XCVR-080D59U-HD1-OPC

Ciena® XCVR-080D59U-HD1 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 Ciena® XCVR-080D59U-HD1 compatible SFP transceiver provides 1000Base-CWDM HD1 throughput up to 80km over single-mode fiber (SMF) at a bidirectional wavelength of 1590nm LTx/HRx via an LC connector. It can operate at temperatures between 0 and 70C. The listed reach has been determined using a link budget calculation and tested in a standard environment. Actual link distances achieved will be dependent upon the deployed environment. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Ciena®. 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. 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.

CWDM Available Wavelengths

Wavelength	Min.	Typ.	Max.
27	1264.5	1271	1277.5
29	1284.5	1291	1297.5
31	1304.5	1311	1317.5
33	1324.5	1331	1337.5
35	1344.5	1351	1357.5
37	1364.5	1371	1377.5
39	1384.5	1391	1397.5
41	1404.5	1411	1417.5
43	1424.5	1431	1437.5
45	1444.5	1451	1457.5
47	1464.5	1471	1477.5
49	1484.5	1491	1497.5
51	1504.5	1511	1517.5
53	1524.5	1531	1537.5
55	1544.5	1551	1557.5
57	1564.5	1571	1577.5
59	1584.5	1591	1597.5
61	1604.5	1611	1617.5

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	+3.135	+3.30	+3.465	V	
Power Supply Current	Icc			500	mA	1
Power Supply Noise Rejection	PSNR			100	mVp-p	2
Operating Temperature	Tc	-40		+85	°C	3
Storage Temperature	Tstg	-40		+85	°C	4
Power Supply Storage	Vcc		< +4.0		V	
Ambient Humidity	AH	5		95	%	5

Notes:

1. Cooled type.
2. From 100Hz to 1MHz.
3. Case with airflow.
4. Ambient.

5. Without dew.

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter							
Data Rate		DRT	1.0625		1.25	Gbps	
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	4
Time to Initialize_Cooled (Including Reset of Tx_Fault)		tInit_cooled			10	sec	5
Tx_Fault	Output_Low	VFOL	0		0.8	V	6
	Output_High	VFOH	2.0		Vcc+0.3	V	
Receiver							
Data Rate		DR	1.0625		1.25	Gbps	
Differential Output Voltage		VOUT	300		850	mV	-
Differential Output Impedance		ZOUT	90	100	110	Ω	-
Rx_LOS (Loss of Signal)	Output_Low	VLOSL	0		0.8	V	6
	Output_High	VLOSH	2		Vcc+0.3	V	
	Assert Time	tLOS-ON			100	us	7
	De-Assert Time	tLOS-OFF			100	us	8

Notes:

1. LVTTL, normal at low, high is shutdown (Poff).
2. Assert time tOFF: high.
3. Negate time tON: low.
4. Tx_Disable to reset treset: high.
5. Cooled version, for wavelength stabilization at worst-case (low & high temperatures).
6. LVTTL, low is normal.
7. Assert time tLOS-ON: low → high.
8. De-assert time tLOS-OFF: high → low.

Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter							
Optical Transmit Power		Pf	-2.5		2.0	dBm	
Transmitter Disable (Off) Power		Poff			-35	dBm	2
Peak Wavelength		λP	λC-6.5 ~ λC-1.5			nm	1
Spectral Width		Δλ			1.0	nm	3
Side-Mode Suppression Ratio		SMSR	30			dB	
RIN$_{12}$OMA		RIN			-117	dB/Hz	
Dispersion Penalty		DP			1.5	dB	
Extinction Ratio		ER	8.2			dB	4
Eye Pattern Mask		IEEE802.3/2008 Section 3 Figure 38-2					
Receiver							
Optical Sensitivity		S			-26.5	dBm	5
Optical Overload		OL	2.0			dBm	5
Operating Wavelength		λo	λC+2.0 ~ λC+6.5			nm	1
Rx_LOS (Loss of Signal)	**Assert**	PA	-38.0			dBm	6
	De-Assert	PD			-26.5	dBm	
	Hysteresis	PA-PD	0.5	2.0	5.0	dB	
Receiver Reflectance					-27	dB	7
RSSI Calibration		RCAL	Internally Calibrated				

Notes:
1. CWDM, DFB-LD, λC = 1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591, and 1611nm.
2. At Tx_Disable = high.
3. At -20dB.
4. At 1.25Gbps, PRBS 2^7-1, Figure 1.
5. PRBS2^7-1, BER1x10^{-12}, and ER=8.2dB.
6. Squelch function enabled.
7. At λO.

Pin Descriptions

Pin	Symbol	Name/Description	Plug Sequence	Notes
1	VeeT	Module Ground.	1	
2	Tx_Fault	Status Out.	3	
3	Tx_Disable	Control In.	3	
4	MOD_DEF(2)	Input/Output (SDA, I^{2}C Data).	3	
5	MOD_DEF(1)	Input/Output (SCL, I^{2}C Clock).	3	
6	MOD_DEF(0)	Indicates that the module is present. Grounded internally.	3	
7	Rate Select	Rate Select In. Not Used.	3	1
8	Rx_LOS	Status Out.	3	
9	VeeR	Module Ground.	3	
10	VeeR	Module Ground.	1	
11	VeeR	Module Ground.	1	
12	Rx_Data-	Data Out Negative.	3	
13	Rx_Data+	Data Out Positive.	3	
14	VeeR	Module Ground.	1	
15	Rx_Vcc	Power.	2	
16	Tx_Vcc	Power.	2	
17	VeeT	Module Ground.	1	
18	Tx_Data+	Data In Positive.	3	
19	Tx_Data-	Data In Negative.	3	
20	VeeT	Module Ground.	1	

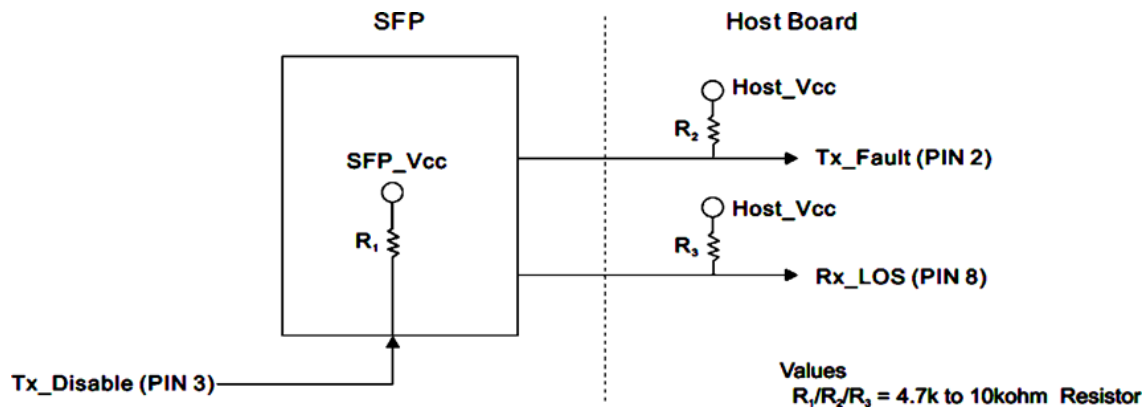**Notes:**

1. Internally pulled down with >51kΩ resistor.

Recommended Circuit Schematic

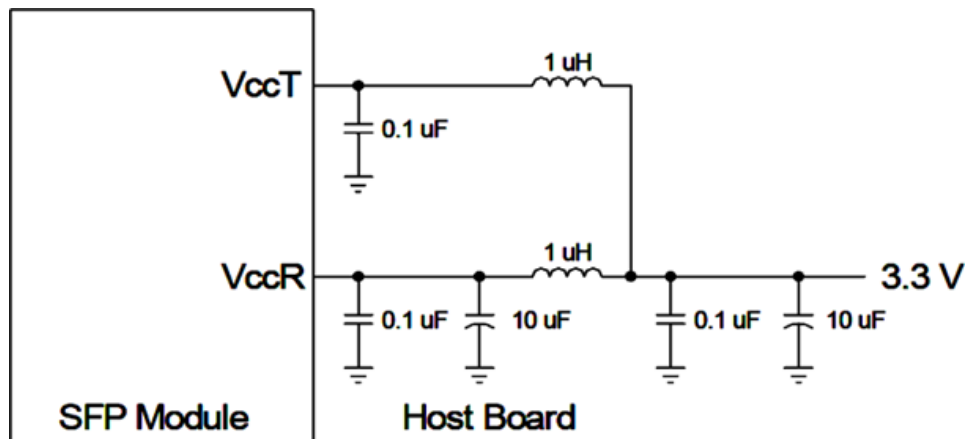Tx_Disable: Transmitter Disable, logic high, 4.7k to 10kΩ pull-up to the Vcc on the SFP.
Tx_Fault: Transmitter Fault, logic high, 4.7k to 10kΩ pull-up to the Vcc on the host.
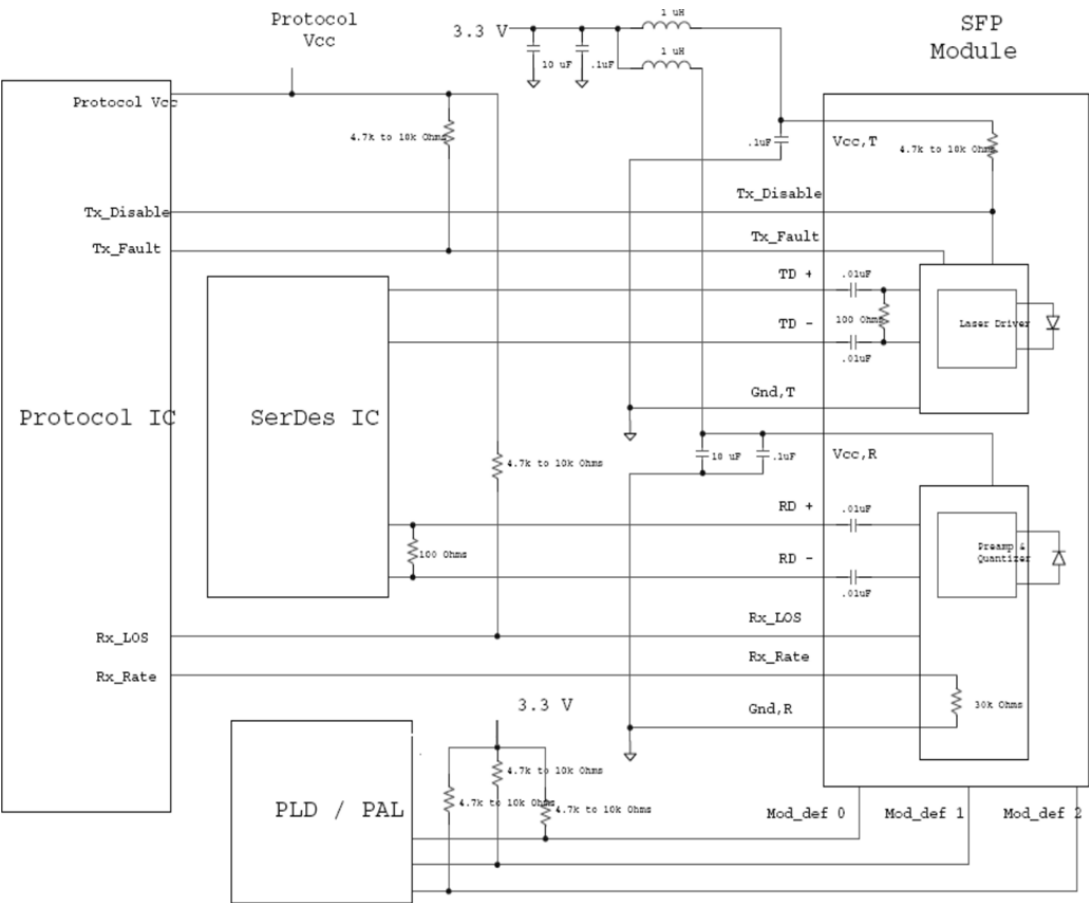Rx_LOS: Receiver Loss of Signal, logic high, 4.7k to 10kΩ pull-up to the Vcc on the host.
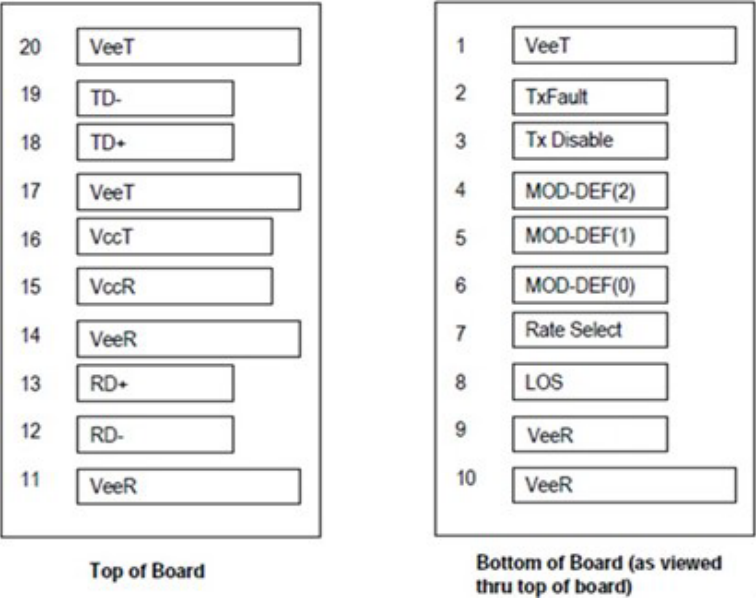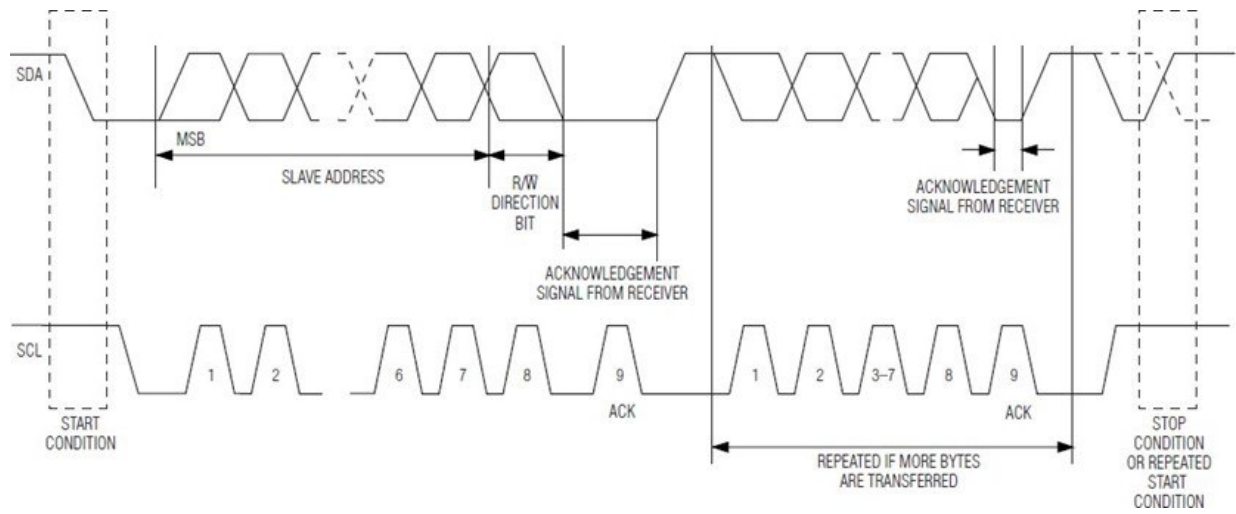
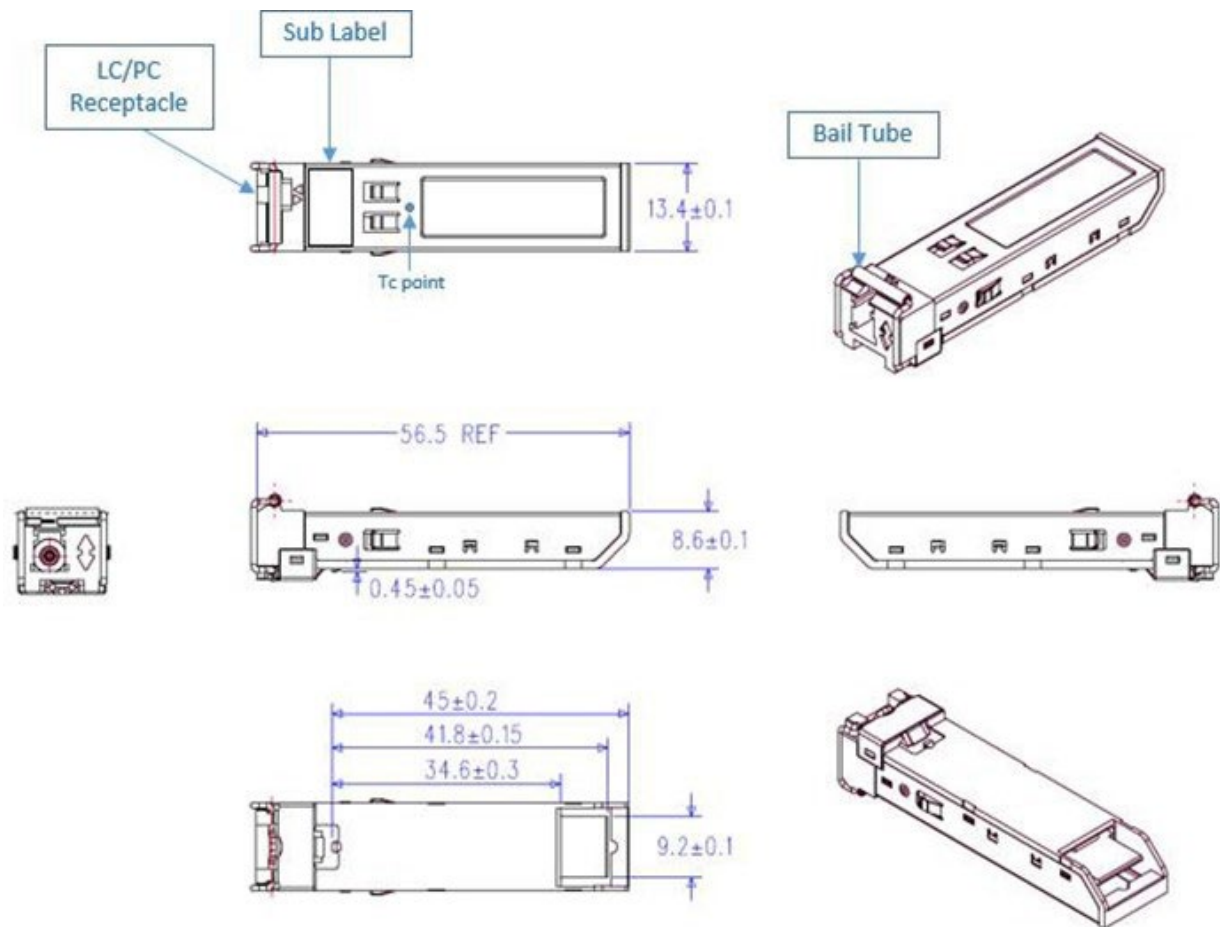## Signal Definitions

Power Coupling

SFP Host Board Schematic

20-Pin Connector

Top of Board			Bottom of Board (as viewed thru top of board)	
20	VeeT		1	VeeT
19	TD-		2	TxFault
18	TD+		3	Tx Disable
17	VeeT		4	MOD-DEF(2)
16	VccT		5	MOD-DEF(1)
15	VccR		6	MOD-DEF(0)
14	VeeR		7	Rate Select
13	RD+		8	LOS
12	RD-		9	VeeR
11	VeeR		10	VeeR

Top of Board   **Bottom of Board (as viewed thru top of board)**

2-Wire Data Transfer Protocol

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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