

### **XCVR-080D47D-HD1-PRO**

Ciena® XCVR-080D47D-HD1 Compatible TAA Compliant 1000Base-CWDM SFP Transceiver (SMF, 1470nm LTx/HRx, 80km, DOM, LC)

#### **Features**

- INF-8074 and SFF-8472 Compliance
- Simplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



#### **Applications:**

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

#### **Product Description**

This Ciena® XCVR-080D47D-HD1 compatible SFP transceiver provides 1000Base-CWDM throughput up to 80km over single-mode fiber (SMF) at a bidirectional wavelength of 1470nm LTx/HRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent Ciena® 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.

Proline's 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.



### Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units	Conditions
Storage Temperature	Tstg	-40	+85	°C	Ambient
Power Supply Voltage	VCC		< +4.0	V	
Ambient Humidity	Hop	5	95	%	w/o dew
Operating Temperature	Tc	-40	+85	°C	Case, w/airflow

**Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes	
Power Supply Voltage	Vcc	3.135	3.30	3.465	V		
Power Supply Current	Icc			550	mA	Cooled type	
Power Supply Noise Rejection	PSNR			100	mVp-p	from 100Hz to 1MHz	
<b>Transmitter</b>							
Data Rate	DRT	1.0625		1.25	Gb/s		
Differential Input Voltage	VINpp	150		1000	mV		
Differential Input Impedance	ZIN	90	100	110	ohm		
TX_Disable	Input Low	VIL	0	0.8	V	LVTTTL, Normal at Low, High is Shutdown(Poff)	
	Input high	VIH	2.0	3.465	V		
	Assert Time	tOFF		10	us	High	
	Negate Time	tON		1	ms	Low	
Tx Disable to reset	treset	10			us	High	
Time to Initialize Cooled Including reset of Tx_Fault	tInit_cooled			10	sec	1	
TX_Fault	Output Low	VFOL	0	0.8	V	LVTTTL, Low is Normal	
	Output High	VFOH	2.0	Vcc+0.3	V		
<b>Receiver</b>							
Data Rate	DRR	1.0625		1.25	Gb/s		
Differential Output Voltage	Vout	480		1080	mV		
Differential Output Impedance	Zout	90	100	110	ohm		
Rx_LOS (Loss of Signal)	Output Low	VLOSL	0	0.8	V	LVTTTL, Low is normal	
	Output High	VLOSH	2	Vcc+0.3	V		
	Assert time	tLOS-ON			100	us	Low -> High
	Deassert time	tLOS-OFF			100	us	High -> Low

**Notes:**

1. Cooled version, for wavelength stabilization at worst case (Low & High temperature)

## Optical Characteristics

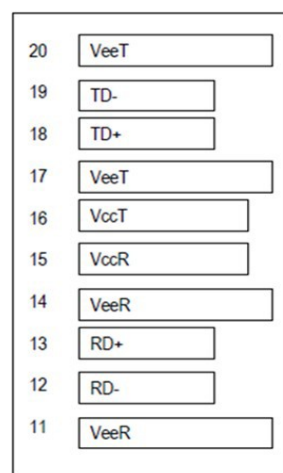
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
<b>Transmitter</b>							
Optical Transmit Power	Pf	-2.5		2.0	dBm		
Transmitter Disable (Off) Power	Poff			-35	dBm	@Tx_Diabile is High	
Peak Wavelength	HBD24-AE2MW-IxL	$\lambda_p$	$\lambda_c - 6.5 \sim \lambda_c - 1.5$		nm	CWDM, DFB-LD, Note1	
	HBD24-AE2MW-IxH		$\lambda_c + 2.0 \sim \lambda_c + 6.5$				
Spectral Width	$\Delta\lambda$			1.0	nm	@-20 dB	
Side Mode Suppression Ratio	SMSR	30			dB		
RIN <sub>12OMA</sub>	RIN			-117	dB/Hz		
Dispersion Penalty	DP			2.0	dB		
Extinction Ratio	ER	8.2			dB	@1.25Gb/s, PRBS 2 <sup>7</sup> -1	
Eye pattern Mask	IEEE802.3/2008						
<b>Receiver</b>							
Optical Sensitivity	S			-29.5	dBm	Note 2	
Optical Overload	OL	-5.0			dBm	Note 2	
Operating wavelength	HBD24-AE2MW-IxL	$\lambda_o$	$\lambda_c + 2.0 \sim \lambda_c + 6.5$		nm	Note 1	
	HBD24-AE2MW-IxH		$\lambda_c - 6.5 \sim \lambda_c - 1.5$				
Rx_LOS (Loss of signal)	Assert	PA	-40.0			dBm	Squelch function enable
	De-assert	PD			-29.5	dBm	
	Hysteresis	PA-PD	0.5	2.0	5.0	dB	
Receiver Reflectance				-27	dB	@ $\lambda_o$	
RSSI Calibration	RCAL	Internal Calibrated (The host side can be read by an external way)					

### Notes:

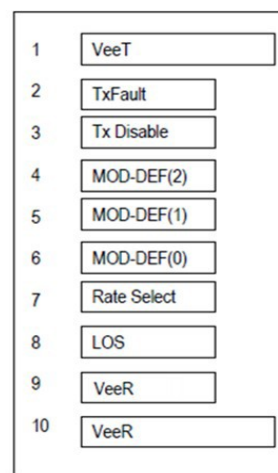
- $\lambda_c=1271,1291,1311,1331,1351,1371,1391,1411,1431,1451,1471,1491,1511,1531,1551,1571,1591,1611\text{nm}$
- PRBS<sup>27</sup>-1, BER $1 \times 10^{-12}$ , Source ER=8.2[dB]

## Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	TGND(VeeT)	Ground	1
2	Tx_Fault	Status Out	3
3	Tx_Disable	Control In	3
4	MOD_DEF(2)	Input/Output(SDA, I <sup>2</sup> C data)	3
5	MOD_DEF(1)	Input/Output(SCL, I <sup>2</sup> C clock)	3
6	MOD_DEF(0)	Indicates that the module is present,Grounded internally	3
7	Rate Select	Rate Select In(NC)	3
8	RX_LOS	Status Out	3
9	RGND(VeeR)	Ground	3
10	RGND(VeeR)	Ground	1
11	RGND(VeeR)	Ground	1
12	Rx_Data bar	Data Out Negative	3
13	Rx_Data	Data Out Positive	3
14	RGND(VeeR)	Ground	1
15	Rx_Vcc(VccR)	Power	2
16	Tx_Vcc(VccR)	Power	2
17	TGND(VeeT)	Ground	1
18	Tx_Data	Data In Positive	3
19	Tx_Data bar	Data In Negative	3
20	TGND(VeeT)	Ground	1



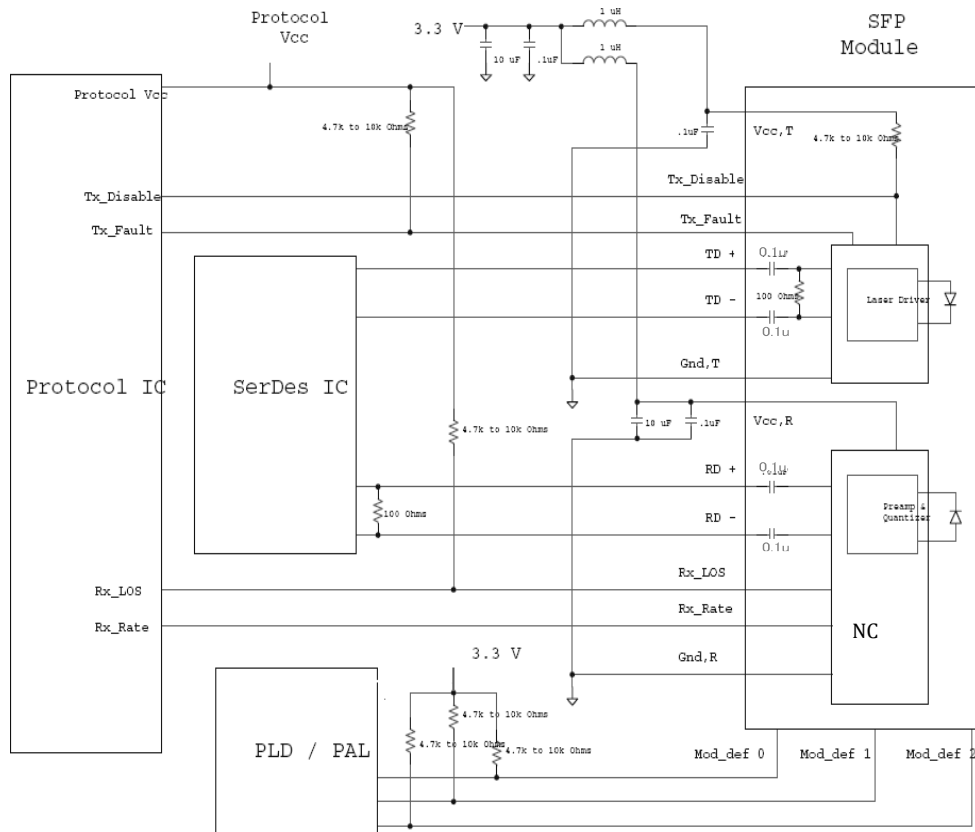
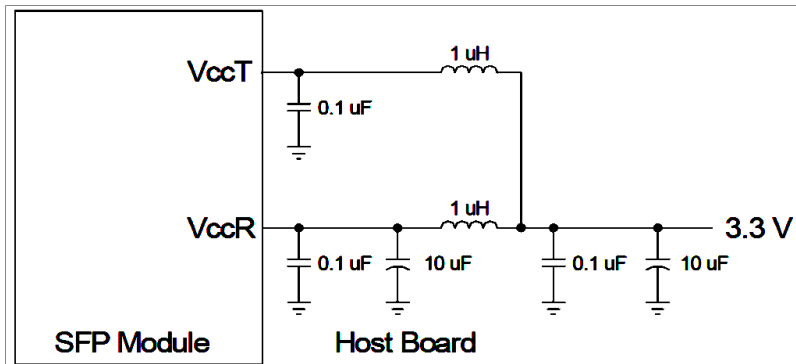
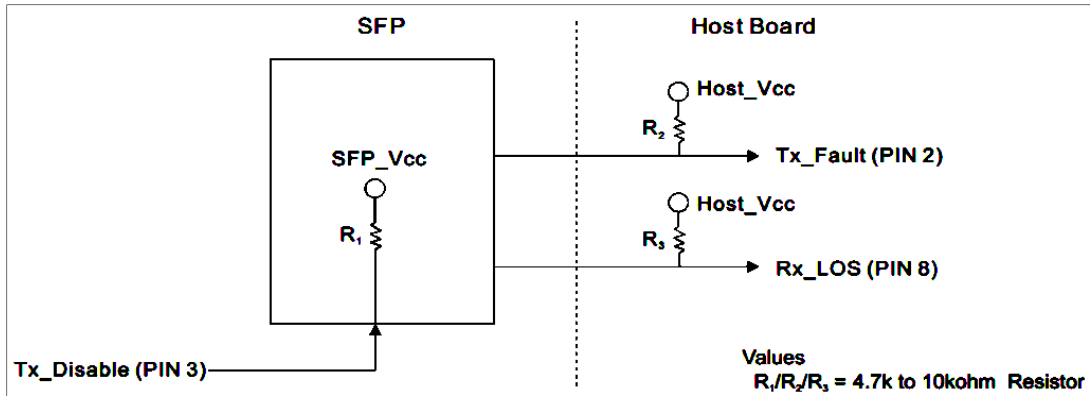
Top of Board



Bottom of Board (as viewed thru top of board)

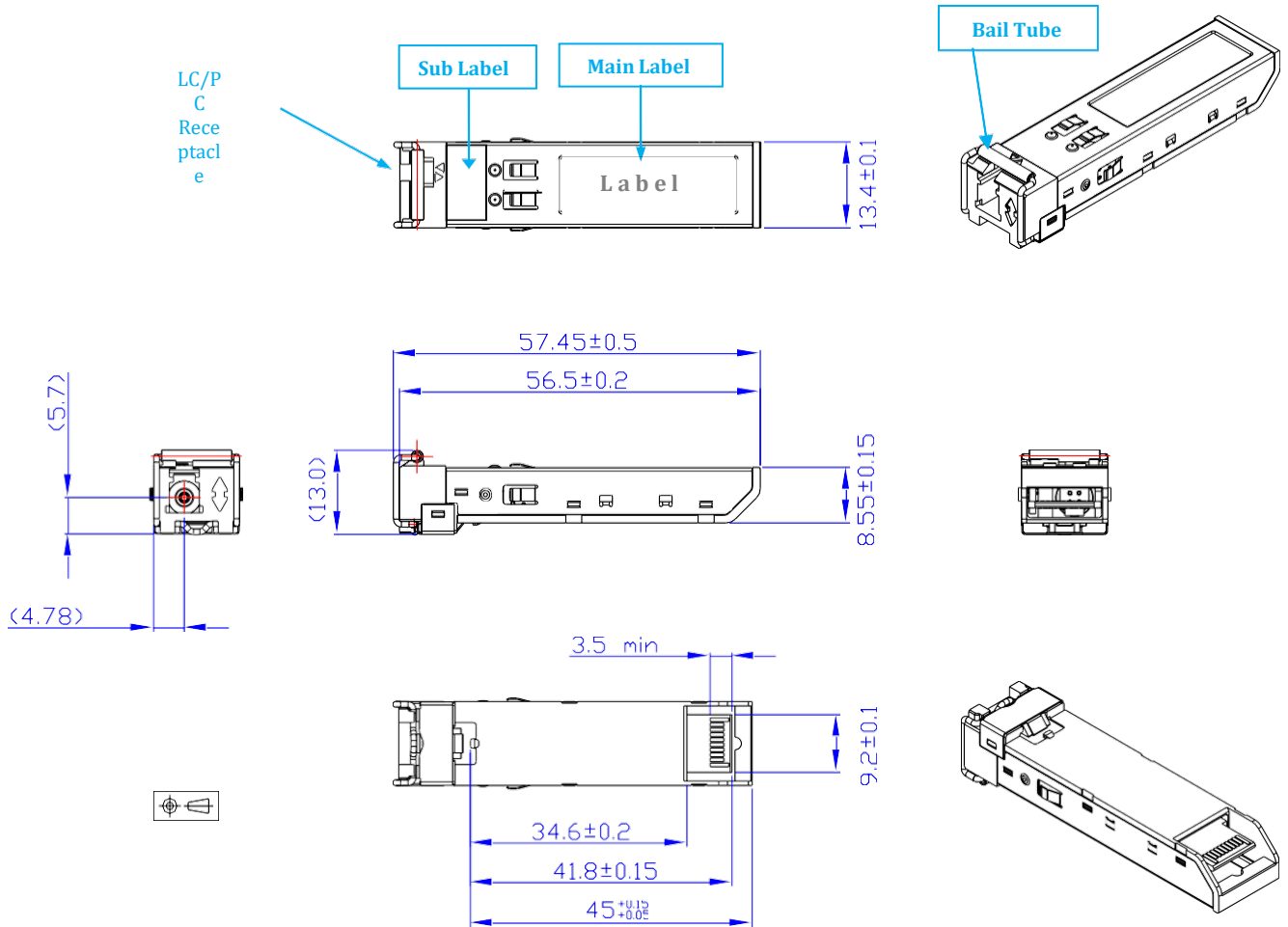
Pin-out of connector Block on Host board

# Recommended Circuit Schematic



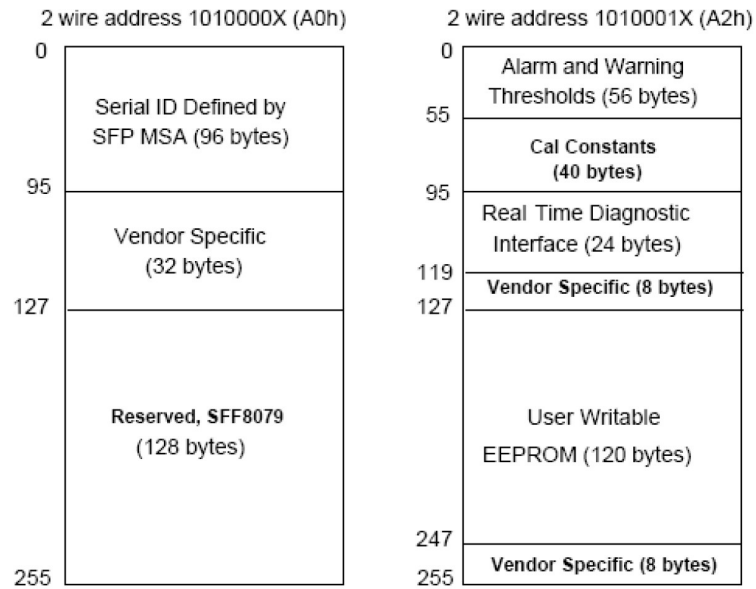
### Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

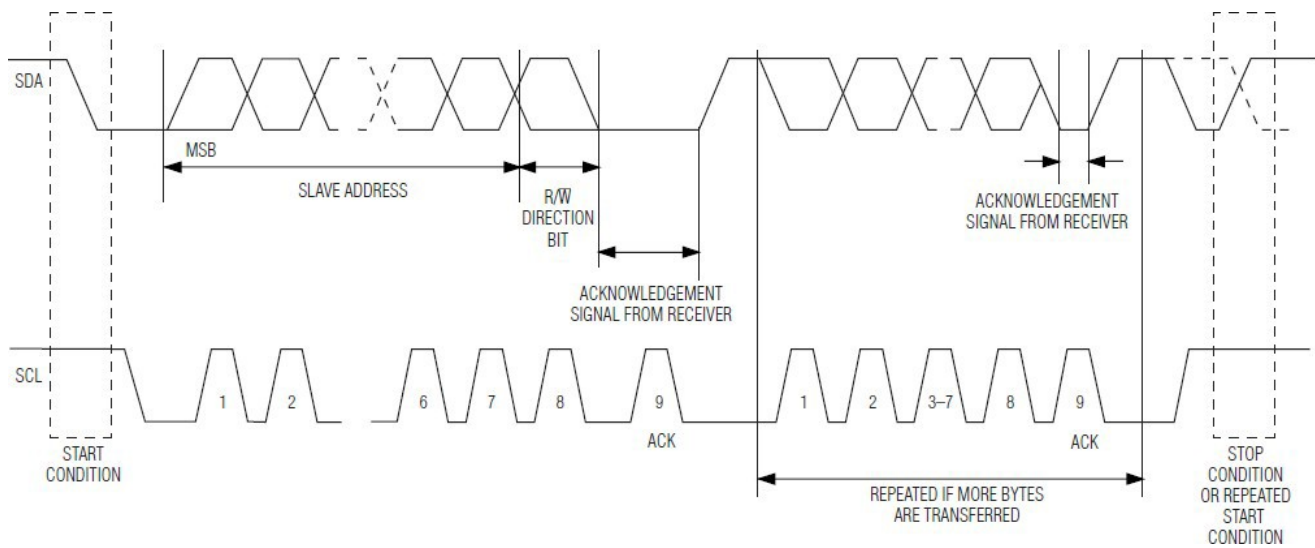


## EEPROM Information

EEPROM memory map specific data field description is as below:



## 2-Wire Data Transfer Protocol





**About Us:**

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.

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