10Gb/s SFP+ CWDM 10km Transceiver

LA-OT-10G-CW26-10

Features

- SFP+ package with LC connector
- DML CWDM DFB Laser and PIN-TIA photodetector
- Up to 10Km transmission on SMF
- Up to 11.3Gbps Data Links
- +3.3V single power supply
- Power dissipation<1.5W
- 2-wire interface with integrated Digital Diagnostic monitoring
- Low EMI and excellent ESD protection
- laser safety standard IEC-60825 compliant
- Compatible with RoHS
- Compliant with SFF-8472 SFP+ MSA
- Compliant to SFP+ SFF-8431 and SFF-8432

Application

- Ethernet
- Telecom
- Fiber Channel

Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Storage Temperature	Tst	-40	+85	°C
Supply Voltage	Vcc	-0.3	+3.5	V
Operating Relative Humidity	RH	5	95	%

Operation Environment

Parameter	Symbol	Min	Typical	Max	Units
Supply Voltage	Vcc	3.15	3.3	3.45	V
Operating Case Temperature	Tc	0		+70	°C
Power Dissipation				1.5	W
Data Rate			10.3125		Gbps

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units
Transmitter Section					
Center Wavelength	λo	1270		1610	nm
Spectral Width(-20dB)	Δλ			1	nm
Average Output Power	Po	-3		+5	dBm
Extinction Ratio	Er	3.5			dB
Side-Mode Suppression Ratio	SMSR	35			dB
Total jitter	Tj	IEEE 802.3ae			
Receiver Section					
Center Wavelength	λo	1270	1330	1610	nm
Receiver Sensitivity	Rsen			-13	dBm
Receiver Overload	Rov	0			dBm
Return Loss		12			dB
LOS Assert	LOS_A	-28			dBm
LOS Dessert	LOS_D			-14	dBm
LOS Hysteresis		0.5		4	

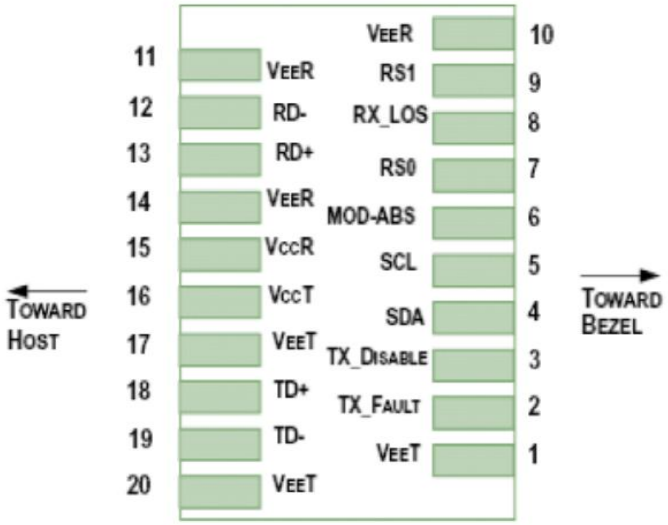
Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit
Transmitter Section						
Input Differential Impendence		Zin	90	100	110	Ohm
Data Input Swing Differential		Vin	180		700	mV
TX Disable	Disable		2.0		Vcc	V
	Enable		-0.3		0.8	V
TX Fault	Assert		2.4		Vcc	V
	Deassert		-0.3		0.8	V
Receiver Section						
Output differential impendence		Zout	80	100	120	Ohm
Data Input Swing Differential		Vout	300		850	mV
Rx_LOS	Assert		2.0		Vcc	V
	Deassert		-0.3		0.4	V

Diagnostics

Parameter	Range	Accuracy	Unit	Calibration
Temperature	0 ~ 70	±5	ºC	Internal
Voltage	3.15 ~ 3.45	±0.1	V	Internal
Bias Current	10 ~ 80	±2	mA	Internal
Tx Power	-5 ~ +5	±2	dBm	Internal
Rx Power	-16 ~ -3	±3	dBm	Internal

Pin Description

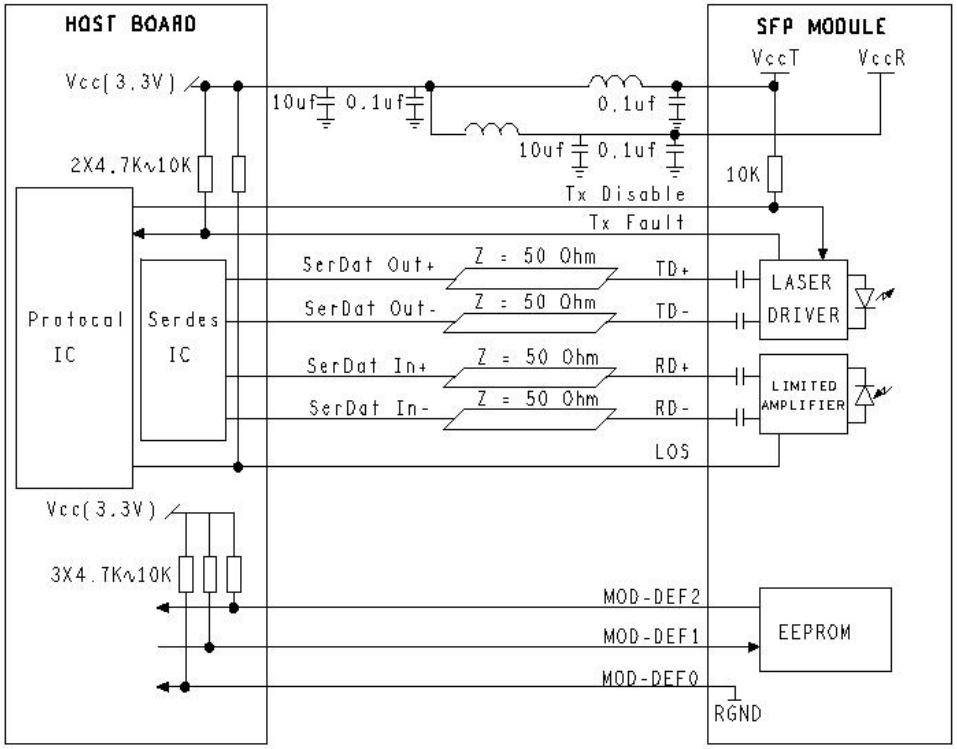


Pins	Name	Description	NOTE
1	VeeT	Transmitter Ground	
2	Tx Fault	Transmitter Fault Indication	1
3	Tx Disable	Transmitter Disable	2
4	MOD DEF2	Module Definition 2	3
5	MOD DEF1	Module Definition 1	3
6	MOD DEF0	Module Definition 0	3
7	RS0	Not Connected	
8	LOS	Loss of Signal	4
9	RS1	Not Connected	
10	VeeR	Receiver Ground	
11	VeeR	Receiver Ground	
12	RD-	Inv. Received Data Output	5
13	RD+	IReceived Data Output	5
14	VeeR	Receiver Ground	
15	VccR	Receiver Power	
16	VccT	Transmitter Power	
17	VeeT	Transmitter Ground	
18	TD+	Transmit Data Input	6
19	TD-	Inv. Transmit Data Input	6
20	VeeT	Transmitter Ground	

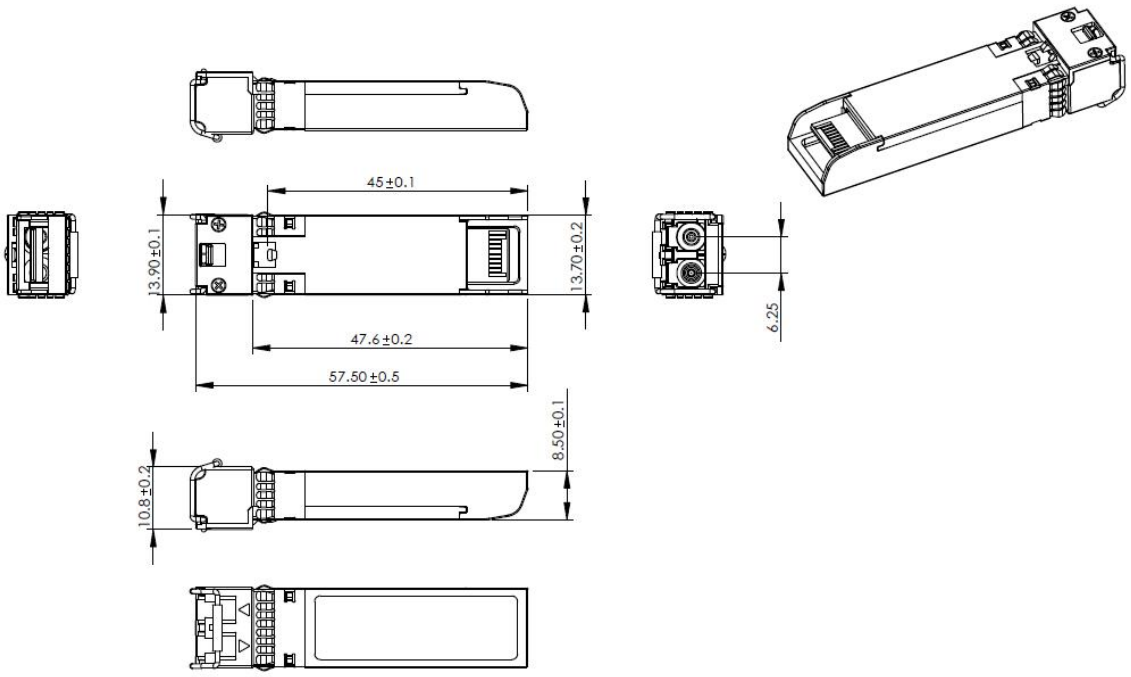
Notes:

1. TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
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 4.7k~10kΩ resistor. Its states are:
   Low (0~0.8V): Transmitter on
   (>0.8V, <2.0V): Undefined
   High (2.0~3.3V): Transmitter Disabled
   Open: Transmitter Disabled
3. MOD-DEF 0,1,2 is 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 VccT or VccR.
   MOD-DEF 0 is 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
4. LOS is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates loss of signal. In the low state, the output will be pulled to less than 0.8V.
5. These are the differential receiver output. They are internally AC-coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.
6. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module.

Recommended Application Circuit



Outline Drawings (mm)



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