

### **SFP-10G-RA-1G-LX-C**

Arista Networks® SFP-10G-RA-1G-LX Compatible 1000Base-LX (media interface) to 10G (host) adapting SFP+ Transceiver (SMF, 1310nm, 10km, LC, DOM)

#### **Features:**

- Duplex LC Receptacle Optical Interface Compliant
- Built-In PHY Supporting XFI/USXGMII Interface
- 1310nm FP Laser Transmitter
- Receiver Loss of Signal Output
- Single 3.3V Power Supply
- Class 1 Laser Safety Certified
- Transmitter Disable Input
- 10km on SMF
- Operating Temperature: 0 to 70 Celsius
- RoHS Compliant and Lead-Free



#### **Applications:**

- 1000Base-LX Ethernet
- 1x Fibre Channel
- Access and Enterprise

#### **Product Description**

This Arista Networks® SFP-10G-RA-1G-LX compatible SFP+ transceiver provides 1000Base-LX throughput up to 10km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Arista 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.

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
Maximum Supply Voltage	V <sub>cc</sub>			4.0	V	
Storage Temperature	T <sub>stg</sub>	-40		85	°C	
Operating Case Temperature	T <sub>c</sub>	0		70	°C	
Relative Humidity		0		95	%	
Power Supply Current	I <sub>cc</sub>			700	mA	
Power Supply Voltage	V <sub>cc</sub>	3.10	3.30	3.47	V	
Power Dissipation	P <sub>DISS</sub>			2.0	W	

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
Launch Optical Power	P <sub>o</sub>	-9.5		-3.0	dBm	1
Center Wavelength	λ <sub>C</sub>	1270		1355	nm	
Extinction Ratio	ER	9.0			dB	
Spectral Width (RMS)	Δλ	nm		4.0	nm	
Eye Diagram	Complies with IEEE 802.3					
Mask Margin		10				
POUT of Off Transmitter	P <sub>off</sub>			-30	dBm	
<b>Receiver</b>						
Center Wavelength	λ <sub>C</sub>	1260		1620	nm	
Receiver Sensitivity	S			-19	dBm	2
Overload Input Optical Power	P <sub>in</sub>	-3.0			dBm	
LOS	Optical De-Assert			-20	dBm	
	Optical Assert	-30			dBm	
LOS Hysteresis		0.5		5	dB	3

## Notes:

1. With SMF.
2. Measured with BER<10E<sup>-12</sup>.
3. The LOS Hysteresis to minimize “chatter” on the output line. In principle, Hysteresis alone does not guarantee chatter-free operation.

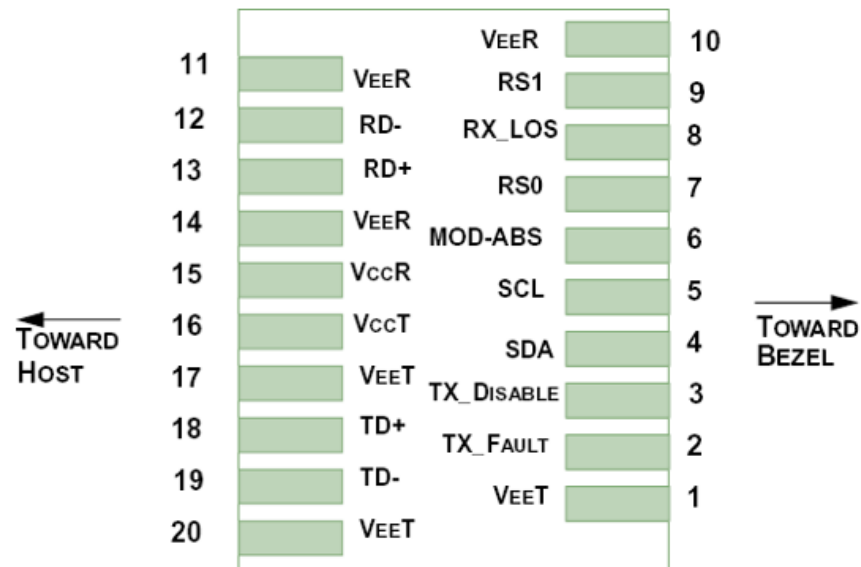
## Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Signal Ground. Connected to the signal ground on the host board.	
2	Tx_Fault	Transmitter Fault Out. OC.	1
3	Tx_Disable	Transmitter Disable In. LVTTTL.	2
4	SDA	Module Definition Identifiers.	3
5	SCL	Module Definition Identifiers.	3
6	MOD_ABS	Module Definition Identifiers.	3
7	RS0	Receiver Rate Select. LVTTTL. Transmitter Rate Select.	4
8	LOS	Loss of Signal Out. OC.	5
9	RS1	Receiver Rate Select. LVTTTL. Transmitter Rate Select.	4
10	VeeR	Receiver Signal Ground. Connected to the signal ground on the host board.	
11	VeeR	Receiver Signal Ground. Connected to the signal ground on the host board.	
12	RD-	Receiver Negative Data Out. CML.	6
13	RD+	Receiver Positive Data Out. CML.	7
14	VeeR	Receiver Signal Ground. Connected to the signal ground on the host board.	
15	VccR	Receiver Power Supply.	8
16	VccT	Transmitter Power Supply.	8
17	VeeT	Transmitter Signal Ground. Connected to the signal ground on the host board.	
18	TD+	Transmitter Positive Data In. CML.	9
19	TD-	Transmitter Negative Data In. CML.	10
20	VeeT	Transmitter Signal Ground. Connected to the signal ground on the host board.	

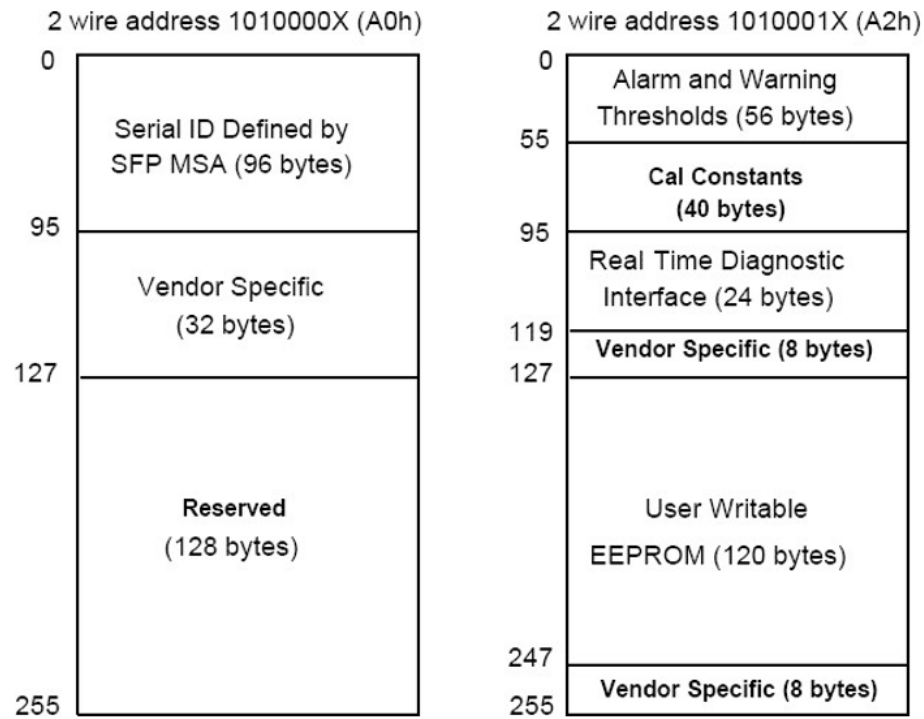
## Notes:

1. Logic "1" Output = Transmitter Fault. Logic "0" Output = Normal Operation. This pin is open collector compatible and should be pulled up to the Host\_Vcc with 10kΩ.
2. Logic "1" Input (or No Connection) = Laser Off. Logic "0" Input = Laser On. This pin is internally pulled up to VccT with a 10kΩ resistor.
3. Serial ID with SFF-8472 Diagnostics Module Definition pins. Should be pulled up to the Host\_Vcc with 10kΩ resistors.
4. These pins have an internal 33kΩ pull-down to ground. A signal on either of these pins will not affect module performance.
5. This pin is open collector compatible and should be pulled up to the Host\_Vcc with 10kΩ.
6. Light On = Logic "0" Output Receiver. Data output is internally AC coupled and series terminated with a 50Ω resistor.
7. Light on = Logic "1" output Receiver. Data output is internally AC coupled and series terminated with a 50Ω resistor.
8. This pin should be connected to a filtered +3.3V power supply on the host board.
9. Logic "1" Input = Light On Transmitter. Data inputs are internally AC coupled and terminated with a differential 100Ω resistor.
10. Logic "0" Input = Light On Transmitter. Data inputs are internally AC coupled and terminated with a differential 100Ω resistor.

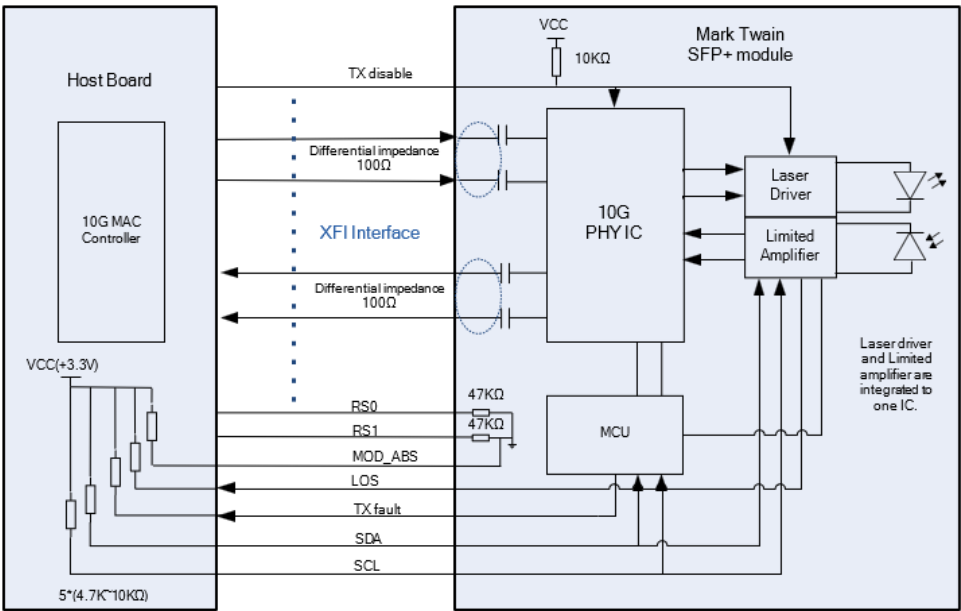
Electrical Pin-Out Details



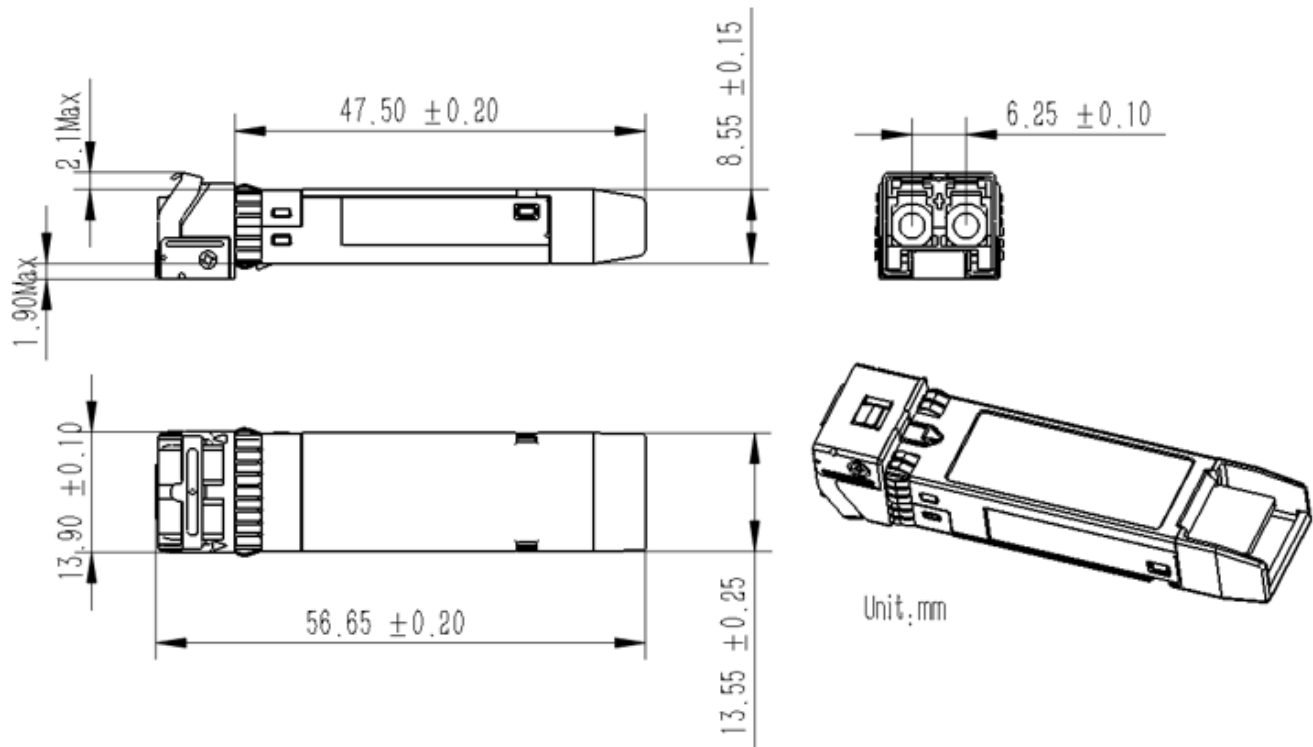
EEPROM



Recommended Interface Circuit



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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