

### SFPGE-12-PRO

Riverstone<sup>®</sup> SFPGE-12 Compatible TAA Compliant 10/100/1000Base-TX SFP Transceiver (Copper, 100m, 0 to 70C, RJ-45)

### Features

- INF-8074 Compliance
- RJ-45 Connector
- Commercial Temperature 0 to 70 Celsius
- Copper Media Type
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



### Applications:

- 1000Base Ethernet
- Access and Enterprise

### **Product Description**

This Riverstone<sup>®</sup> SFPGE-12 compatible SFP transceiver provides 10/100/1000Base-TX throughput up to 100m over a copper connection via a RJ-45 connector. This TX module supports 10/100/1000Base auto-negotiation and can be configured to fit your needs. It is guaranteed to be 100% compatible with the equivalent Riverstone<sup>®</sup> 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 Riverstone<sup>®</sup>, 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.

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.



Rev. 031924

# **Absolute Maximum Ratings**

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
Supply Current	ls		320	375	mA	1
Input Voltage	Vcc	3.13	3.3	3.47	V	2
Maximum Voltage	Vmax			4	V	
Surge Current	Isurge			30	mA	3

## Notes:

- 1. 1.2W max power over full range of voltage and temperature. Power consumption and surge current are higher than the specified values in SFP MSA.
- 2. Referenced to GND
- 3. Hot plug above steady state current. Power consumption and surge current are higher than the specified values in SFP MSA.

# **Recommended Operating Conditions**

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
Data Rate	BR	10		1000	Mb/sec	3-5
Distance Supported	L			100	m	1
Operating Temperature	Тор	0		85	°C	
Storage Temperature	Tsto	-40		85	°C	

## Notes:

- 1. Category 5 UTP. BER <10-12
- 2. Clock tolerance is +/- 50 ppm
- 3. By default, the GE-GB-P is a full duplex device in preferred master mode
- 4. Automatic crossover detection is enabled. External crossover cable is not required
- 1000Base-T operation requires the host system to have an SGMII interface with no clocks, and the module PHY to be configured per Application Note AN-2036. With a SERDES that does not support SGMII, the module will operate at 1000Base-T only.

# **Low-Speed Signals**

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes
SFP Output LOW	VOL	0		0.5	V	1
SFP Output High	VOH	Host_Vcc-0.5		Host_Vcc+0.3	V	1
SFP Input LOW	VIL	0		0.8	V	2
SFP Input HIGH	VIH	2		Vcc+0.3	V	2

# Notes:

- 1. 4.7k to 10k pull-up to Host\_Vcc, measured at host side of connector
- 2. 4.7k to 10k pull-up to Vcc, measured at SFP side of connector

# **High-Speed Signals**

Parameter	Symbol	Min.	Тур.	Max.	Unit	Notes	
Transmission Line-SFP							
Line Frequency	fL		125		MHz	1	
TX Output impedance	Zout, TX		100		Ohm	2	
Rx Input Impedance	Zin, RX		100		Ohm	2	
Host-SFP							
Single ended data input swing	Vinsing	250		1200	mV	3	
Single ended data output swing	Voutsing	350		800	mV	3	
Rise/Fall Time	Tr,Tf		175		Psec	4	
Tx Input Impedance	Zin		50		Ohm	3	
Rx Output Impedance	Zout		50		Ohm	3	

### Notes:

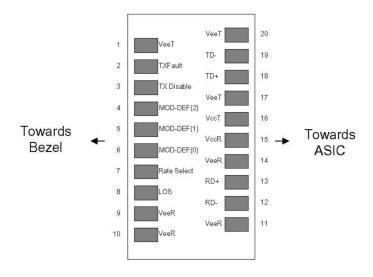
- 1. 5-level encoding, per IEEE 802.3
- 2. Differential, for all Frequencies between 1MHz and 125MHz
- 3. Single ended
- 4. 20%-80%

# **Pin Descriptions**

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. Not Supported	
3	TDIS	Transmitter Disabled. PHY disabled on high or open	2
4	MOD_DEF(2)	Module Definition 2. Data line for serial ID	3
5	MOD_DEF(1)	Module Definition 1. Clock line for serial ID	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication.	4
9	VeeR	Receiver Ground (common with Transmitter ground)	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

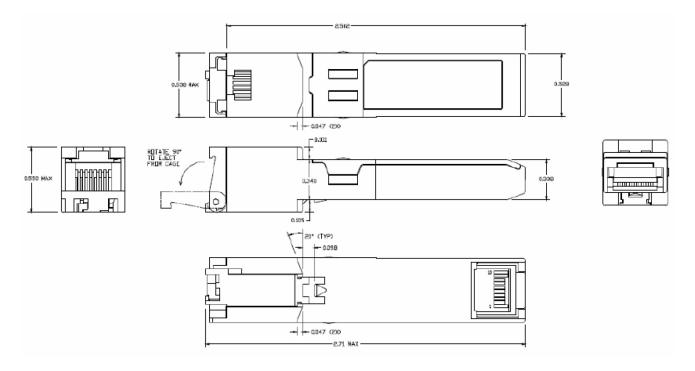
## Notes:

- 1. Circuit ground is connected to chassis ground
- 2. PHY disabled on TDIS > 2.0V or open, enabled on TDIS < 0.8V
- Should be pulled up with 4.7k-10k Ohms on host board to a voltage between 2.0V and 3.6V.MOD\_DEF
  (0) pulls line low to indicate module is plugged in.
- 4. LVTTL compatible with a maximum voltage of 2.5V. Not supported on GE-GB-P



Pin-out of connector Block on Host board

**Mechanical Specifications** 



## 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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