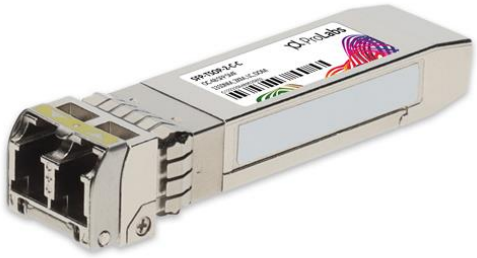
SFP-TSOP-2-C-C

Cisco® Compatible OC-48 TSOP Intelligent Transceiver (SMF, 1310nm, 2km, LC, DOM)

Features:

- 2.5Gbps, SR1, 2km, Optical Data Link
- Compliant with SFP MSA
- Remote DDM
- 1310nm FP Laser TDM Application
- Wide Dynamic Rand PIN-PD Receiver
- Protocol Processor for Intelligent Transceiver
- Supports Transparent SONET Over Packet (TSOP)
- Metal Package for Lower EMI
- LC Duplex Connector
- Single Power Supply Voltage: 3.3V
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



Applications:

- OC-48 Transmission
- Access and Enterprise

Product Description

This Cisco® SFP transceiver provides OC-48 (2488mbs) transmission rates for up to 2km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Cisco® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow 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

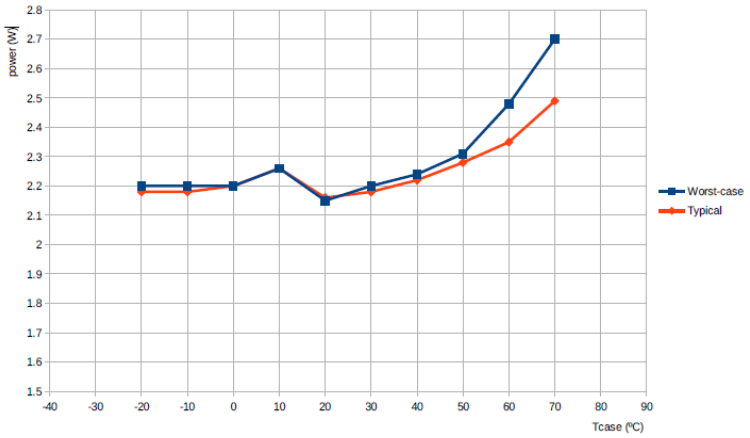
Absolute Maximum Ratings

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage		Vcc	0		4.0	V	
Storage Temperature		Tstg	-40		85	°C	
Operating Case Temperature		Tc	0		70	°C	
Operating Relative Humidity			5		85	%	
Relative Humidity			5		95	%	
Transmission Distance		Dmax	2			km	
Bit Error Rate	**Electrical**	BER		10.3		Gbps	
	Optical	BER		2.488		Gbps	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Current	Icc			861	mA	
Power Supply Voltage	Vcc	3.135	3.30	3.465	V	
Power Consumption				2.7	W	
ESD (High-Speed Pins)				500	V	1
Voltage Ramp for Dying Gasp				-22	mV/µsec	
Transmitter						
Input Differential Impedance	PIN		100		Ω	
Single-Ended Data Input Swing	VIN,pp	100		625	mV	
Tx_Disable Voltage	VD	2.4			V	
Tx_Enable Voltage	VEN			0.8V		
Receiver						
Differential Data Output Swing	VOUT	200		800	mVp-p	
Data Output Rise/Fall Time	Tr/Tf			260	pm	20-80%

Notes:

1. 

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power	POUT	-8		-3	dBm	1
Extinction Ratio	ER	8.2			dB	
Optical Wavelength	Λ	1270	1310	1360	nm	
Spectral Width	σRMS			4.0	nm	
Relative Intensity Noise	RIN			-113	dB/Hz	
Jitter Generation (12kHz~20MHz)				0.1	UI	
Jitter Generation (500Hz~20MHz)				0.5	UI	
Jitter Tolerance		0.15			UI	
Dispersion Penalty	DP			1	dB	
Receiver						
Average Sensitivity	Rsens1			-19	dBm	2
Maximum Input Power	Pmax	-3			dBm	
Optical Wavelength	λ	1260		1620	nm	
LOS Assert	LOSA	-35			dBm	
LOS De-Assert	LOSD			-14	dBm	
LOS Hysteresis		0.5	2	3	dB	

Notes:

1. Using 9/125 SMF.
2. Measured with PRBS of 2^{23}-1 x 10^{-10} BER and 8.2dB extinction ratio at 1310nm.

Pin Descriptions

Pin	Symbol	Name/Description	Plug Seq.	Notes
1	Tx GND	Transmitter Ground.	1	1
2	Tx Fault	Transmitter Fault Indication.	3	2
3	Tx Disable	Transmitter Disable.	3	3
4	Mod-Def2	Module Definition 2.	3	4
5	Mod-Def1	Module Definition 1.	3	4
6	Mod-Def0	Module Definition 0.	3	4
7	Rate Select	No User Connection.	3	
8	LOS	Loss of Signal.	3	5
9	Rx GND	Receiver Ground.	1	1
10	Rx GND	Receiver Ground.	1	1
11	Rx GND	Receiver Ground.	1	1
12	RD-	Receiver Negative Data Out.	3	
13	RD+	Receiver Positive Data Out.	3	
14	Rx GND	Receiver Ground.	1	1
15	VccR	Receiver Power.	2	
16	VccT	Transmitter Power.	2	
17	Tx GND	Transmitter Ground.	1	1
18	TD+	Transmitter Positive Data In.	3	
19	TD-	Transmitter Negative Data In.	3	
20	Tx GND	Transmitter Ground.	1	1

Notes:

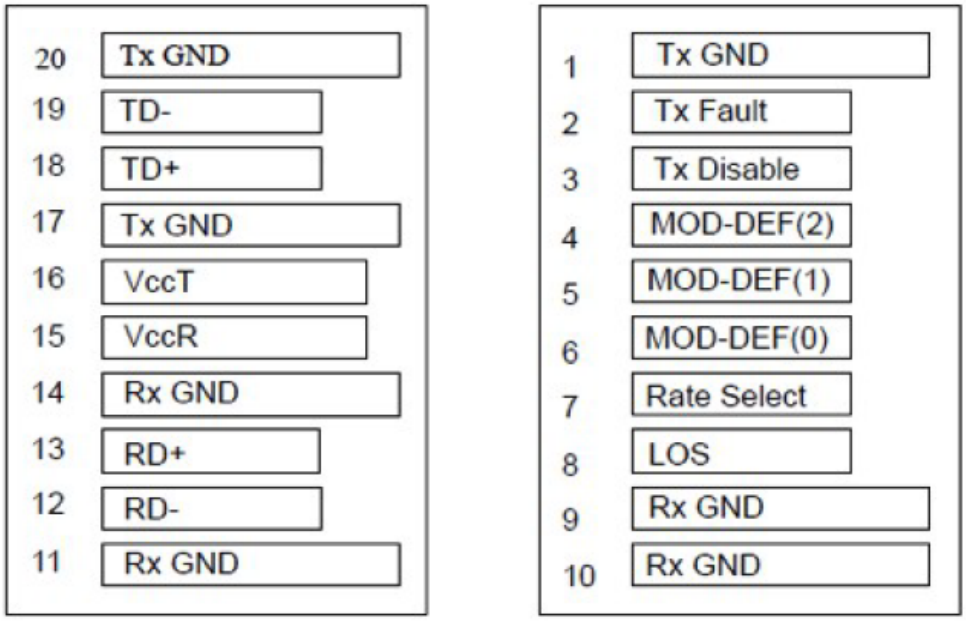
1. The circuit ground is internally isolated from the frame ground. Tx GND and Rx GND may be internally isolated within the Trx module.
2. Tx Fault is an open collector output that shall be puled up with a 4.7kΩ to 10kΩ on the host board. Pull-up voltage between 2.0V and VccT+0.3V. When “high,” output indicated a laser fault of some kind. When “low,” output indicates normal operation. The LD output is not turned off in case of Tx Fault.
3. Tx Disable is an input that is used to shut down the transmitter optical output. It is pulled within the Trx with a 4.7kΩ to 10kΩ.
4. Mod-Def 0, 1, and 2 are the SFP module definition pins. They should be pulled up with a 4.7kΩ to 10kΩ on the host board. The pull-up voltage shall be VccT.

   Mod-Def0 indicated that the module is present.

   Mod-Def1 is the clock line of 2-wire serial interface for Serial ID.

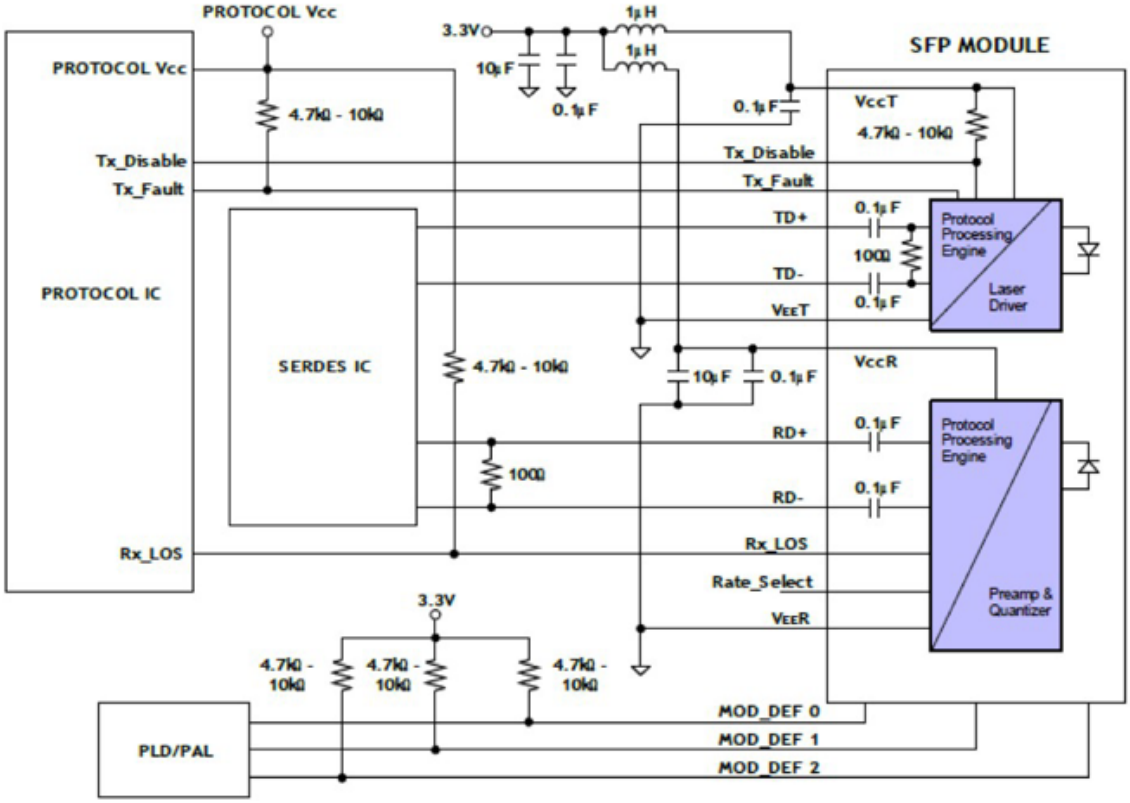
   Mod-Def2 is the data line of 2-wire serial interface for Serial ID.
5. LOS is an open collector output. Shall be pulled up with a 4.7kΩ to 10kΩ on the host board. Pull-up voltage between 2.0 and VccR+0.3. “Logic 0” indicates normal operation.

Electrical Pin-Out Details

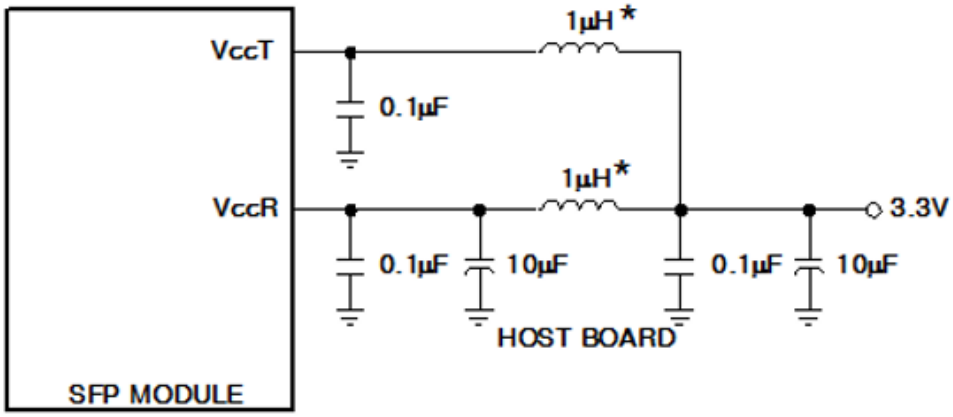


Top of Board **Bottom of Board**

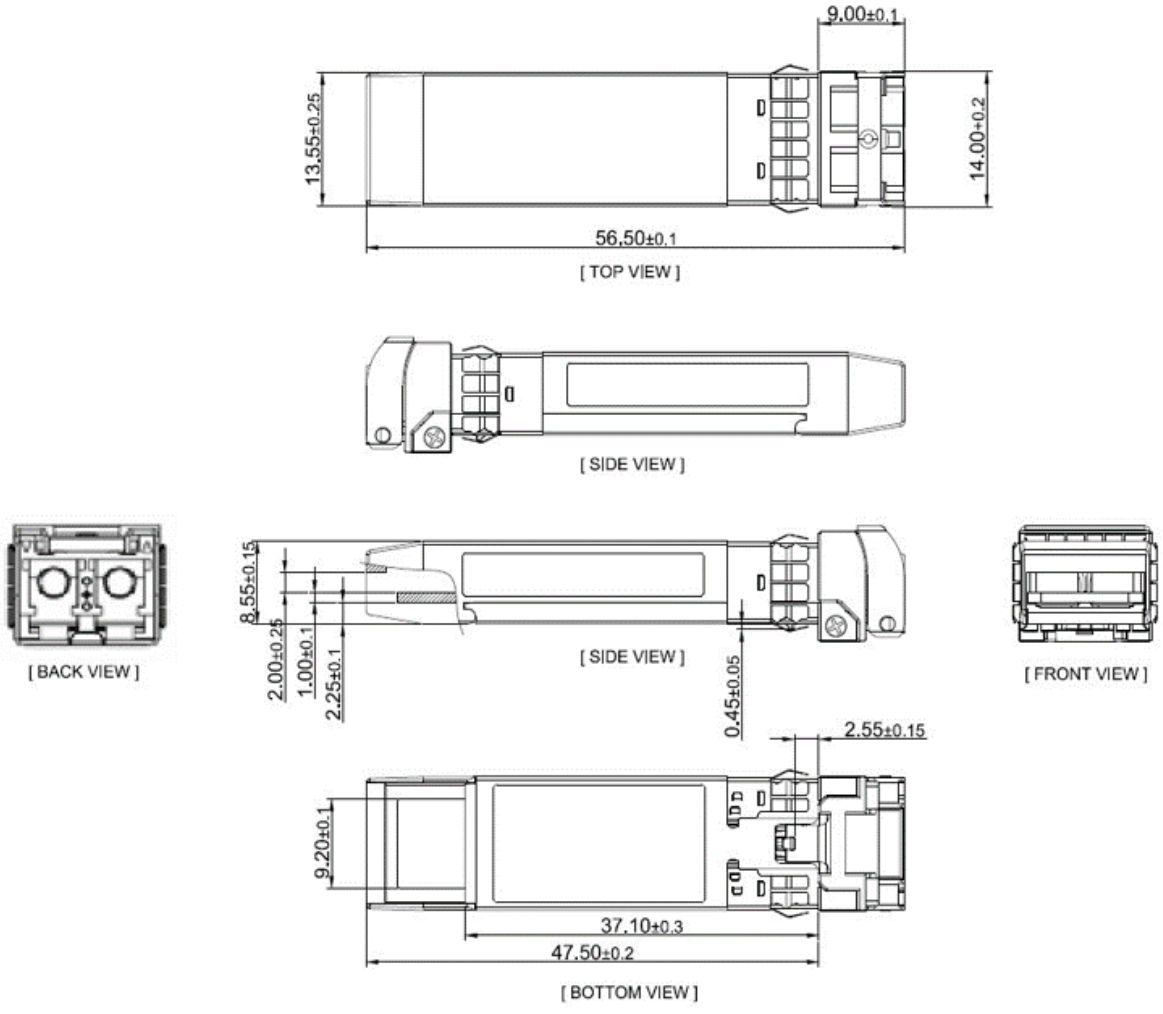
SFP Host Board



Recommended Host Board Supply Filtering Network



Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 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 over 90 optical switching and transport platforms.

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 400G 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.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. 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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