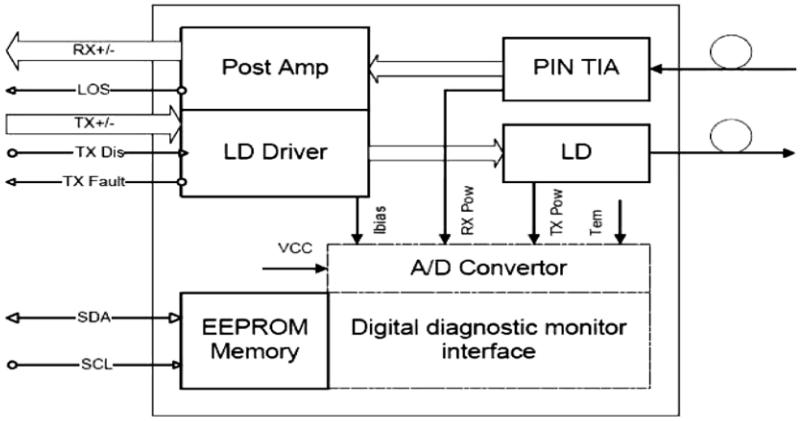
Functional Diagram



Ordering information

Product part Number	Data Rate (Mbps)	Media	Wavelen gth (nm)	Transmission Distance (km)	Temperature Range (Tcase) °C	
DTS3112L-C(D)20	1250	Single mode fiber	1310	20	0~70	commercial
DTS3112L-E(D)20	1250	Single mode fiber	1310	20	-10~80	extended
DTS3112L-I(D)20	1250	Single mode fiber	1310	20	-45~85	industrial

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max	Unit	Notes
Supply Voltage	Vcc	-0.5	3.60	V	
Storage Temperature		-40	85	°C	
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	
Data Rate Fiber Channel			1.0625			
Supply Voltage	Vcc	3.1	3.3	3.5	V	
Supply Current	Icc			270v	mA	
Operating Case Temperature	Tc	0		70	°C	
		-10		80		
		-45		85		

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Electrical Input/Output Characteristics

Transmitter							
Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Diff. Input Voltage Swing			300		1800	mVpp	1
Tx Disable Input	H	VIH	2.0		Vcc+0.3	V	
	L	VIL	0		0.8		
Tx Fault Output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		
Input Diff. Impedance		Zin		100		Ω	

Receiver							
Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Diff. Output Voltage Swing			400		1000	mVpp	3
Rx LOS Output	H	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		

Note 1: Stress in excess of the maximum absolute ratings can cause permanent damage to 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.

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Optical Characteristics

Transmitter

Parameter		Symbol	Min.	Type	Max.	Unit	Notes
Ave. Output Power (Enable)	10km	Po	-8		-4	dBm	1
	20km						
Extinction Ratio		ER	9			dB	1
Rise/Fall Time (20%-80%)		Tr-Tf			0.26	ns	2
Wavelength Range			1270		1360	nm	
Spectral Width (RMS)					4	nm	
Output Optical Eye		Compliant with IEEE802.3 z (class 1 aser safety)					

Receiver

Parameter		Symbol	Min.	Type	Max.	Unit	Notes
Operating Wavelength			1270		1610	nm	
Sensitivity	10km	Pimin			-24	dBm	3
	20km						
Min. Overload		Pimax	-3			dBm	3
LOS Assert		Pa	-38			dBm	
LOS De-assert		Pd			-26	dBm	
LOS Hysteresis		Pd-Pa	0.5		6	dB	

Note 1: Measured at 1250 Mb/s with PRBS 27 – 1 NRZ test pattern.
Note 2: Unfiltered, measured with a PRBS 27-1 test pattern @1.25Gbps
Note 3: Measured at 1250 Mb/s with PRBS 27 – 1 NRZ test pattern for BER < 1x10-12

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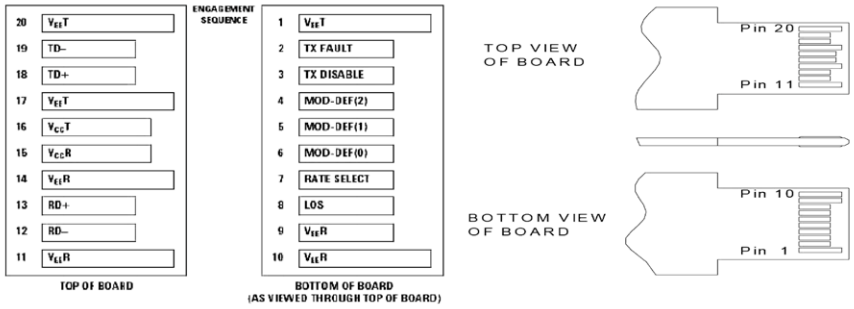
Pin Definitions and Functions



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.

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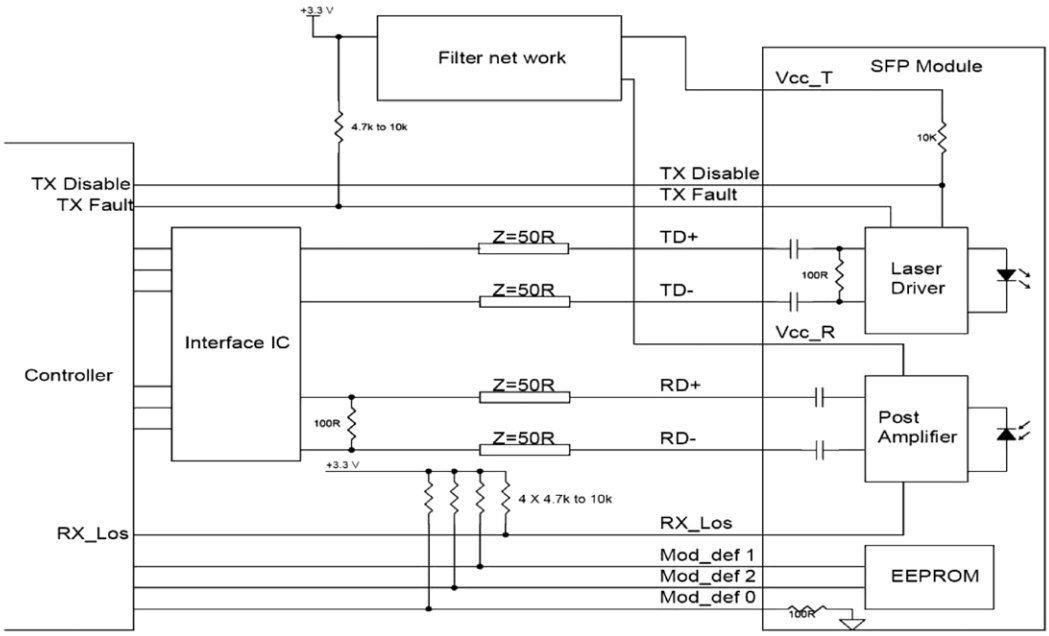
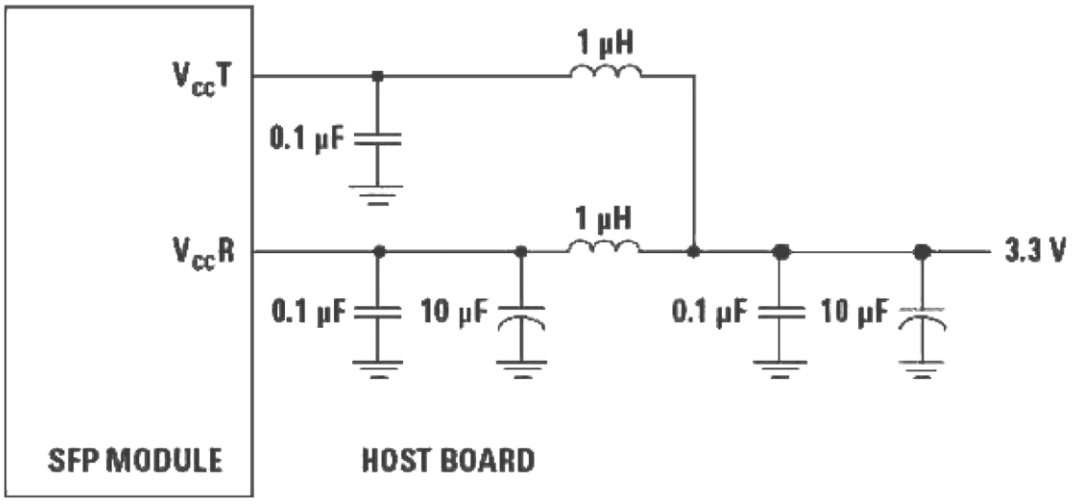
Typical Interface Circuit



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.

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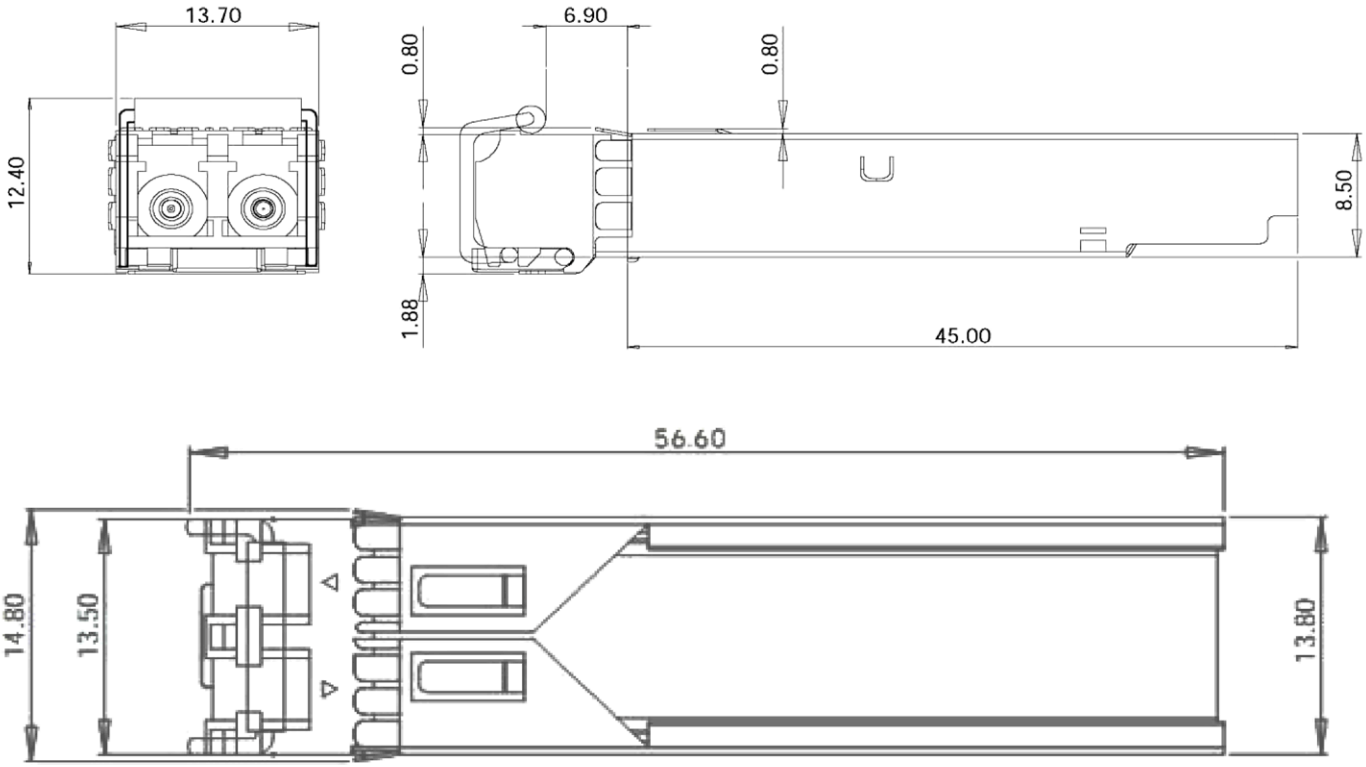
Package Dimensions



Ordering Information & Related Products

Ordering Information & Related Products	
DTS3112L-CN20	Dual Fiber SFP, 1.25Gbps, 1310nm, 20KM, without DDM
DTS3112L-CD20	Dual Fiber SFP, 1.25Gbps, 1310nm, 20KM, with DDM