

## 1061993033-01-C

ADVA® 1061993033-01 Compatible TAA 1000Base-BX SFP Transceiver (SMF, 1570nmTx/1490nmRx, 80km, LC, DOM, -40 to 85C)

### Features:

- INF-8074 and SFF-8472 Compliance
- Simplex LC Connector
- Single-mode Fiber
- Industrial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



### Applications:

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

### Product Description

This ADVA® 1061993033-01 compatible SFP transceiver provides 1000Base-BX throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1570nmTx/1490nmRx via an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It is capable of withstanding rugged environments and can operate at temperatures between -40 and 85C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with ADVA®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide 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.

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.")



## 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	Vcc	-0.5		3.6	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	-40		85	°C
Operating Humidity	RH	5		85	%
Data Rate (GBE)	DR		1.25		Gbps
Data Rate (FC)	DR		1.063		Gbps

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.30	3.47	V	
Power Supply Current	Icc			300	mA	
Power Dissipation	P <sub>DISS</sub>			1	W	
<b>Transmitter</b>						
LVPECL Differential Inputs	VIN	400		1800	mVp-p	1
Input Differential Impedance	ZIN	90	100	110	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	
<b>Receiver</b>						
LVPECL Differential Outputs	VOUT	400		2000	mVp-p	1
Output Differential Impedance	ZOUT	90	100	110	Ω	
Tx_Disable Assert Time	T <sub>off</sub>			10	us	
Rx_LOS	LOS	2		Vcc+0.3	V	
	Normal	0		0.8	V	
MOD_DEF (0.2)	VOH	2.5		Vcc+0.3	V	3
	VOL	0		0.5	V	3

**Notes:**

1. AC coupled inputs.
2. RIN > 100kΩ @ DC.
3. With Serial ID.

**Optical Characteristics**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes	
<b>Transmitter</b>							
Optical Power (Average)	$P_{AVE}$	0		5	dBm	1	
Optical Extinction Ratio	ER	9			dB		
Center Wavelength	$\lambda_C$	1550	1570	1590	nm		
Spectral Width (-20dB)	$\Delta\lambda$			1	nm		
Side-Mode Suppression Ratio	SMSR	30			dB		
Rise/Fall Time (20-80%)	$T_r/T_f$			0.26	ns		
POUT @ Tx_Disable Asserted	POUT			-35	dBm		
Output Optical Eye		Compliant with IEEE 802.3					2
<b>Receiver</b>							
Receiver Sensitivity (Average)	$R_{AVE}$			-24	dBm	3	
Receiver Overload	$P_{max}$	-3			dBm		
Receiver Wavelength	$R\lambda$	1470	1490	1510	nm		
LOS De-Assert	LOSD			-25	dBm		
LOS Assert	LOSA	-35			dBm		
LOS Hysteresis		0.5			dB		

**Notes:**

1. Output power is power coupled into a 9/125μm single-mode fiber.
2. Filtered. Measured with a PRBS 2<sup>7</sup>-1 test pattern @1250Mbps.
3. Minimum average optical power is measured at BER less than 1E<sup>-12</sup> with 1.25Gbps, 2<sup>7</sup>-1 PRBS, and ER=9dB.

## Pin Descriptions

Pin	Symbol	Name/Description	Note
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.” LVTTTL-I.	3
4	SDA	2-Wire Serial Interface Data (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O.	
5	SCL	2-Wire Serial Interface Clock (Same as MOD-DEF2 in INF-8074i). LVTTTL-I.	
6	MOD_ABS	Module Absent. Connect to VeeT or VeeR in the 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

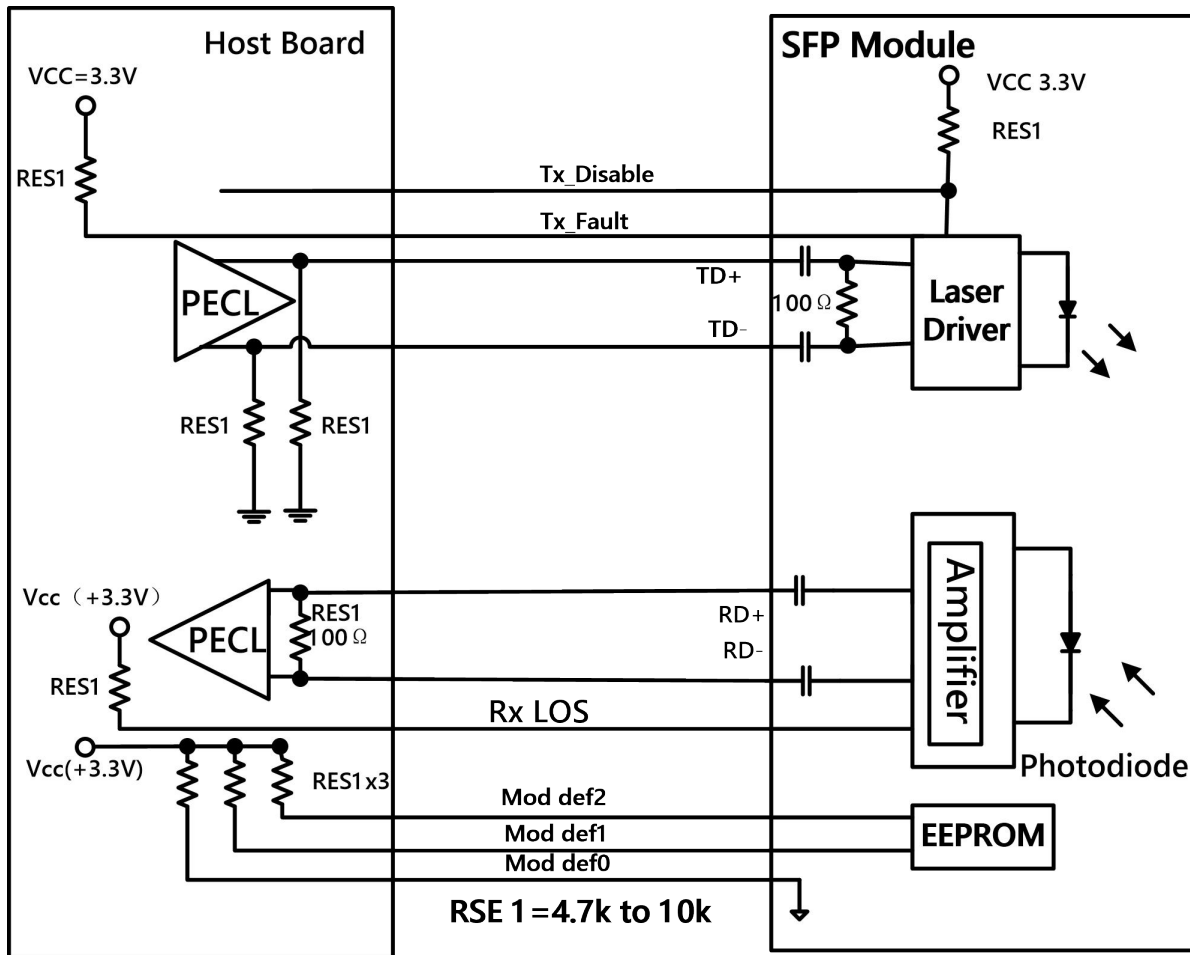
### Notes:

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 Host\_Vcc with resistor in the range 4.7kΩ to 10kΩ. Pull-ups can be connected to one or several power supplies; however, the host board design shall ensure that no module contact has voltage exceeding module VccT/R+0.5V.
3. Tx\_Disable is an input contact with a 4.7kΩ to 10kΩ pull-up resistor to VccT inside the module.
4. MOD\_ABS is connected to VeeT or VeeR in the SFP+ module. The host may pull the contract up to the Host\_Vcc with a resistor in the range from 4.7kΩ to 10kΩ. MOD\_ABS is asserted “High” when the SFP+ module is physically absent from a host slot.
5. Internally pulled down per SFF-8431.

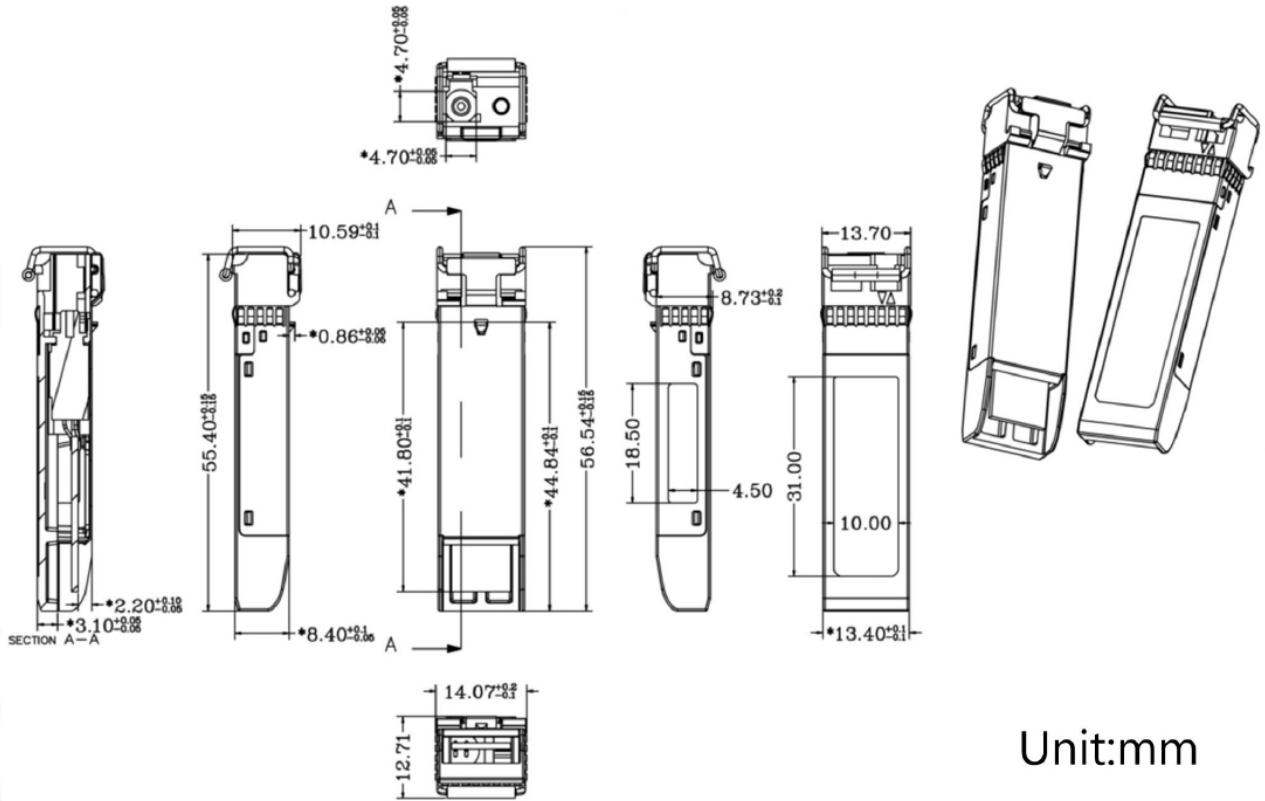


Pin-Out of Connector Block on the Host Board

**Recommended Circuit Schematic**



## Mechanical Specifications



Unit:mm

## EEPROM Information

EEPROM memory map-specific data field description is as below:

2 wire address 1010000X (A0h)		2 wire address 1010001X (A2h)	
0	Serial ID Defined by SFP MSA (96 bytes)	0	Alarm and Warning Thresholds (56 bytes)
95		55	Cal Constants (40 bytes)
127	Vendor Specific (32 bytes)	95	Real Time Diagnostic Interface (24 bytes)
	Reserved, SFF8079 (128 bytes)	119	Vendor Specific (8 bytes)
		127	User Writable EEPROM (120 bytes)
		247	Vendor Specific (8 bytes)
255		255	

## About ProLabs

Our extensive experience comes as standard. For over 20 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 more than 100 optical switching and transport platforms.

## A 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 1.6T 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.

## The Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure compatible products, and immediate answers to your questions. 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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