

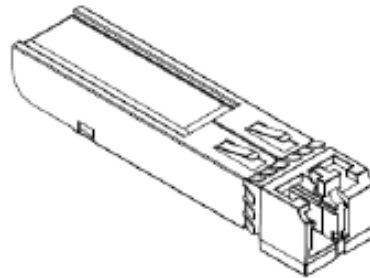
## RM3-S3-4X03K-B0

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### Product Overview

The 3G-SDI optical single-fiber transceiver enables two-way communication over only one core optic fiber. It supports multi-rate transmission from SDI electrical signal at SMPTE 259M, SMPTE 292M to SMPTE 424M. It supports data rate 3Gbps and error-free under pathological test. Paired with PALCONN 3G-SDI optical fiber transceiver, it will transmit signals with maximum distance up to 10km or 40km over single mode fiber.

PALCONN 3G-SDI Optical fiber module complies with FCC, TUV, and UL standards. It is also Pb-free and RoHS compliant.



### Features

- 1-port LC for 2-way transmission in 1 SFP package
- WDM filter inside the SFP: TX-1310nm/ RX-1550nm
- Support SMPTE 424M, SMPTE 292M, SMPTE 259M, DVB-ASI
- Handles pathological patterns for 3G-SDI, HD-SDI and SD-SDI
- 3Gbps transmission for 10km or 40km over single mode fiber
- 10km, 40Km link distance (indicative only) by different module.  
RM3-S3-4103K-B0: 10Km  
RM3-S3-4403K-B0: 40Km
- Laser disable pin
- Pb-free and RoHS compliant
- Operating temperature: 0°C to 70°C

### Laser Safety

This single mode fiber module is a Class 1 laser product. It complies with IEC 825 and FDA 21 CFR 1040.10 and 1040.11. The fiber module must be operated within the specified temperature and voltage limits. The optical ports of the module shall be terminated with an optical connector or with a dust plug.

## RM3-S3-4X03K-B0

### Transceiver Optical Interface

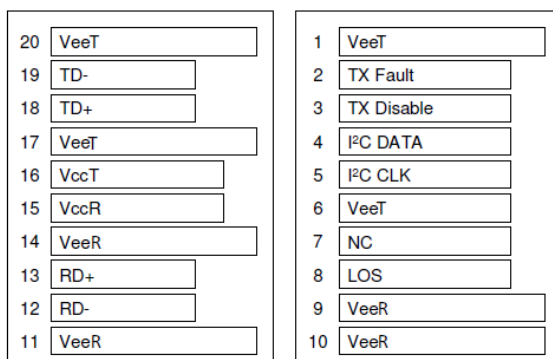
Parameter	Min.	Typ.	Max.	Unit	
Optical Power	-8	-5	-3	dBm	
Laser Wavelength	1290	1310	1330	nm	
Linear Extinction Ratio	5.0	8	-	dB	
Intrinsic Jitter <i>PRBS 2<sup>23</sup>-1 test pattern</i>	2.97Gb/s	-	45	80	ps
	1.485Gb/s	-	45	80	
	270Mb/s	-	45	80	
Optical Signal Rise Time	2.97Gb/s	-	-	135	ps
	1.485Gb/s	-	-	270	
	270Mb/s	-	-	400	
Optical Signal Fall Time	2.97Gb/s	-	-	135	ps
	1.485Gb/s	-	-	270	
	270Mb/s	-	-	400	
Receiver Wavelength	1480	-	1600	nm	
Receiver Sensitivity <i>(Measured with pathological pattern; BER &lt; 10<sup>-12</sup>)</i>	2.97Gb/s	-16	-	-	dBm
	1.485Gb/s	-16	-	-	
	270Mb/s	-16	-	-	
Receiver Overload	-	-	-3	dBm	
Receiver Loss of Signal Asserted	-35	-	-	dBm	
Receiver Loss of Signal De-asserted	-	-	-16	dBm	
Receiver Loss of Signal Hysteresis	0.5	2	-	dB	

### Transceiver Electrical Interface

Parameter	Min.	Typ.	Max.	Unit
Operating case temperature range	0	-	70	°C
Storage temperature range	-40	-	85	°C
Power supply voltage	3.1	3.3	3.5	V
TX_Disable – High	2	-	Vcc	V
TX_Disable – Low	Vee	-	Vee+0.8	V
Power consumption	-	200	300	mA

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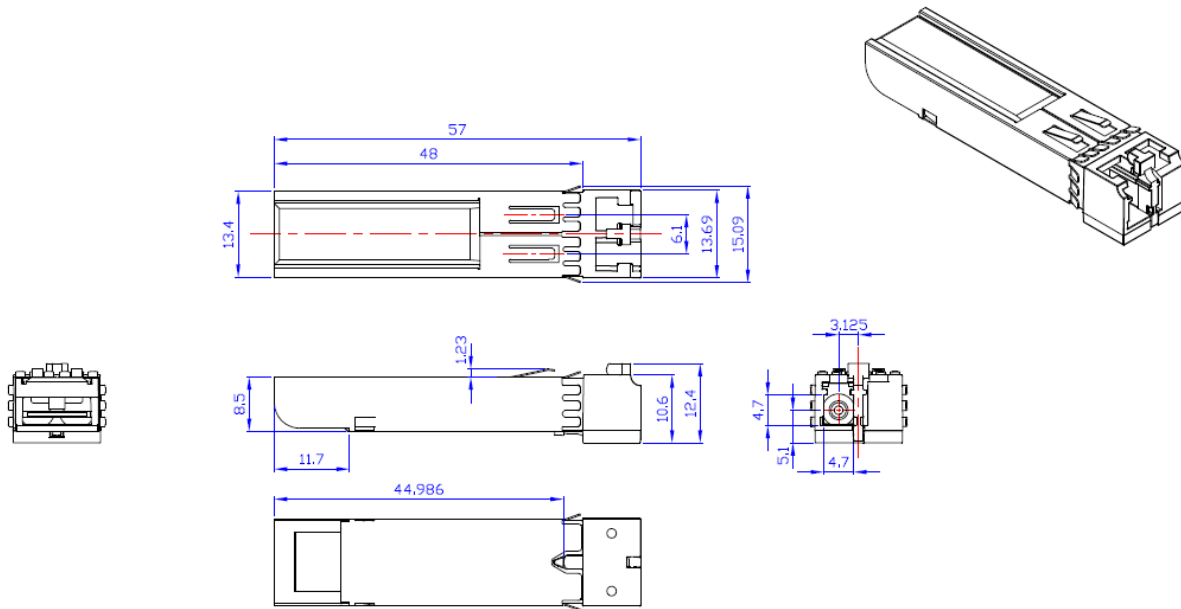
### Pin Description



Pin No.	Name	Function	Notes
1	VeeT	Transmitter Ground	TX Ground
2	Tx Fault	Transmitter Fault Indication	TX Fault is an open collector/ drain output, which should be pulled up with a 4.7K – 10KΩ resistor on the host board. Pull up voltage between 2.0V and VccT, R+0.3V. When high, output indicates a laser fault of some kind. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.
3	TX Disable	Transmitter Disable	TX Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7K – 10KΩ resistor. Its states are: Low (0 - 0.8V): Transmitter on >0.8, <2.0V): Undefined High (2.0- 3.465V): Transmitter Disable Open: Transmitter Disable
4	I <sup>2</sup> C DATA	Data Line of Two Wire Serial Interface for Serial ID	I2C Data is a bi-directional digital signal. It should be pulled up with a 4.7K – 10KΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.
5	I2C CLK	Clock Line of Two Wire Serial Interface for Serial ID	I2C clock is a digital input signal. It should be pulled up with a 4.7K – 10KΩ resistor on the host board. The pull-up voltage shall be VccT or VccR.
6	VeeT	Transmitter Ground	TX Ground
7	NC	Non-connection	
8	LOS	Loss of Signal	LOS is an open collector/ drain output, which should be pulled up with a 4.7K – 10KΩ resistor. Pull up voltage between 2.0V and VccT, R+0.3V. When high, this output indicates the received optical power is below the worst case receiver sensitivity. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.
9	VeeR	Module Ground	RX Ground
10	VeeR	Module Ground	RX Ground
11	VeeR	Module Ground	RX Ground
12	RD-	Inv. Received Data Out	Negative differential receiver outputs (AC-coupled internally)
13	RD+	Received Data Out	Positive differential receiver outputs (AC-coupled internally)
14	VeeR	Module Ground	RX Ground
15	VccR	Receiver Power	3.3V± 5%
16	VccT	Transmitter Power	3.3V± 5%
17	VeeT	Module Ground	TX Ground
18	TD+	Transmit Data In	Positive differential transmitter inputs (AC-coupled internally)
19	TD-	Inv. Transmit Data In	Negative differential transmitter inputs (AC-coupled internally)
20	VeeT	Module Ground	TX Ground

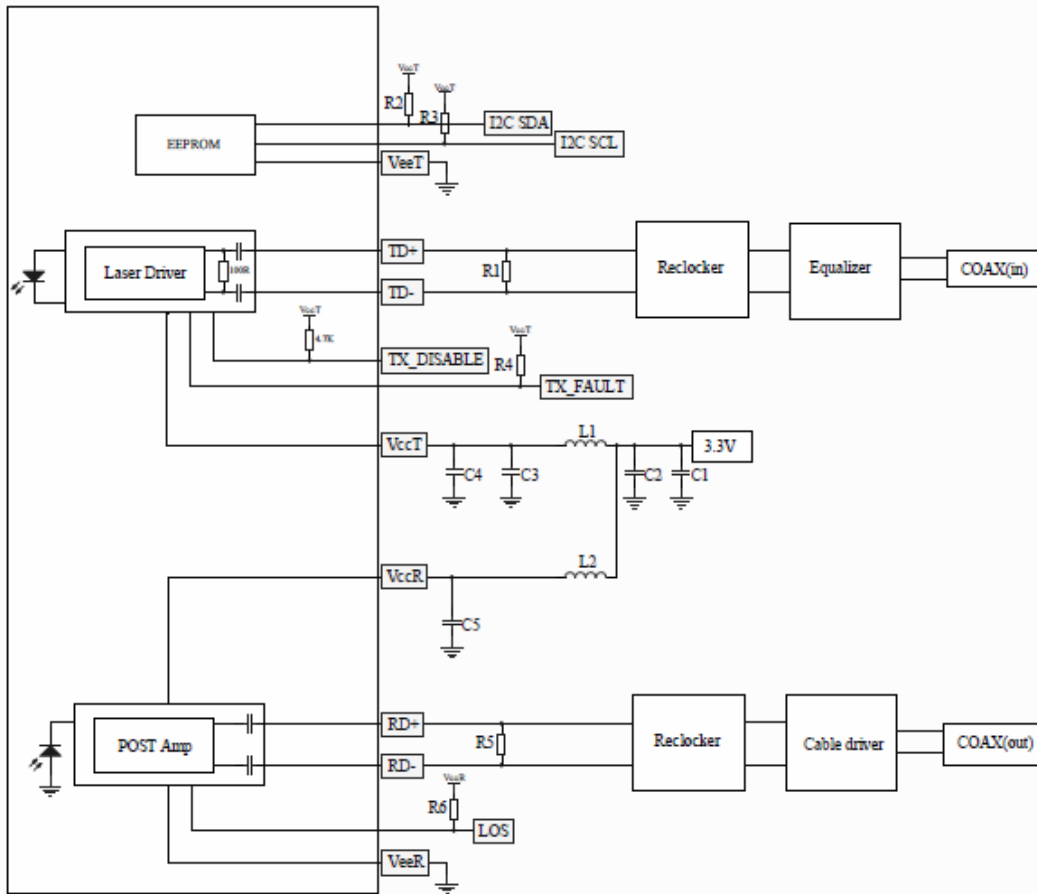
## RM3-S3-4X03K-B0

### Mechanical Dimensions (Units in mm)



## RM3-S3-4X03K-B0

### Application Circuit



**SDI SFP Module**

$C2=C4=C5=100\text{nF}$        $C1=C3=10\mu\text{F}$   
 $L1=L2=1\mu\text{H}$   
 $R1=R5=100\Omega$     $R2=R3=R4=R6=4.7\text{K}\Omega$