NTK586AL-OPC

Ciena® NTK586AL Compatible TAA 1000Base-DWDM SFP Transceiver 100GHz (SMF, 1532.68nm, 80km, LC, DOM)

Features

- INF-8074 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:

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

Product Description

This Ciena® NTK586AL compatible SFP transceiver provides 1000Base-DWDM throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1532.68nm 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 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. 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.

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

Wavelength Guide (100GHz ITU-T Channel)

ITU Channel #	Frequency (THZ)	Center Wavelength (nm)
61	196.1	1528.77
60	196.0	1529.55
59	195.9	1530.33
58	195.8	1531.12
57	195.7	1531.90
56	195.6	1532.68
55	195.5	1533.47
54	195.4	1534.25
53	195.3	1535.04
52	195.2	1535.82
51	195.1	1536.61
50	195.0	1537.40
49	194.9	1538.19
48	194.8	1538.98
47	194.7	1539.77
46	194.6	1540.56
45	194.5	1541.35
44	194.4	1542.14
43	194.3	1542.94
42	194.2	1543.73
41	194.1	1544.53
40	194.0	1545.32
39	193.9	1546.12
38	193.8	1546.92
37	193.7	1547.72
36	193.6	1548.51
35	193.5	1549.32
34	193.4	1550.12
33	193.3	1550.92
32	193.2	1551.72
31	193.1	1552.52
30	193.0	1553.33
29	192.9	1554.13
28	192.8	1554.94
27	192.7	1555.75
26	192.6	1556.55

25	192.5	1557.36
24	192.4	1558.17
23	192.3	1558.98
22	192.2	1559.79
21	192.1	1560.61
20	192.0	1561.42
19	191.9	1562.23
18	191.8	1563.05
17	191.7	1563.86

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	3.6	V
Storage Temperature	TS	-40	85	°C
Operating Case Temperature	Tc	0	70	°C
Operating Humidity	RH	0	95	%
Receiver Power	R_{MAX}		-3	dBm
Maximum Bitrate	B_{max}		1.25	Gbps

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.45	V	
Power Supply Current	Icc			300	mA	
Transmitter						
Differential data input swing	Vin,pp	120		850	mV	
Input differential impedance	Zin	80	100	120	Ω	
Receiver						
Differential data output swing	Vout, pp	300		850	mV	
Output differential impedance	Zin	80	100	120	Ω	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Power (average)	P_{AVE}	0		5	dBm	1
Optical Wavelength	Tλ	x-0.1	x	X+0.1	nm	
Optical Extinction Ratio	ER	8.2			dB	
Channel Spacing	Δf		100		GHz	
Insertion loss	IL		0.7			
Receiver						
Receiver Sensitivity	Pmin			-24	dBm	2
Receiver overload	P_{max}	-10			dBm	3
Receiver wavelength	Rλ	1260		1620	nm	

Notes:

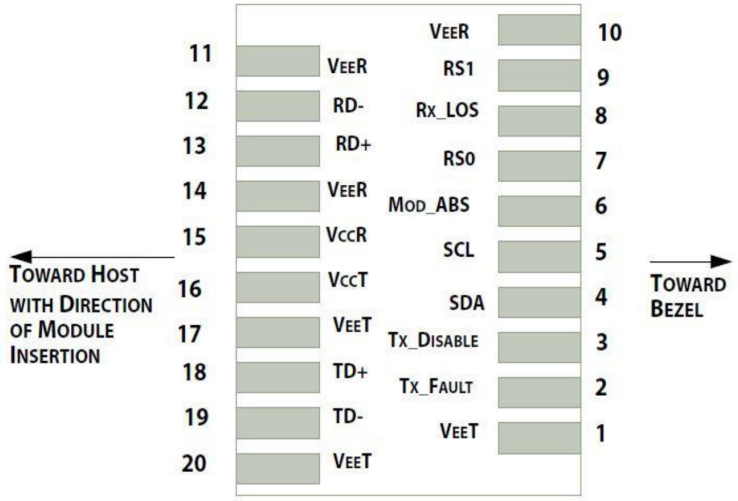
1. Coupled into a Single-mode fibre
2. Minimum average optical power is measured at BER less than 1E-12, with 2^7-1 PRBS and ER=9 dB
3. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in Module.	4
7	RS0	Rate Select 0. Not used	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. LVTTL-O.	2
9	RS1	Rate Select 1. Not used	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

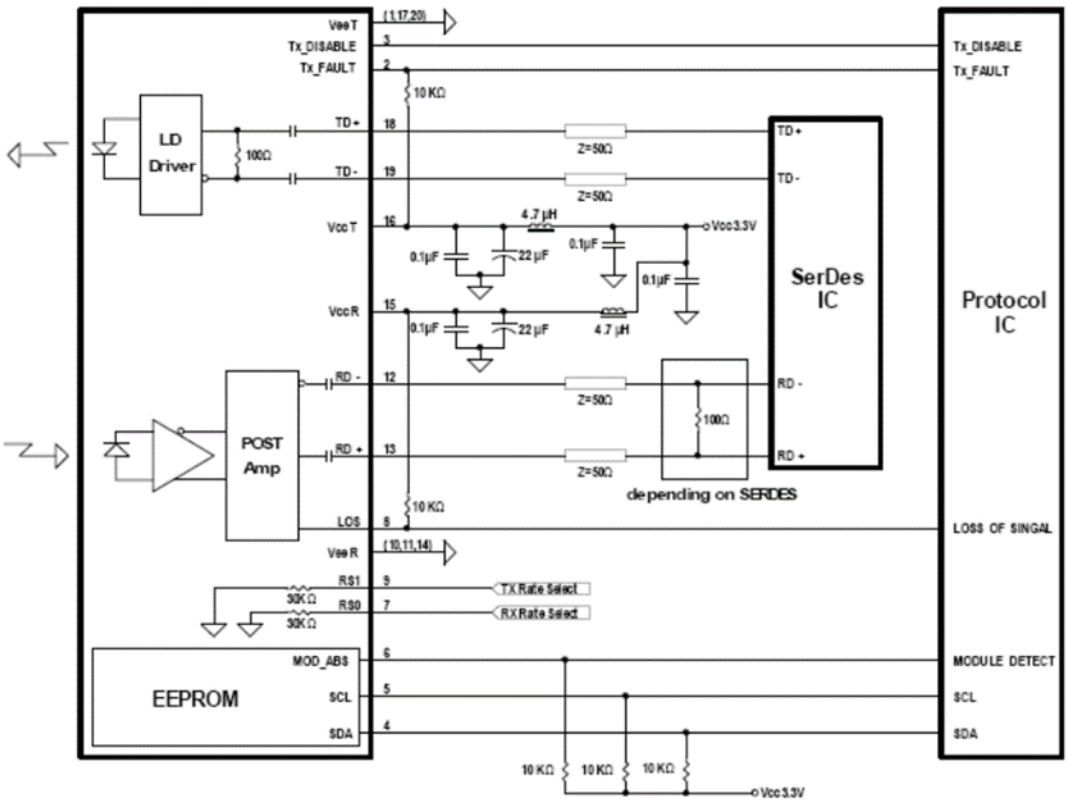
Notes:

1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc_Host with resister in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to Vcc_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431



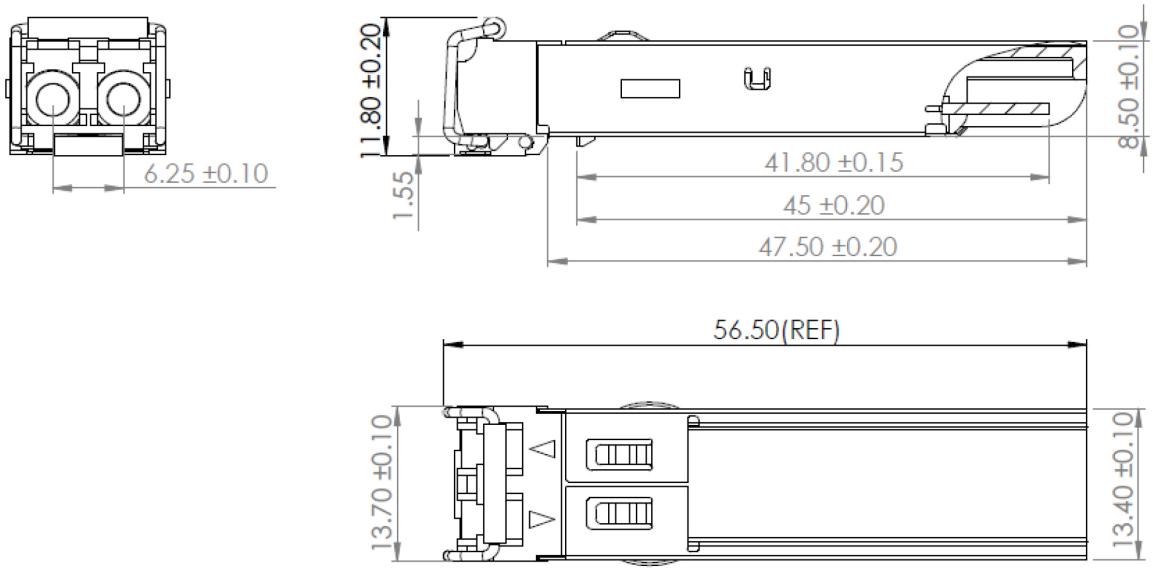
Pin-out of connector Block on Host board

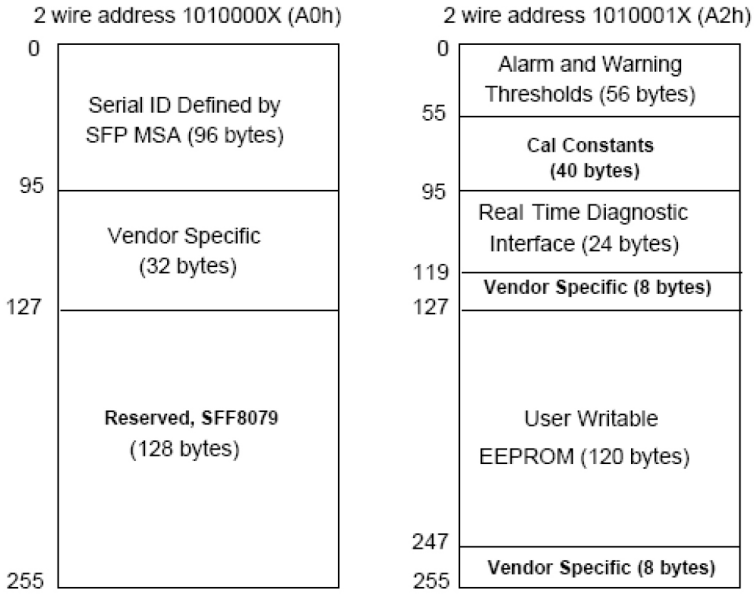
Recommended Circuit Schematic



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: