

NTK592NGE5-AO

Ciena NTK592NGE5 Compatible TAA Compliant OC-3/STM-1 CWDM SFP Transceiver (SMF, 1510nm, 120km, LC)

Features

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



Applications

- Ethernet over CWDM
- Access, Metro and Enterprise

Product Description

This Ciena NTK592NGE5 compatible SFP transceiver provides OC-3/STM-1 CWDM throughput 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. It is built to meet or exceed the specifications of Ciena, as well as to comply with MSA (Multi-Source Agreement) standards to ensure 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.

AddOn'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."



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

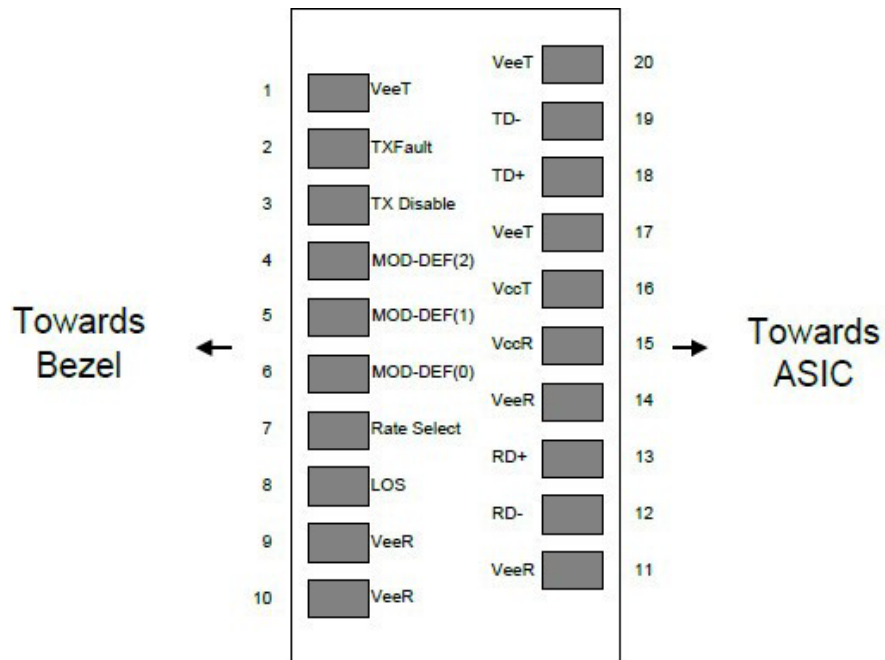
Pin	Symbol	Name/Description	Plug Seq.	Notes
1	VeeT	Transmitter Ground.	1	5
2	Tx_Fault	Transmitter Fault Indication.	3	1
3	Tx_Disable	Transmitter Disable. Module disables on “high” or “open.”	3	2
4	MOD-DEF2	Module Definition 2. 2-Wire Serial ID Interface.	3	3
5	MOD-DEF1	Module Definition 1. 2-Wire Serial 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:

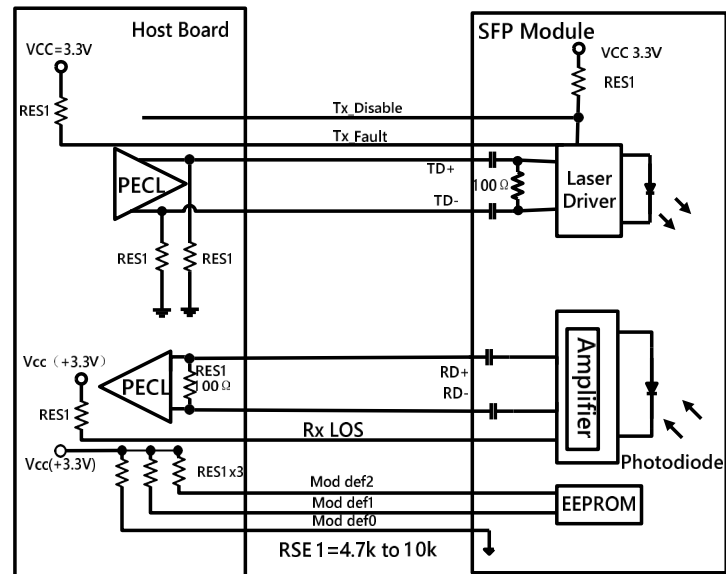
1. Tx_Fault is an open collector/drain output that should be pulled up with a 4.7kΩ to 10kΩ resistor on the host board. When “high,” output indicates a laser fault of some kind. “Low” indicates normal operation. In the “low” state, the output will be pulled to <0.8V.
2. Tx_Disable is an input that is 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.

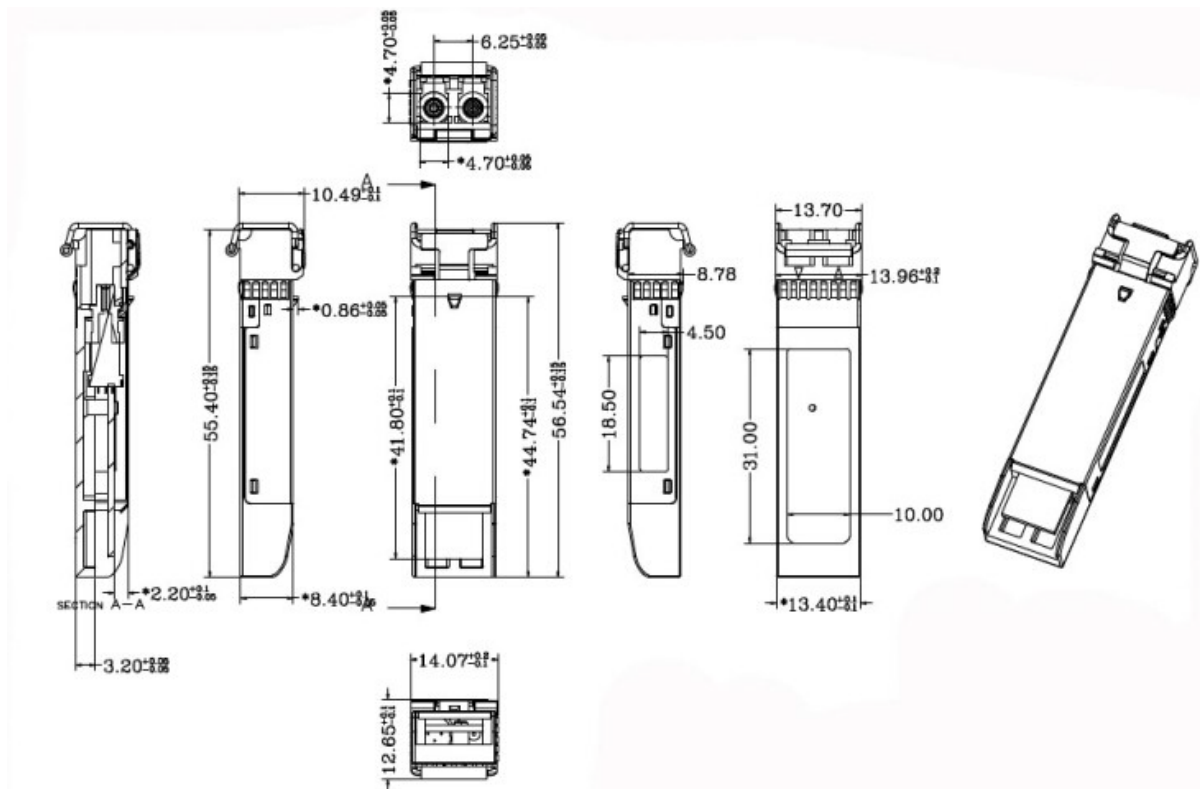
Electrical Pad Layout



Recommended Circuit Schematic



Mechanical Specifications



About AddOn Networks

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is ingrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.



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