

#### EX-SFP-GE10KT13R14PR

Juniper Networks® EX-SFP-GE10KT13R14 Compatible TAA Compliant 1000Base-BX SFP Transceiver (SMF, 1310nmTx/1490nmRx, 10km, 0 to 70C, LC)

#### **Features**

- INF-8074 and SFF-8472 Compliance
- Fabry Perot transmitter and PIN receiver
- Simplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



## **Applications:**

- 1000Base-BX Ethernet
- 1x Fibre Channel
- Access (FTTx) and Enterprise

## **Product Description**

This Juniper Networks® EX-SFP-GE10KT13R14 compatible SFP transceiver provides 1000Base-BX throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1490nmRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent Juniper Networks® 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.

Proline'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.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5	4.0	V
Storage Temperature	TS	-40	85	°C
Operating Case Temperature	Тс	-5	70	°C
Operating Humidity	RH	5	85	%
Receiver Power	R <sub>MAX</sub>		-3	dBm
Maximum Bitrate	B <sub>max</sub>		1.25	Gbps

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.43	V	
Power Supply Current	Icc			303	mA	
Power Consumption	P <sub>DISS</sub>			1	W	
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.	Тур.	Max.	Unit	Notes
Transmitter						
Optical Power (average)	P <sub>AVE</sub>	-9		-3	dBm	1
Optical Extinction Ratio	ER	9			dB	
Optical Wavelength	Τλ	1260	1310	1360	nm	
Insertion loss	IL		1.2			
Receiver						
Receiver Sensitivity (average)	R <sub>AVE</sub>			-19.5	dBm	3
Receiver overload	P <sub>max</sub>	-3			dBm	4
Receiver wavelength	Rλ	1480		1500	nm	

#### Notes:

- 1. Coupled into a Single-mode fibre
- 2. Per IEEE 802.3ah specification
- 3. Average power, back-to-back, @1.25Gbps, BER 1E-12, PRBS 231-1.
- 4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

## **Pin Descriptions**

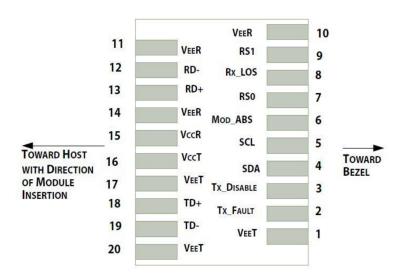
Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTL-I/O.	
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  $4.7K\Omega$  to  $10K\Omega$ . 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  $4.7K\Omega$  to  $10K\Omega$  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

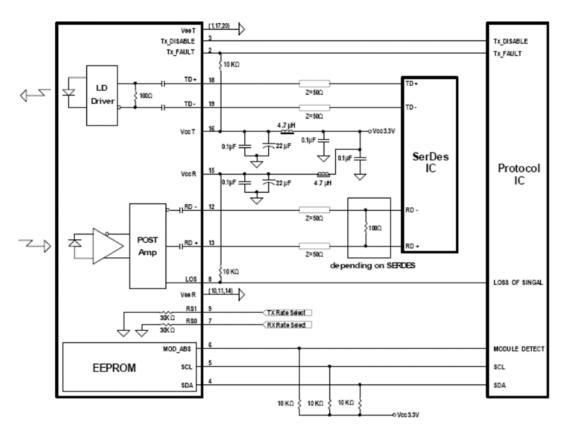
Vcc\_Host with a resistor in the range from  $4.7K\Omega$  to  $10K\Omega$ . Mod\_ABS is asserted "High" when the SFP+ module is physically absent from a host slot.

5. Internally pulled down per SFF-8431



Pin-out of connector Block on Host board

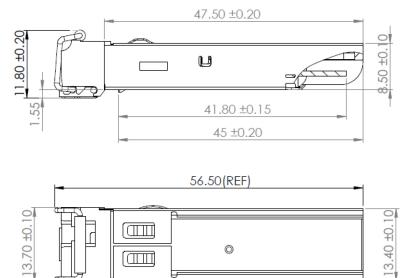
## **Recommended Circuit Schematic**



## **Mechanical Specifications**

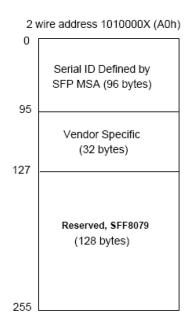
Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

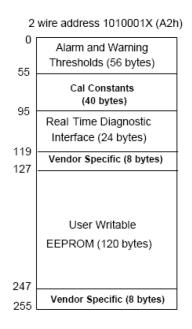




## **EEPROM Information**

EEPROM memory map specific data field description is as below:





#### **About Us:**

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.



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