



### **SFP-25GBASE-LR-TM-OPC**

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.

OptioConnect's transceivers are RoHS compliant and lead-free.

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	V <sub>CC</sub>	-0.5		4.0	V	
Storage Temperature	T <sub>S</sub>	-40		85	°C	
Operating Case Temperature	T <sub>c</sub>	0	25	70	°C	
Relative Humidity	RH	5		95	%	
Data Rate	BR		25.78		Gb/s	
Bit Error Rate	BER			5x10 <sup>-5</sup>		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-P1-6 Rev 3.1 and IEEE 802.3 standards.

## Electrical Characteristics

Parameter		Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage		V <sub>CC</sub>	3.135	3.3	3.465	V	
Data Rate				25.78		GB/s	
Module Supply Current		I <sub>CC</sub>			450	mA	
Power Dissipation		PD			1500	mW	
Transmitter							
Input Differential Impedance		Z <sub>IN</sub>		100		Ω	
Differential Data Input Swing		V <sub>IN</sub> , P-P	180		700	mVp-p	
TX_FAULT	Transmitter Fault	V <sub>OH</sub>	2.0		V <sub>CCHOST</sub>	V	
	Normal Operation	V <sub>OL</sub>	0		0.8	V	
TX_DISABLE	Transmitter Disable	V <sub>IH</sub>	2.0		V <sub>CCHOST</sub>	V	
	Transmitter Enable	V <sub>IL</sub>	0		0.8	V	
Receiver							
Output Differential Impedance		Z <sub>O</sub>		100		Ω	
Differential Data Output Swing		V <sub>OUT</sub> , P-P	300		850	mVp-p	1
Data Output Rinse Time, Fall Time		t <sub>r</sub> , t <sub>f</sub>	15			Ps	2
Rx_LOS	Loss of Signal (LOS)	V <sub>OH</sub>	2.0		V <sub>CCHOST</sub>	V	3
	Normal Operation	V <sub>OL</sub>	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
<b>Transmitter</b>						
Launch Optical Power	Po	-5		2	dBm	1
Extinction Ratio	ER	4			dB	
Center Wavelength Range	$\lambda_c$	1295	1310	1325	nm	
Optical Modulation Amplitude	OMA	631			uW	
Transmitter Dispersion Penalty	TDP			2.7	dB	
Spectral Width	$\Delta\lambda$			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
<b>Receiver</b>						
Center Wavelength	$\lambda_c$	1260	1310	1370	nm	
Receiver OMA Sensitivity	RxSENS			-11.4	dBm	4
Receiver Overload (P avg)	POL	2			dBm	
Optical Return Loss	ORL	26			dB	
LOS De-Assert	LOSD			-13	dBm	
LOS Assert	LOSA	-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<sup>31</sup>-1 at 5×10<sup>-5</sup> BER

## Pin Descriptions

Pin	Symbol	Name/Descriptions	Notes
1	VeeT	Transmitter Ground	1
2	TX_Fault	Transmitter Fault (LVTTTL-O) - High indicates a fault condition	2
3	TX_Disable	Transmitter Disable (LVTTTL-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	RS0		6
8	RX_LOS	Receiver Loss of Signal (LVTTTL-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 4.7K $\Omega$  to 10K $\Omega$  pull-up resistor to VccHost.
3. This input is internally biased high with a 4.7K $\Omega$  to 10K $\Omega$  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 4.7K $\Omega$  to 10K $\Omega$  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



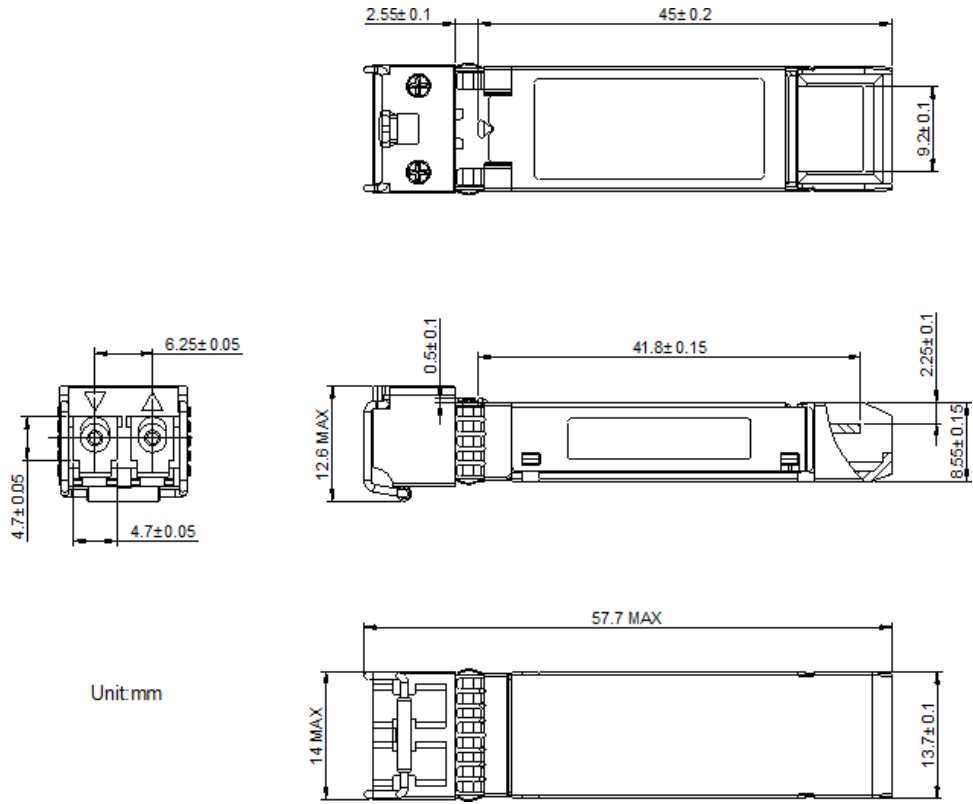
Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications



## **OptioConnect**

### **Innovation for the Future of High-Speed Networking**

#### **Who We Are**

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

#### **What We Do**

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

#### **Smarter Networks by Design**

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

#### **Our Team**

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

#### **Our Mission**

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

#### **Let's Connect**

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

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