

NTK592NB-C

Ciena® NTK592NB Compatible TAA OC3/STM-1 CWDM SFP Transceiver (SMF, 1510nm, 120km, LC, DOM)

Features:

- Operating Data Rate up to 155Mbps
- Power Dissipation of 1.0W
- Duplex LC Connector
- Hot-Pluggable
- Single 3.3V Power Supply and TTL Logic Interface
- PIN-TIA Receiver
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



Applications:

- Ethernet over CWDM
- Access, Metro and Enterprise

Product Description

This Ciena® NTK592NB compatible SFP transceiver provides OC-3 (155mbps) transmission rates for up to 120km over single-mode fiber (SMF) using a wavelength of 1510nm 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.

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.")



Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Data Rate	DR		155.52		Mbps	
Link Budget			37		dB	
Operating Case Temperature	Tc	0		70	°C	
Storage Temperature	Tstg	-40		85	°C	
Maximum Voltage	Vcc	-0.5		3.6	V	
Relative Humidity (Non-Condensing)	RH	5		85	%	

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		Vcc	3.13	3.3	3.47	V	
Power Supply Current		Icc			300	mA	
Transmitter							
LVPECL Differential Inputs		VIN	400		2000	mVp-p	1
Input Differential Impedance		ZIN	85	100	115	Ω	2
Tx_Disable	Disable		2		Vcc+0.3	V	
	Enable		0		0.8	V	
Tx_Fault	Fault		2		Vcc+0.3	V	
	Normal		0		0.8	V	
Receiver							
LVPECL Differential Outputs		VOUT	400		2000	mVp-p	3
Output Differential Impedance		ZOUT	85	100	115	Ω	
Tx_Disable Assert Time		T_off			10	us	
Tx_LOS	LOS		2		Vcc+0.3	V	
	Normal		0		0.8	V	
MOD_DEF(0.2)	VOH		2.5			V	
	VOL		0		0.8	V	4

Notes:

1. AC coupled inputs. LVPECL logic. Internally AC coupled.
2. RIN > 100kΩ @DC.
3. AC coupled outputs.
4. With serial ID.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Center Wavelength	λ_C	1504.5	1511	1517.5	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Average Output Power	POUT	2		7	dBm	1
Side-Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	9			dB	
Rise/Fall Time (20-80%)	Tr/Tf			1.5	ns	
POUT @Tx_Disable Asserted	POUT			-45	dBm	
Output Optical Eye	Compliant with IEEE 802.3					
Receiver						
Optical Input Wavelength	λ_C	1260		1600	nm	
Receiver Sensitivity	Rx_SEN			-35	dBm	2
Receiver Overload	POL	-9			dBm	
LOS Assert	LOSA	-45			dBm	
LOS De-Assert	LOSD			-36	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Output is coupled into a 9/125 μ m SMF.
2. Minimum average optical power is measured at BER less than $1E^{-12}$ with the measure pattern of PRBS2³¹-1.

Pin Descriptions

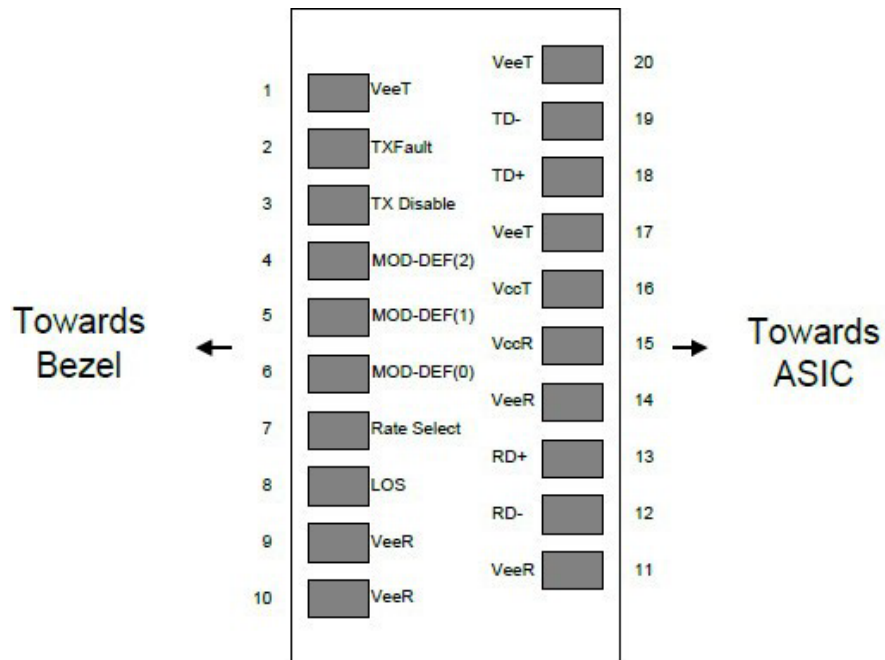
Pin	Symbol	Name/Description	Plug Seq.	Notes
1	VeeT	Transmitter Ground.	1	5
2	Tx_Fault	Transmitter Fault Indication.	3	1
3	Tx_Disable	Transmitter Disable. Module disables on “high” or “open.”	3	2
4	MOD-DEF2	Module Definition 2. 2-Wire Serial ID Interface.	3	3
5	MOD-DEF1	Module Definition 1. 2-Wire Serial ID Interface.	3	3
6	MOD-DEF0	Module Definition 0. Grounded within the module.	3	3
7	Rate Select	No User Connection. Function not available.	3	
8	LOS	Loss of Signal.	3	4
9	VeeR	Receiver Ground.	1	5
10	VeeR	Receiver Ground.	1	5
11	VeeR	Receiver Ground.	1	5
12	RD-	Receiver Inverse Data Out.	3	6
13	RD+	Receiver Data Out.	3	7
14	VeeR	Receiver Ground.	1	5
15	VccR	3.3 ± 5% Receiver Power.	2	7
16	VccT	3.3 ± 5% Transmitter Power.	2	7
17	VeeT	Transmitter Ground.	1	5
18	TD+	Transmitter Data In.	3	8
19	TD-	Transmitter Inverse Data In.	3	8
20	VeeT	Transmitter Ground.	1	5

Notes:

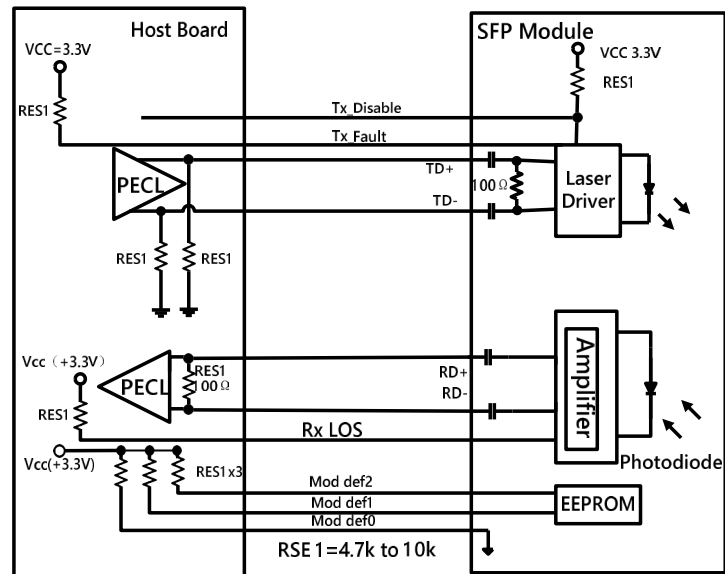
1. Tx_Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. When “high,” output indicates a laser fault of some kind. “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.
2. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7kΩ to 10kΩ resistor. Its states are:
 - Low (0V – 0.8V): Transmitter On
 - (>0.8V, <2.0V): Undefined
 - High (2.0V – 3.465V): Transmitter Disabled
 - Open: Transmitter Disabled.
3. MOD-DEF0, 1, & 2. These are the module definition pins. They should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.
 - MOD-DEF0 is grounded by the module to indicate that the module is present.
 - MOD-DEF1 is the clock line of the 2-wire serial interface for serial ID.
 - MOD-DEF2 is the data line of the 2-wire serial interface for serial ID.

4. LOS (Loss of Signal) is an open collector/drain output that should be pulled up with a 4.7k Ω to 10k Ω resistor. When “high,” this output indicates that the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.
5. VeeR and VeeT may be internally connected within the SFP module.
6. RD-/+. These are the differential receiver outputs. They are AC-coupled, 100 Ω differential lines that should be terminated with 100 Ω (differential) at the user SERDES.
7. VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V $\pm$ 5% at the SFP connector pin.
8. TD-/+. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 Ω differential termination inside the module.

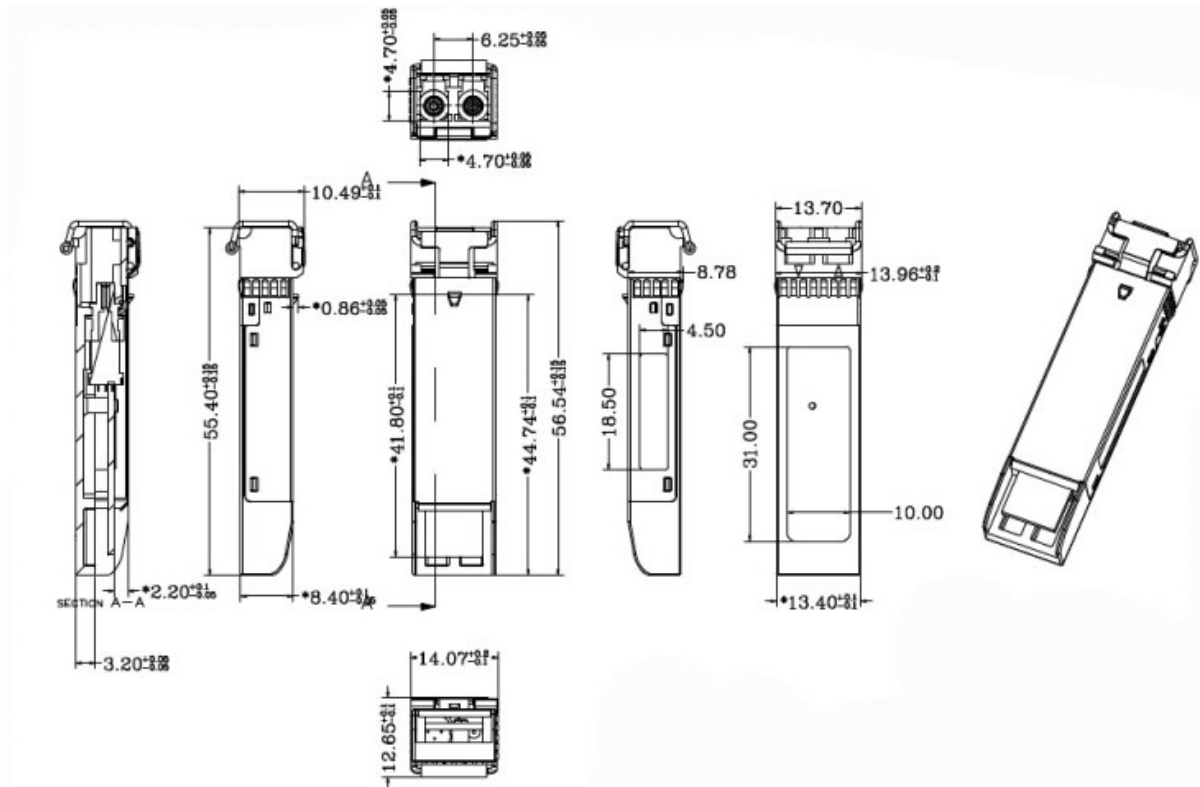
Electrical Pad Layout



Recommended Circuit Schematic



Mechanical Specifications



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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