SFP-1GB-HD1-59U-80-C-C

Cisco® Compatible TAA 1000Base-CWDM HD1 SFP Transceiver (SMF, 1590nm LTx/HRx, 80km, LC, DOM)

Features:

- INF-8074 and SFF-8472 Compliance
- Simplex 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:

- Gigabit Ethernet over CWDM
- 1x Fibre Channel
- Access, Metro and Enterprise

Product Description

This Cisco® SFP transceiver provides 1000Base-CWDM HD1 throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1590nm LTx/HRx 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

Rev. 022825

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc		4.0		V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	0		70	°C	
Relative Humidity	RH	5		95	%	1
Power Supply Noise Rejection	PSNR			100	mVp-p	2
Power Supply Current	Icc			550	mA	3
Data Rate	DR	1.0625		1.25	Gbps	

Notes:

1. Without dew.
2. Cooled type.
3. From 100Hz to 1MHz.

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage		Vcc	3.135	3.3	3.465	V	
Transmitter							
Differential Input Voltage		VIN,pp	150		1000	mV	
Differential Input Impedance		ZIN	90	100	110	Ω	
Tx_Disable	**Input - Low**	VIL	0		0.8	V	1
	Input - High	VIH	2.0		3.465	V	
	Assert Time	tOff			10	us	2
	Negate Time	tOn			1	ms	3
Tx_Disable to Reset		treset	10			us	2
Time to Initialize - Cooled (Including Reset of Tx_Fault)		Tinit_cooled			10	sec	4
Tx_Fault	**Output - Low**	Vfol	0		0.8	V	5
	Output - High	Vfoh	2.0		Vcc+0.3		
Receiver							
Differential Output Voltage		VOUT	480		1080	mV	
Differential Output Impedance		ZOUT	90	100	110	Ω	
Rx_LOS (Loss of Signal)	**Output - Low**	Vlosl	0		0.8	V	5
	Output - High	Vlosh	2		Vcc+0.3	V	
	Assert Time	tlos-on			100	us	6
	De-Assert Time	tlos-off			100	us	7

Notes:

1. LVTTL. Normal at low. High is shutdown (Poff).
2. High.
3. Low.
4. Cooled version. For wavelength stabilization at worst-case (low and high temperatures).
5. LVTTL. Low is normal.
6. Low to high.
7. High to low.

Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Peak Wavelength		λP	λC- 6.5 ~ λC-1.5			nm	
Transmitter							
Optical Transmit Power		Pf	-2.5		2.0	dBm	
Transmitter Disable (Off) Power		Poff			-35	dBm	
Spectral Width		Δλ			1.0	nm	
Side-Mode Suppression Ratio		SMSR	30			dB	
$RIN_{12}OMA$		RIN			-117	dB/Hz	
Dispersion Penalty		DP			2.0	dB	
Extinction Ratio		ER	8.2			dB	
Receiver							
Optical Sensitivity		S			-29.5	dBm	
Optical Overload		OL	-5.0			dBm	
Rx_LOS (Loss of Signal)	**Assert**	Pa	-40.0			dBm	
	De-Assert	Pd			-29.5	dBm	
	Hysteresis	Pa-Pd	0.5	2.0	5.0	dB	
Receiver Reflectance					-27	dB	
RSSI Calibration		Rcal	Internally calibrated. The host side can be ready by an external way.				

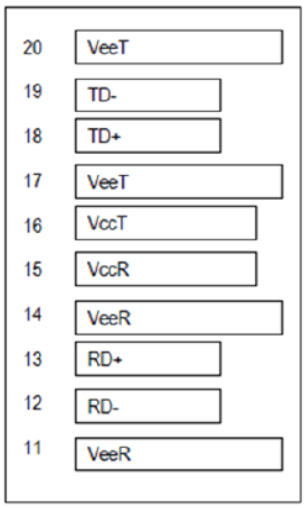
Notes:

1. λC = 1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591, and 1611nm.
2. @Tx_Disable is high.
3. @-20dB.
4. @1.25Gbps and PRBS 2^7-1.
5. PRBS 2^7-1, BER $1x10^{-12}$, and source ER=8.2dB.
6. Squelch function enable.
7. @λC.

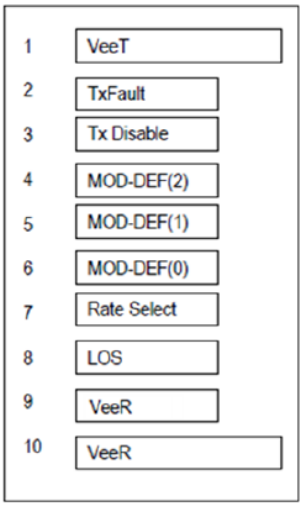
Pin Descriptions

Pin	Symbol	Name/Description	Plug Seq.
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Status Out.	3
3	Tx_Disable	Control In.	3
4	MOD_DEF2	Input/Output (SDA, I2C Data).	3
5	MOD_DEF1	Input/Output (SCL, I2C Clock).	3
6	MOD_DEF0	Indicates that the module is present. Grounded internally.	3
7	Rate Select	Rate Select In (NC).	3
8	Rx_LOS	Loss of Signal.	3
9	VeeR	Receiver Ground.	3
10	VeeR	Receiver Ground.	1
11	VeeR	Receiver Ground.	1
12	RD-	Inverse Received Data Out.	3
13	RD+	Received Data Out.	3
14	VeeR	Receiver Ground.	1
15	VccR	Receiver Power.	2
16	VccT	Transmitter Power.	2
17	VeeT	Transmitter Ground.	1
18	TD+	Transmitter Data In.	3
19	TD-	Inverse Transmitter Data In.	3
20	VeeT	Transmitter Ground.	1

Pin Connectors

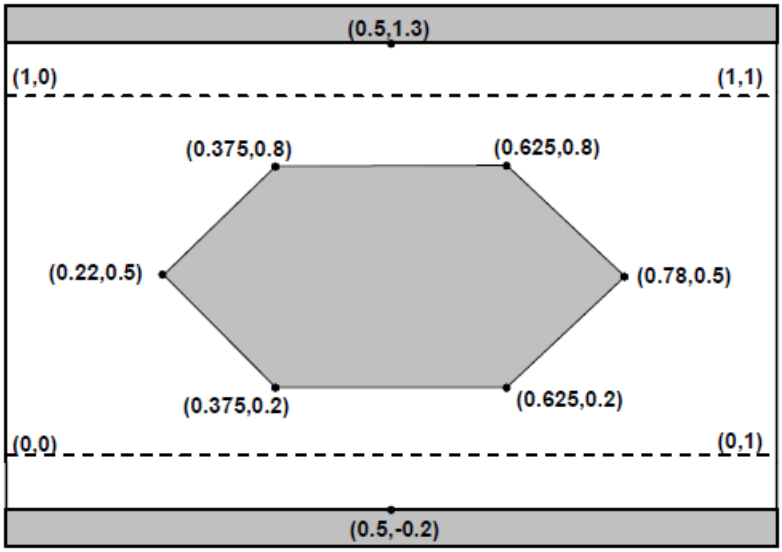


Top of Board



Bottom of Board (as viewed thru top of board)

Eye Mask Diagram



Recommended Circuit Schematic

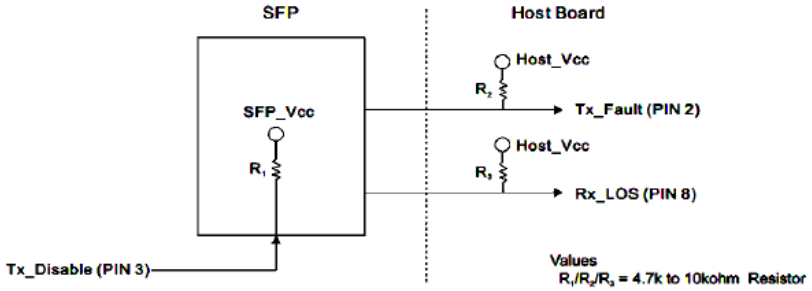
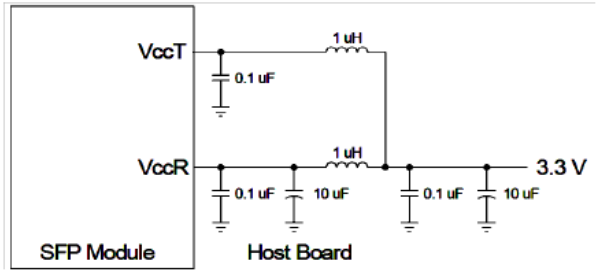
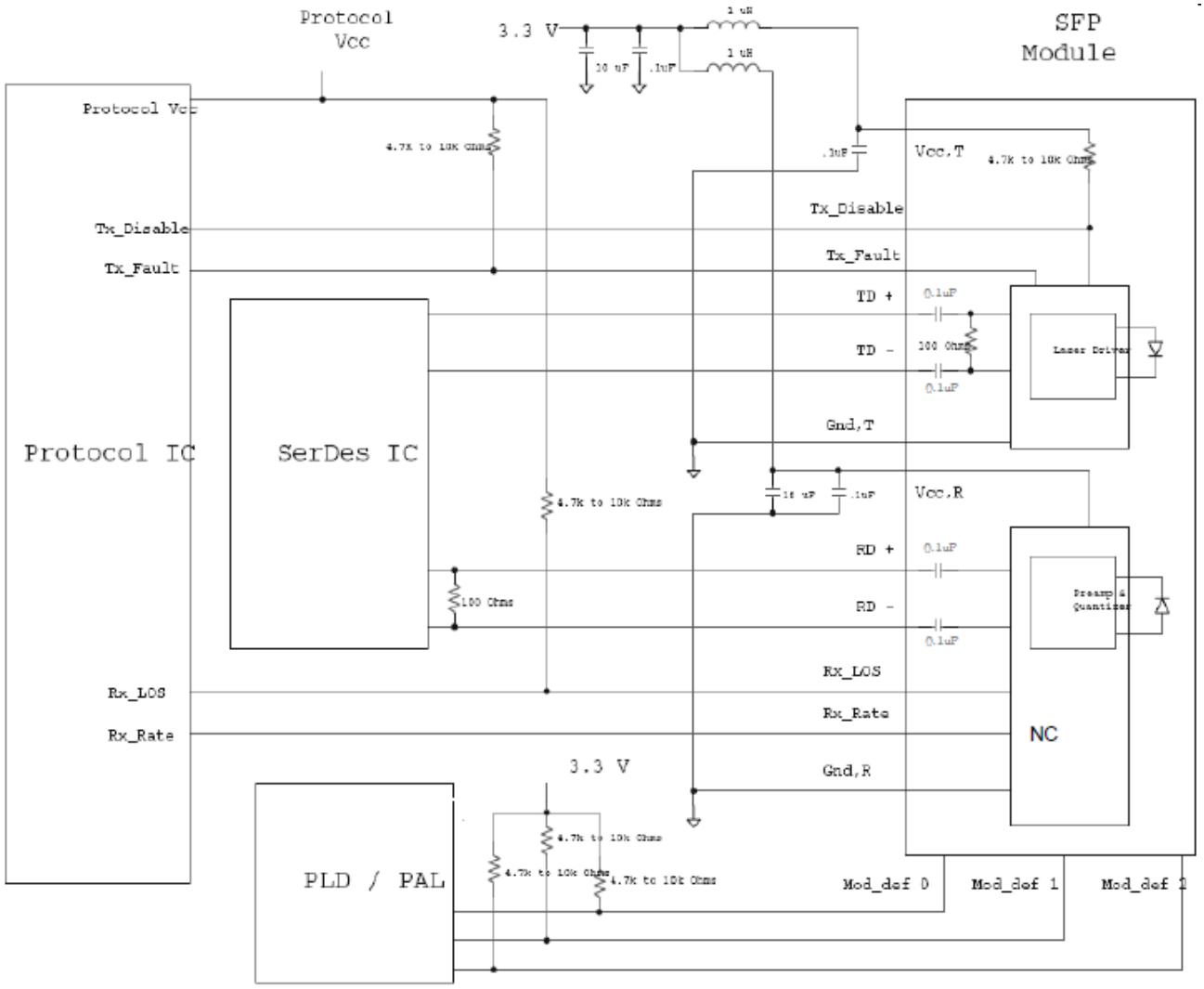


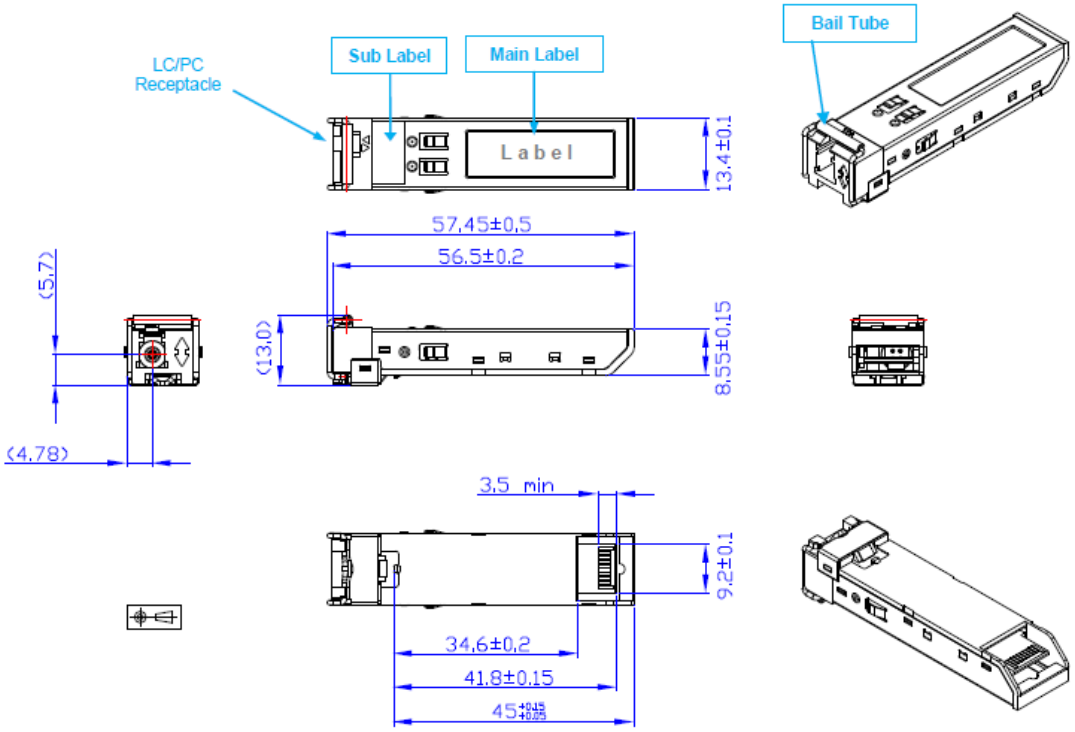
Figure 2. Signal Definitions



SFP Host Board



Mechanical Specifications



Unit: mm

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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