

## 7SG-000-PRO

Accedian® 7SG-000 Compatible TAA Compliant 100Base-BX SFP Transceiver (SMF, 1310nmTx/1550nmRx, 20km, DOM, 0 to 70C, LC)

### Features

- INF-8074 and SFF-8472 Compliance
- 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:

- 100Base Ethernet
- Access and Enterprise

### Product Description

This Accedian® 7SG-000 compatible SFP transceiver provides 100Base-BX throughput up to 20km over single-mode fiber (SMF) using a wavelength of 1310nmTx/1550nmRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent Accedian® 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.



## Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	V <sub>CC</sub>	-0.5		3.6	V
Storage Temperature	T <sub>S</sub>	-40		+85	°C
Operating Case Temperature	T <sub>c</sub>	0		+70	°C
Operating Humidity	RH	5		85	%
Receiver Power	R <sub>MAX</sub>			-8	dBm
Data Rate			155		Mbps

## Electrical Characteristics (TOP=25°C, V<sub>CC</sub>=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V <sub>CC</sub>	3.15	3.30	3.45	V	
Power Supply Current	I <sub>CC</sub>			300	mA	
<b>Transmitter</b>						
LVPECL Inputs (Differential)	V <sub>in</sub>	400		2000	mV <sub>pp</sub>	1
Input differential impedance	Z <sub>in</sub>	85	100	115	Ω	2
<b>Receiver</b>						
LVPECL Outputs (Differential)	V <sub>out</sub>	400		2000	mV <sub>pp</sub>	1
Output differential impedance	Z <sub>out</sub>	85	100	115	Ω	

## Notes:

1. LVPECL logic, internally AC coupled
2. R<sub>in</sub> > 100 kohms @ DC

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
Optical Power (average)	$P_{AVE}$	-15		-8	dBm	1
Optical Extinction Ratio	ER	8.2			dB	2
Optical Wavelength	$T\lambda$	1260	1310	1360	nm	
Spectral Width (RMS)	$\Delta\lambda$			4	nm	
Rise/Fall Time (20% ~ 80%)	tr/tf			2	ns	
Total Jitter	TJ			1.5	ns	
Pout@TX Disable Asserted	Pout			-45	dBm	
Output Optical Eye	IUT-T G.957 Compliant					
<b>Receiver</b>						
Receiver Sensitivity (average)	$R_{AVE}$			-28	dBm	3
Receiver overload	$P_{max}$	-8			dBm	4
Receiver wavelength	$R\lambda$	1530	1550	1570	nm	

### Notes:

1. Output power is measured by coupling into a 9/125 mm single-mode fiber.
2. Filtered, measured with a PRBS  $2^{23}-1$  test pattern @155Mbps.
3. Minimum average optical power is measured at BER less than  $1E-12$  and PRBS  $2^{23}-1$  test pattern.
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. LVTTTL-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). LVTTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTTL-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. LVTTTL-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 resistor 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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