

SFP Single Fiber 20 km transceiver | 2G LX SONET OC-48 / STM-16

#### **Datasheet**

#### SFP Optical Transceiver Product Features

- SONET OC-48 / STM-16 13dB SFP
- 20 km LX SFP for SMF @ 2.67Gbps
- 1490Tx-1310Rx DFB+PIN Laser 20 km SFP
- 0°C 70°C Temperature Extended/Industrial Available
- 2-Wire Interface Digital Diagnostic Monitoring (SFF-8724)
- Hot-swappable for SFP LC ports
- OptoSpan 1 year standard warranty
- Use with Finisar, Avago, JDSU & networks not requiring OEM compatibility
- SFP MSA / IEEE Std 802.3
- RoHS compliant
- \* For OEM Compatibility, use Platinum Series Part# PSFP-MR2B49K020

#### SFP-MR2-K020B49



- 1.25Gbps Gigabit Ethernet
- Fibre Channel 2x
- SONET/SDH
- SONET OC-48
- Other Optical Links

#### **Description**

OptoSpan SFP-MR2-K020B49 is a Single Fiber BiDirectional SONET OC-48 / STM-16 SFP transceiver designed for long distance optical communications up to 20 km with signaling rates up to 2.67Gbps.

OptoSpan 2Gb Single Fiber optical transceivers are compatible with many brands such as Finisar, Avago, JDSU and network environments that do not require any special compatibility. For networks that require special OEM compatibility, such as CISCO, BROCADE, JUNIPER, ALCATEL, HP, NORTEL, EMC, QLOGIC and other OEMs, consider OptoSpan Platinum OEM Series transceiver model# PSFP-MR2B49K020.

All OptoSpan long-reach SFP s are ROHS compliant, allow for real-time diagnostic monitoring as per SFF-8472 and designed to meet Multi-Source Agreement (MSA) standards for Single Fiber BiDirectional (BiDi) transceivers with LC interface.

#### **Optical Budget Calculation for 20 km SFP Optical Transceiver**

SFP-MR2-K020B49	Distance: 20 km				Fiber: 1490Tx-1310Rx SMF	
	Tx Min dBm	Tx Max dBm	Rx Min dBm	Rx Max dBm	Link Attenuation dB	Power Budget dB
Product Specifications	-5	0	-18	0		
Optical Calculation Results			-12.4	-7.4	7.4	13



## SFP Single Fiber 20 km transceiver | 2G LX SONET OC-48 / STM-16 General Specifications

Parameter	Unit	Min.	Тур.	Max	
Ab	Absolute Maximum Ratings				
Maximum Supply Voltage	V	-0.5		3.6	
Storage Temperature	oC	-40		+85	
Case Operating Temperature	oC	0		+70	
Recommended Operating Condition					
Supply Voltage	V	3.15	3.3	3.45	
Supply Current	mA			300	
Data Rate	Gbps		2.5		

#### **Electrical Characteristics**

Parameter	Unit	Min.	Тур.	Max
	Transmitt	er		
Differential Input Voltage Swing	mVpp	400		2000
Input Differential Impedance	ohm	85	100	115
Transmit Disable Voltage - High	V	2.0		Vcc
Transmit Disable Voltage - Low	V	0		0.8
Transmit Fault Voltage - High	V	2.0		Vcc+0.3
Transmit Fault Voltage - Low	V	0		0.5
Receiver				
Differential Output Voltage Swing	mVpp	370		1200
Differential Output Impedance	ohms	85	100	115
LOS Output Voltage - High	V	2.0		Vcc+0.3
LOS Output Voltage - Low	V	0		0.8



#### SFP Single Fiber 20 km transceiver | 2G LX SONET OC-48 / STM-16

#### **Optical Characteristics**

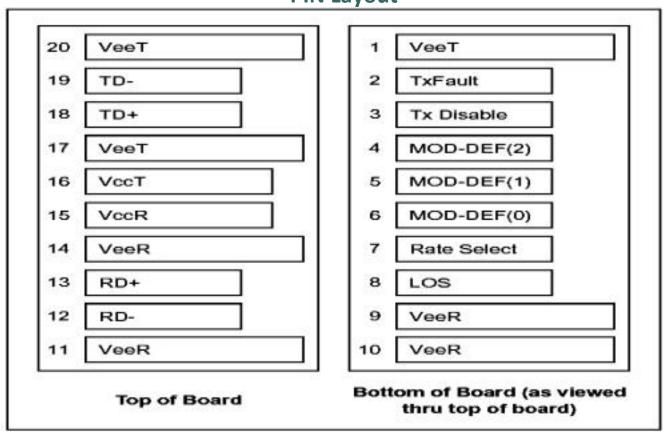
Parameter	Unit	Min.	Тур.	Max
	Transmitt	er		
Output Optical Power	dBm	-5		0
Optical Extinction Ratio	dB	8.2		
Optical Wavelength	nm	1530	1550	1570
Spectral Width	nm			1
Side Mode Suppression Ratio	dB	30		
	Receive	*		
Optical Center Wavelength	nm	1260		1360
Receiver Sensitivity @ 2.67Gbps	dBm	-18		0
LOS DE-Assert	dBm			-19
LOS Assert	dBm	-45		

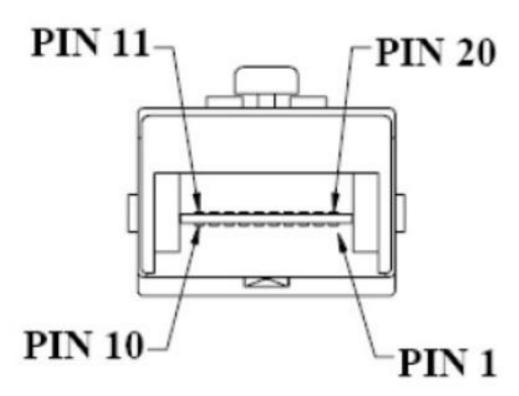
#### **Laser Safety**

This is a class 1 Laser Product according to IEC 60825-1:1993:+A1:1997+A2:2001. This product complies with 21 CFR 1040.10 and 1040 except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.

# **Optospan**

SFP Single Fiber 20 km transceiver | 2G LX SONET OC-48 / STM-16 PIN Layout





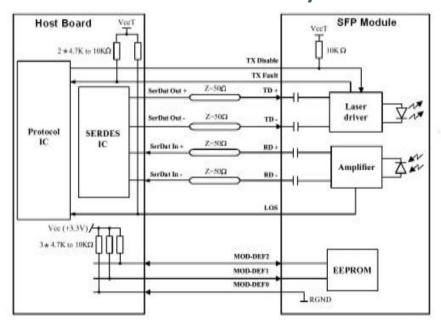


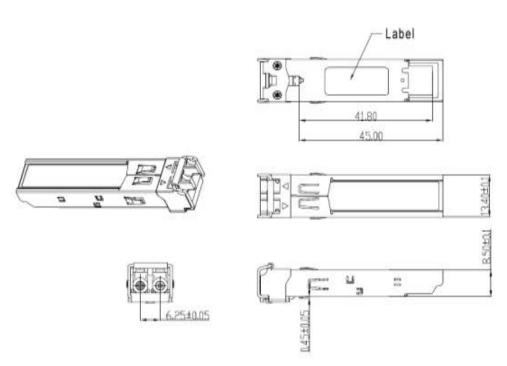
### SFP Single Fiber 20 km transceiver | 2G LX SONET OC-48 / STM-16 PIN Functions

1 Transmitter Ground 2 Transmitter Fault Indication 3 Transmitter Disable 4 SDA Serial Data Signal 5 SCL Serial Clock Signal 6 TTL Low 7 Not Connected 8 Loss of Signal 9 Receiver ground 10 Receiver ground 11 Receiver ground 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmitter Ground 20 Transmitter Ground 21 Inv. Transmitter Ground 22 Inv. Transmitter Ground 23 Inv. Transmitter Ground 24 Inv. Transmitter Ground 25 Inv. Transmitter Ground 26 Inv. Transmitter Ground 27 Inv. Transmitter Ground 28 Inv. Transmitter Ground 29 Inv. Transmitter Ground 20 Inv. Transmitter Ground 21 Inv. Transmitter Ground 22 Inv. Transmitter Ground 23 Inv. Transmitter Ground 24 Inv. Transmitter Ground 26 Inv. Transmitter Ground 27 Inv. Transmitter Ground 28 Inv. Transmitter Ground 29 Inv. Transmitter Ground	Pin#	Name - Description
Transmitter Fault Indication  Transmitter Disable  SDA Serial Data Signal  SCL Serial Clock Signal  TTL Low  Not Connected  Loss of Signal  Receiver ground  Receiver ground  Inv. Received Data Out  Receiver ground  Receiver ground  Receiver ground  Receiver ground  Transmitter Power Supply  Transmitter Power Supply  Transmitter Ground  Transmit Data In  Inv. Transmit Data In  Transmitter Ground  Transmitter Ground  Transmitter Ground  Transmitter Ground  Transmitter Ground		
Transmitter Disable  SDA Serial Data Signal  SCL Serial Clock Signal  TTL Low  Not Connected  Loss of Signal  Receiver ground  Receiver ground  Inv. Received Data Out  Receiver dound  Receiver Dower Supply  Transmitter Power Supply  Transmitter Power Supply  Transmitter Ground  Transmit Data In  Inv. Transmit Data In  Transmitter Ground		
4 SDA Serial Data Signal 5 SCL Serial Clock Signal 6 TTL Low 7 Not Connected 8 Loss of Signal 9 Receiver ground 10 Receiver ground 11 Receiver ground 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
5 SCL Serial Clock Signal 6 TTL Low 7 Not Connected 8 Loss of Signal 9 Receiver ground 10 Receiver ground 11 Receiver ground 11 Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
6 TTL Low 7 Not Connected 8 Loss of Signal 9 Receiver ground 10 Receiver ground 11 Receiver ground 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
7 Not Connected 8 Loss of Signal 9 Receiver ground 10 Receiver ground 11 Received Data Out 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
8 Loss of Signal 9 Receiver ground 10 Receiver ground 11 Receiver ground 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
9 Receiver ground 10 Receiver ground 11 Receiver ground 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
10 Receiver ground 11 Receiver ground 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
11 Receiver ground 12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
12 Inv. Received Data Out 13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
13 Received Data Out 14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
14 Receiver ground 15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
15 Receiver Power Supply 16 Transmitter Power Supply 17 Transmitter Ground 18 Transmit Data In 19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
Transmitter Power Supply Transmitter Ground Transmit Data In Inv. Transmit Data In Transmitter Ground Transmitter Ground  21 22 23 24 25 26 27 28 29		
Transmitter Ground  18 Transmit Data In  19 Inv. Transmit Data In  20 Transmitter Ground  21		111
18 Transmit Data In  19 Inv. Transmit Data In  20 Transmitter Ground  21		
19 Inv. Transmit Data In 20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
20 Transmitter Ground 21 22 23 24 25 26 27 28 29		
21		
22       23       24       25       26       27       28       29		Transmitter Ground
23       24       25       26       27       28       29		
24       25       26       27       28       29	22	
25 26 27 28 29	23	
26       27       28       29	24	
27 28 29	25	
28 29	26	
29	27	
	28	
30	29	
	30	



### SFP Single Fiber 20 km transceiver | 2G LX SONET OC-48 / STM-16 Mechanical Layouts





OptoSpan reserves the right to make changes or to discontinue any optical product or service without any notice. Applications and features described herein are for illustrative purposes only. OptoSpan makes no representation of warranty that such applications or features will be suitable for any specific use or compatibility without further testing or modifications. Not responsible for typographical errors.