SFP-25GBASE-LR-TM-C

Infinera® Compatible TAA 25GBase-LR SFP28 Transceiver (SMF, 1310nm, 10km, LC, DOM)

Features:

- SFF-8402 and SFF-8472 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free

Applications:

- 25GBase Ethernet
- Access and Enterprise

Product Description

This Infinera® compatible SFP28 transceiver provides 25GBase-LR throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Infinera®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products.")

TAA COMPLIANT

Rev. 012126

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	TS	-40		85	°C	
Operating Case Temperature	Tc	0	25	70	°C	
Relative Humidity	RH	5		95	%	
Data Rate	BR		25.78		Gb/s	
Bit Error Rate	BER			$5x10^{-5}$		1
Supported Link Length on 9/125um SMF, 25.78GB/s	L		10		km	2

Notes:

1. Tested with a PRBS 231-1 test pattern for 25.78Gb/s operation.
2. Distances are based on FC-PI-6 Rev 3.1 and IEEE 802.3 standards.

Electrical Characteristics

Parameter		Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage		Vcc	3.135	3.3	3.465	V	
Data Rate				25.78		GB/s	
Module Supply Current		Icc			450	mA	
Power Dissipation		P_D			1500	mW	
Transmitter							
Input Differential Impedance		Z_{IN}		100		Ω	
Differential Data Input Swing		$V_{IN, P-P}$	180		700	mV_{P-P}	
TX_FAULT	**Transmitter Fault**	V_{OH}	2.0		V_{CCHOST}	V	
	Normal Operation	V_{OL}	0		0.8	V	
TX_DISABLE	**Transmitter Disable**	V_{IH}	2.0		V_{CCHOST}	V	
	Transmitter Enable	V_{IL}	0		0.8	V	
Receiver							
Output Differential Impedance		Z_O		100		Ω	
Differential Data Output Swing		$V_{OUT, P-P}$	300		850	mV_{P-P}	1
Data Output Rinse Time, Fall Time		tr, tf	15			Ps	2
Rx_LOS	**Loss of Signal (LOS)**	V_{OH}	2.0		V_{CCHOST}	V	3
	Normal Operation	V_{OL}	0		0.8	V	3

Notes:

1. Internally AC coupled, but requires an external 100Ω differential load termination.
2. 20-80%
3. LOS is an open collector output. Should be pulled up with 4.7Ω on the host board.

Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Launch Optical Power	Po	-5		2	dBm	1
Extinction Ratio	ER	4			dB	
Center Wavelength Range	λc	1295	1310	1325	nm	
Optical Modulation Amplitude	OMA	631			uW	
Transmitter Dispersion Penalty	TDP			2.7	dB	
Spectral Width	Δλ			1	nm	2
Optical Rise/Fall Time @25.78 Gb/s	tr/tf			15	ps	3
Optical Return Loss Tolerance	ORLT			12	dB	
Pout @TX-Disable Asserted	POFF			-30	dBm	1
Receiver						
Center Wavelength	λc	1260	1310	1370	nm	
Receiver OMA Sensitivity	RxSENS			-11.4	dBm	4
Receiver Overload (P avg)	P_{OL}	2			dBm	
Optical Return Loss	ORL	26			dB	
LOS De-Assert	LOS_D			-13	dBm	
LOS Assert	LOS_A	-30			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. 20dB spectral width.
3. Unfiltered, 20-80%.
4. Measured with PRBS 2^{31}-1 at 5×10^{-5} BER

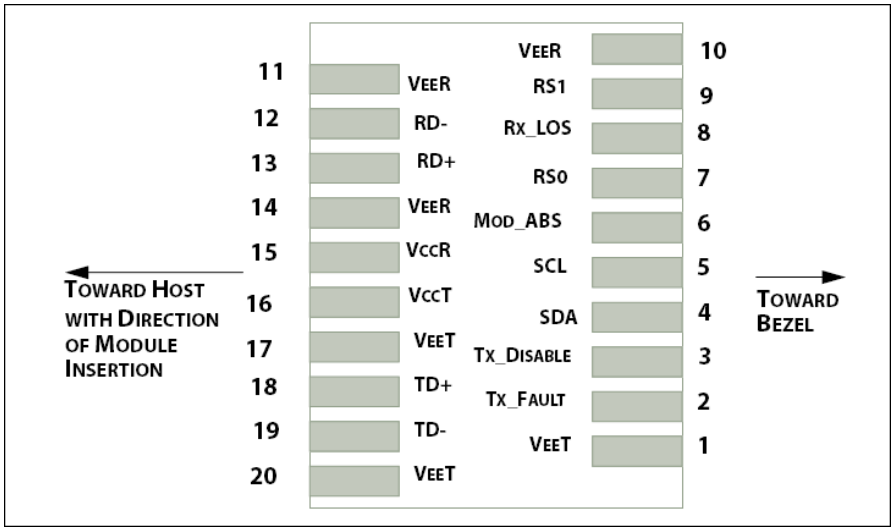
Pin Descriptions

Pin	Symbol	Name/Descriptions	Notes
1	VeeT	Transmitter Ground	1
2	TX_Fault	Transmitter Fault (LVTTL-O) - High indicates a fault condition	2
3	TX_Disable	Transmitter Disable (LVTTL-I) – High or open disables the transmitter	3
4	SDA	Two wire serial interface Data Line (LVCMOS-I/O) (MOD-DEF2)	4
5	SCL	Two wire serial interface Clock Line (LVCMOS-I/O) (MOD-DEF1)	4
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module	5
7	RSO		6
8	RX_LOS	Receiver Loss of Signal (LVTTL-O)	2
9	RS1		6
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Inverse Received Data out (CML-O)	
13	RD+	Received Data out (CML-O)	
14	VeeR	Receiver Ground	
15	VccR	Receiver Power - +3.3V	
16	VccT	Transmitter Power - +3.3 V	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Data In (CML-I)	
19	TD-	Inverse Transmitter Data In (CML-I)	
20	VeeT	Transmitter Ground	1

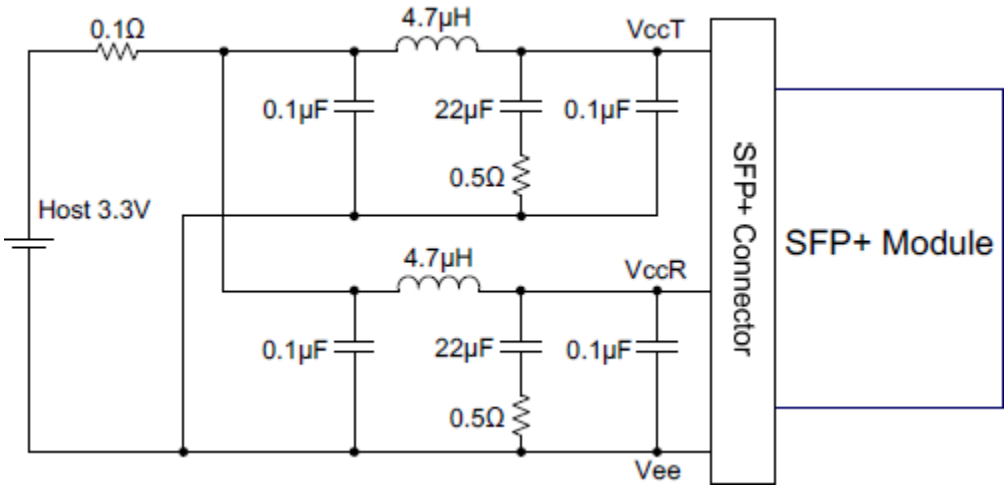
Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.
3. This input is internally biased high with a 4.7KΩ to 10KΩ pull-up resistor to VccT.
4. Two-Wire Serial interface clock and data lines require an external pull-up resistor dependent on the capacitance load.
5. This is a ground return that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.
6. Rate select can also be set through the 2-wire bus in accordance with SFF-8472 v. 12.1, Rx Rate Select is set at Bit 3, Byte 110, Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h. Note: writing a “1” selects maximum bandwidth operation. Rate select is the logic OR of the input state of Rate Select Pin and 2-wire bus.

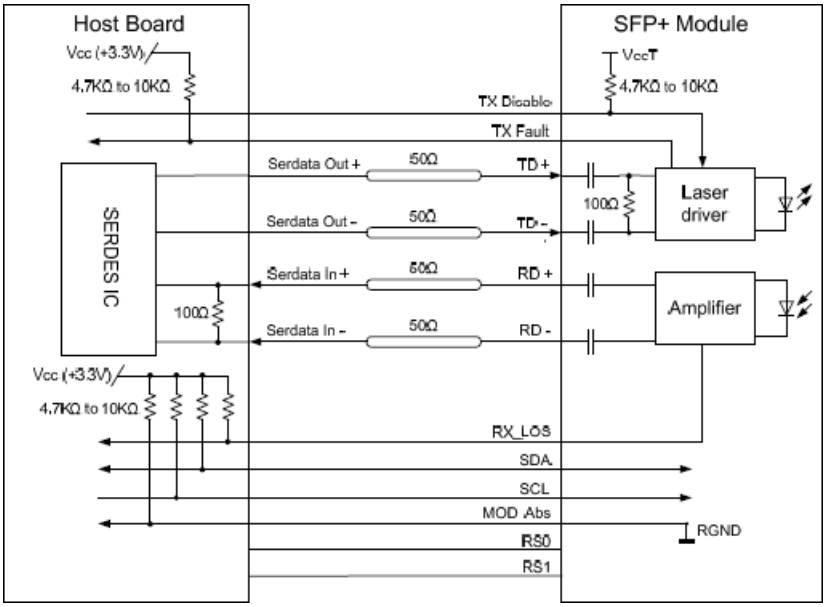
Electrical Pin-Out Details



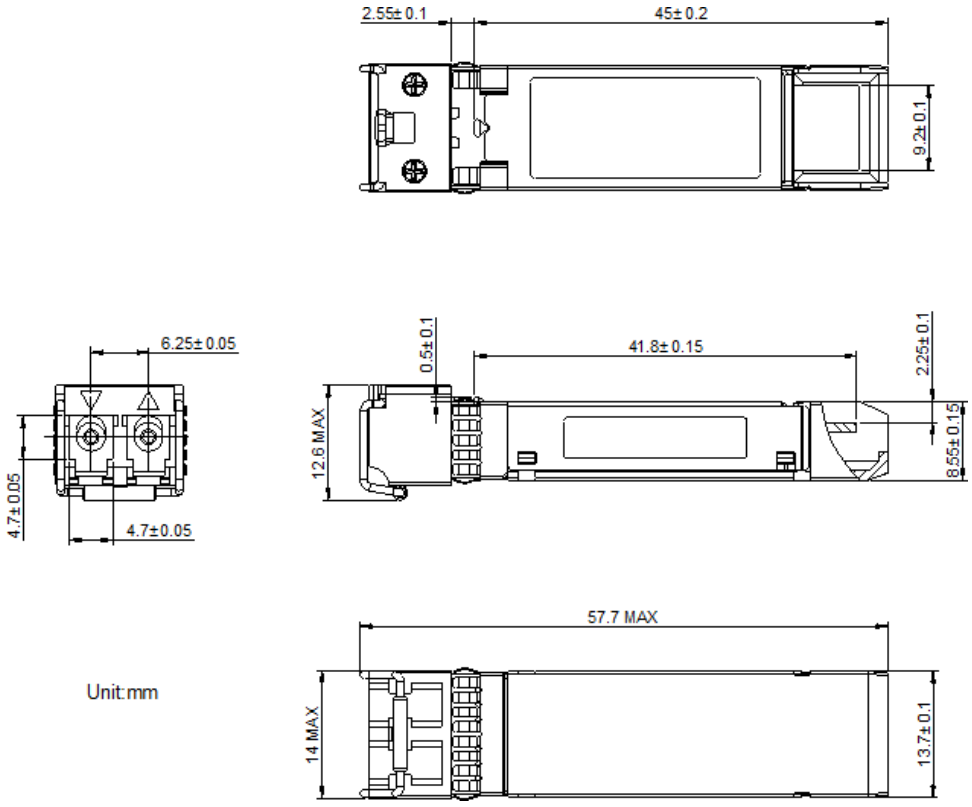
Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications



About ProLabs

Our extensive experience comes as standard. For over 20 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with more than 100 optical switching and transport platforms.

A Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 1.6T while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

The Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure compatible products, and immediate answers to your questions. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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