NTK591NJ-OPC

Ciena® NTK591NJ Compatible TAA 1000Base-CWDM SFP Transceiver (SMF, 1510nm, 160km, 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:

- 1000Base-SX Ethernet
- 1x Fibre Channel
- Access, Metro and Enterprise

Product Description

This Ciena® NTK591NJ compatible SFP transceiver provides 1000Base-CWDM throughput up to 160km over single-mode fiber (SMF) using a wavelength of 1510nm 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.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	DR	0.622		1.25	Gbps	
Bit Error Rate	BER			10^{-12}		
Operating Case Temperature	Tc	0		70	C	1, 4
Storage Temperature	Tstg	-40		85	C	2
Supply Current	Icc		200	300	mA	3
Maximum Voltage	VMAX	−0.5		4	V	3

Notes:

1. Case temperature.
2. Ambient temperature.
3. For the electrical power interface.
4. Commercial temperature.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Input Voltage	Vcc	3.14	3.3	3.46	V	
Supply Current	Icc		200	300	mA	3
Transmitter						
Input Differential Impedance	RIN		100		Ω	
Single-Ended Data Input Swing	VIN,pp	250		1200	mV	
Transmit Disable Voltage	VD	Vcc−1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Transmit Disable Assert Time				10	us	
Receiver						
Single-Ended Data Output Swing	VOUT,pp	300	400	800	mV	
Data Output Rise/Fall Time	Tr/Tf		100	175	ps	
LOS Asserted	VLOSA	Vcc−0.5		Host_Vcc	V	
LOS De-Asserted	VLOSD	Vee		Vee+0.5	V	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power	PTX	3		7	dBm	1
Optical Center Wavelength	λC	1505	1511	1517	nm	
Extinction Ratio	ER	9			dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Spectral Width (-20dB)	Δλ			1	nm	
Optical Rise/Fall Time (20-80%)	Tr/Tf			180	ps	
Relative Intensity Noise	RIN			-120	dB/Hz	
Transmitter Jitter (Pk-Pk)	TJ			100	ps	
Output Eye	Compliant with IEEE 802.3					
Receiver						
Optical Input Wavelength	λC	1270		1620	nm	
Receiver Sensitivity	Rx_SEN			−34	dBm	2
Receiver Overload	POL	-7			dBm	
LOS Assert	LOSA	−42			dBm	
LOS De-Assert	LOSD			−34	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Average launch power.
2. Measured with a 2^7-1 test pattern over 120km @1.25Gbps with BER<10^{-12}.

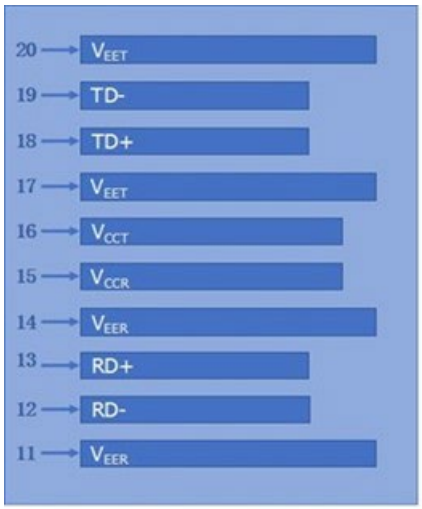
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault.	
3	Tx_Disable	Transmitter Disable. Laser output disabled on “high” or “open.”	2
4	SDA	2-Wire Serial Interface Data.	3
5	SCL	2-Wire Serial Interface Clock.	3
6	MOD_ABS	Module Absent. Grounded within the module.	3
7	RS0	No Connection Required.	
8	LOS	Loss of Signal Indication. “Logic 0” indicates normal operation.	4
9	RS1	No Connection Required.	1
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.	
13	RD+	Receiver Non-Inverted Data Out. AC Coupled.	
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.	
19	TD–	Transmitter Inverted Data In. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

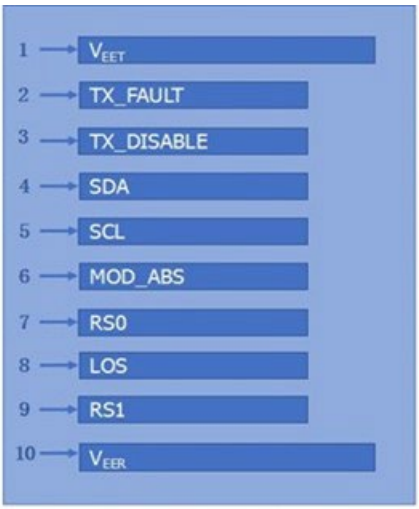
Notes:

1. The circuit ground is isolated from the chassis ground.
2. Disabled: TDIS>2V or open, enabled: TDIS<0.8V.
3. Should be pulled up with 4.7kΩ to 10kΩ on the host board to a voltage between 2V and 3.6V.
4. LOS is open collector output.

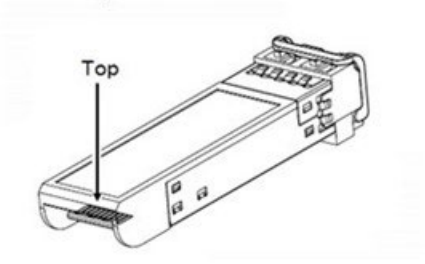
Electrical Pad Layout

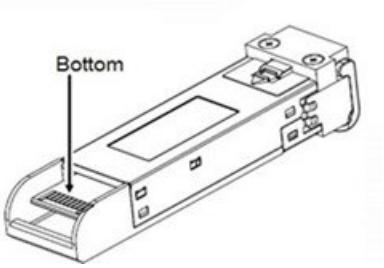


Top of Board

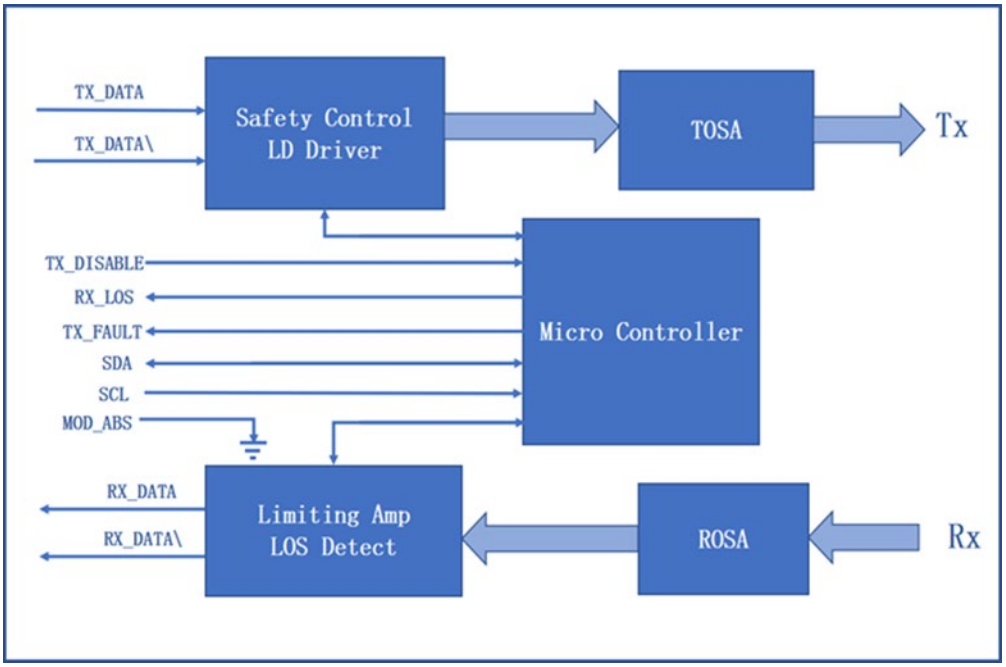


Bottom of Board

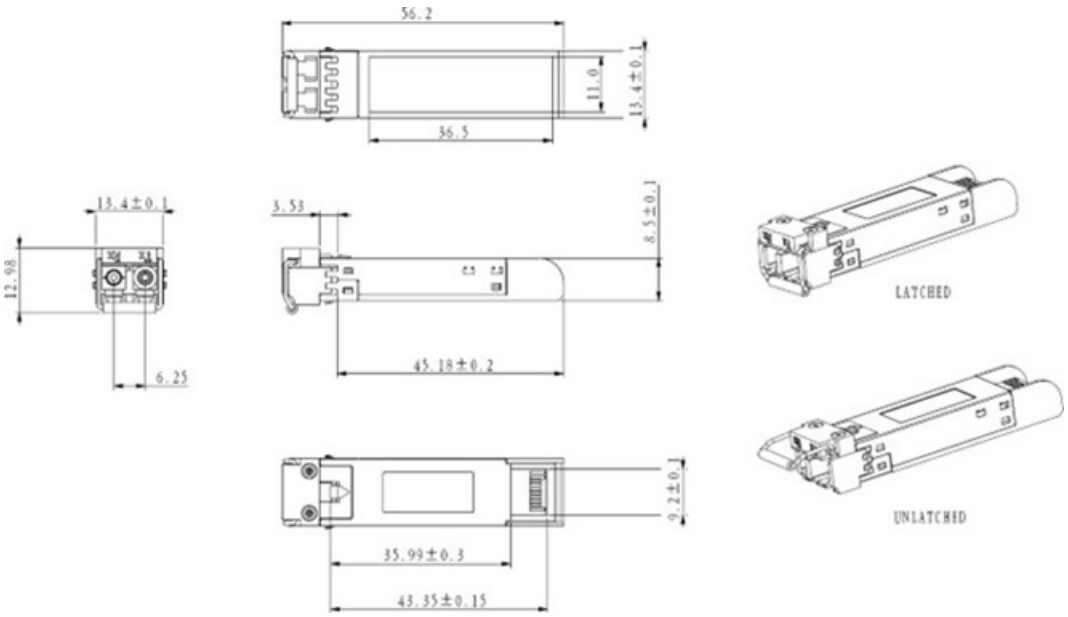




Block Diagram of Transceiver



Mechanical Specifications



All dimensions are ±0.2mm unless otherwise specified.
Unit: mm