

## SFP-OC3-BX-U-C

MSA and TAA OC-3-BX SFP Transceiver (SMF, 1310nmTx/1550nmRx, 20km, LC, DOM)

### Features:

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



### Applications:

- OC-3 Transmission
- Access and Enterprise

### Product Description

This MSA compliant SFP-OC3-BX-USFP transceiver provides OC-3 (155mbps) transmission rates for up to 20km over single-mode fiber (SMF) at a bidirectional wavelength of 1310nmTx/1550nmRx using an LC connector. This bidirectional unit must be used with another transceiver or network appliance of complementing wavelengths. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. 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.")



## 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		4.0	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Operating Humidity	RH	5		95	%
Data Rate			155		Mbps

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.13	3.30	3.47	V	
Power Supply Current	Icc			250	mA	
<b>Transmitter</b>						
Single-Ended Data Input Swing	VIN, pp	250		1200	mV	
Input Differential Impedance	RIN		100		Ω	1
<b>Receiver</b>						
Single-Ended Data Output Swing	VOUT, pp	300	400	800	mV	2
Output Differential Impedance	ZOUT		100		Ω	

## Notes:

1. AC coupled.
2. Into 100Ω differential termination.

## 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	10			dB	
Optical Wavelength	$T\lambda$	1275	1310	1350	nm	
Spectral Width	$\sigma$			3	nm	
Optical Rise/Fall Time	$T_r/T_f$			1500	ps	2
Total Jitter (Peak-to-Peak)	$J_{TXp-p}$			0.07	UI	3
Total Jitter (RMS)	$J_{TXrms}$			0.007	UI	
<b>Receiver</b>						
Receiver Sensitivity	S			-30	dBm	4
Receiver Overload	$P_{max}$	-2			dBm	5
Receiver Wavelength	$R\lambda$	1530	1550	1570	nm	
LOS De-Assert	LOSD			-32	dBm	
LOS Assert	LOSA	-40			dBm	
LOS Hysteresis	LOSH	0.5		5	dB	

### Notes:

1. Class 1 Laser Safety.
2. Unfiltered, 20-80%. Complies with OC-3 eye masks when filtered.
3. Measured with DJ-free data input signal. In actual application, output DJ will be the sum of input DJ and  $\Delta DJ$ .
4. Measured with PRBS  $2^{23}-1$  at  $10^{-10}$  BER.
5. 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.” 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 4.7K $\Omega$  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 +0.5V.
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 the Host\_Vcc 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.



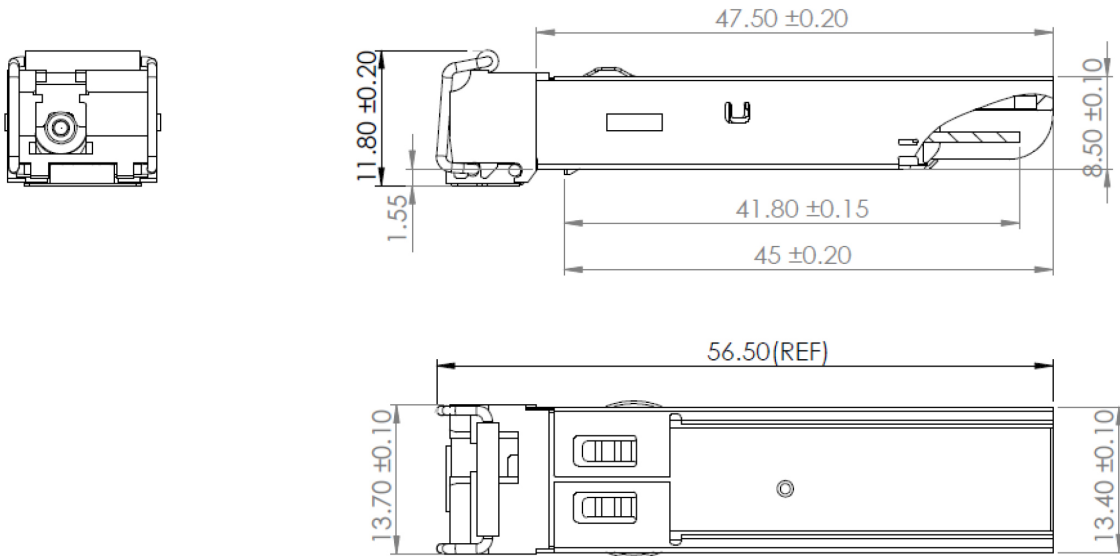
Pin-Out of Connector Block on the Host Board

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 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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