

## Datasheet

### SFP+ Optical Transceiver Product Features

- 10GBASE-LR/LW Ethernet 8.4dB SFP+
- 10 km LR SFP+ for SMF @ 10Gbps
- 1310nm DFB+PIN Laser 10 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
- Compliant with SFF-8431, SFF-8432
- RoHS compliant

\* For OEM Compatibility, use Platinum Series Part# PSPP-81DT31K010

### SPP-81D-K010T31



### Applications

- 10GBASE-LR @ 10.31Gbps
- 10 Gigabit Ethernet
- Fibre Channel 8x
- Fibre Channel 4x

### Description

OptoSpan SPP-81D-K010T31 is a Duplex 10GBASE-LR/LW Ethernet 10G Ethernet / 8G FC SFP+ transceiver designed for long distance optical communications up to 10 km with signaling rates up to 10Gbps.

OptoSpan 10Gb Standard 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# PSPP-81DT31K010.

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 Duplex transceivers with LC interface.

### Optical Budget Calculation for 10 km SFP+ Optical Transceiver

SPP-81D-K010T31	Distance: 10 km				Fiber: 1310nm SMF	
	Tx Min dBm	Tx Max dBm	Rx Min dBm	Rx Max dBm	Link Attenuation dB	Power Budget dB
Product Specifications	-6	0	-14.4	0.5		
Optical Calculation Results			-11.5	-5.5	5.5	8.4



SFP+ 10 km transceiver | 10G LR Ethernet

## General Specifications

Parameter	Unit	Min.	Typ.	Max
<b>Absolute Maximum Ratings</b>				
Maximum Supply Voltage	V	-0.5		3.6
Storage Temperature	°C	-40		+85
Case Operating Temperature	°C	-5		+70
<b>Recommended Operating Condition</b>				
Supply Voltage	V	3.15	3.3	3.45
Supply Current	mA			300
Data Rate	Gbps	0.6		11.1

## Electrical Characteristics

Parameter	Unit	Min.	Typ.	Max
<b>Transmitter</b>				
Differential Input Voltage Swing	mVpp	150		1200
Input Differential Impedance	ohm	85	100	115
Transmit Disable Voltage - High	V	2		3.45
Transmit Disable Voltage - Low	V	0		0.8
Transmit Fault Voltage - High	V	2		Vcc+0.3
Transmit Fault Voltage - Low	V	0		0.5
<b>Receiver</b>				
Differential Output Voltage Swing	mVpp	350		700
Differential Output Impedance	ohms	90	100	110
LOS Output Voltage - High	V	2		Vcc+0.3
LOS Output Voltage - Low	V	0		0.8



SFP+ 10 km transceiver | 10G LR Ethernet

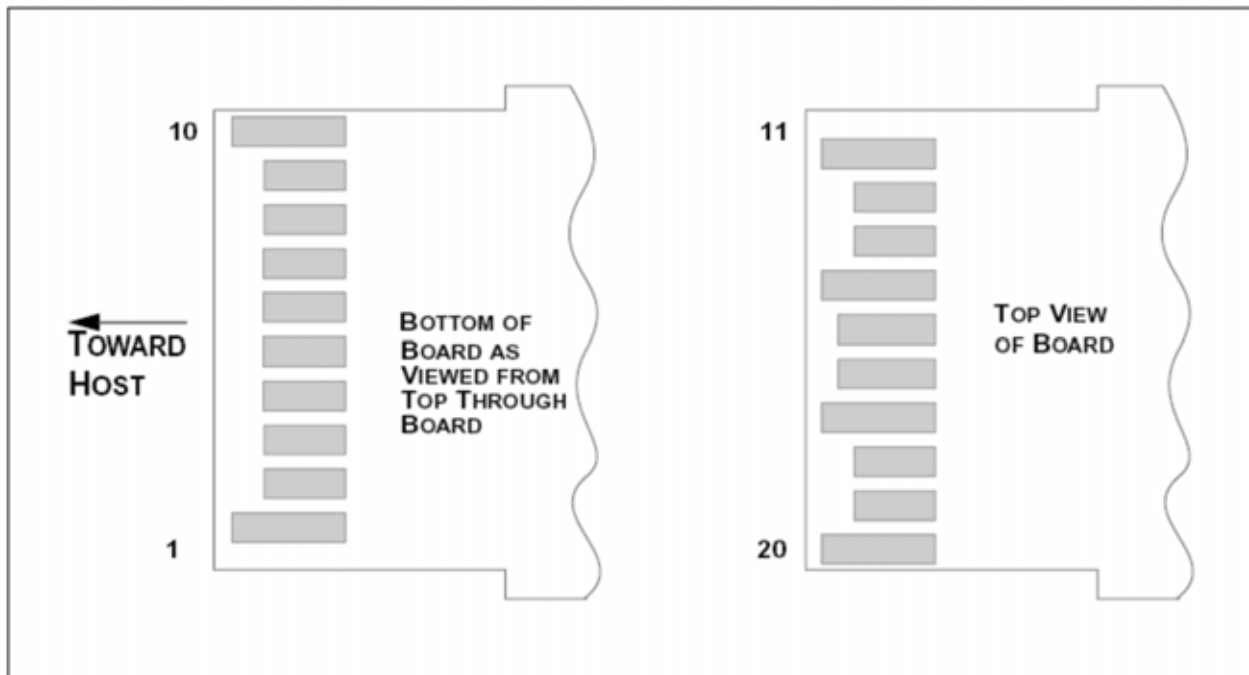
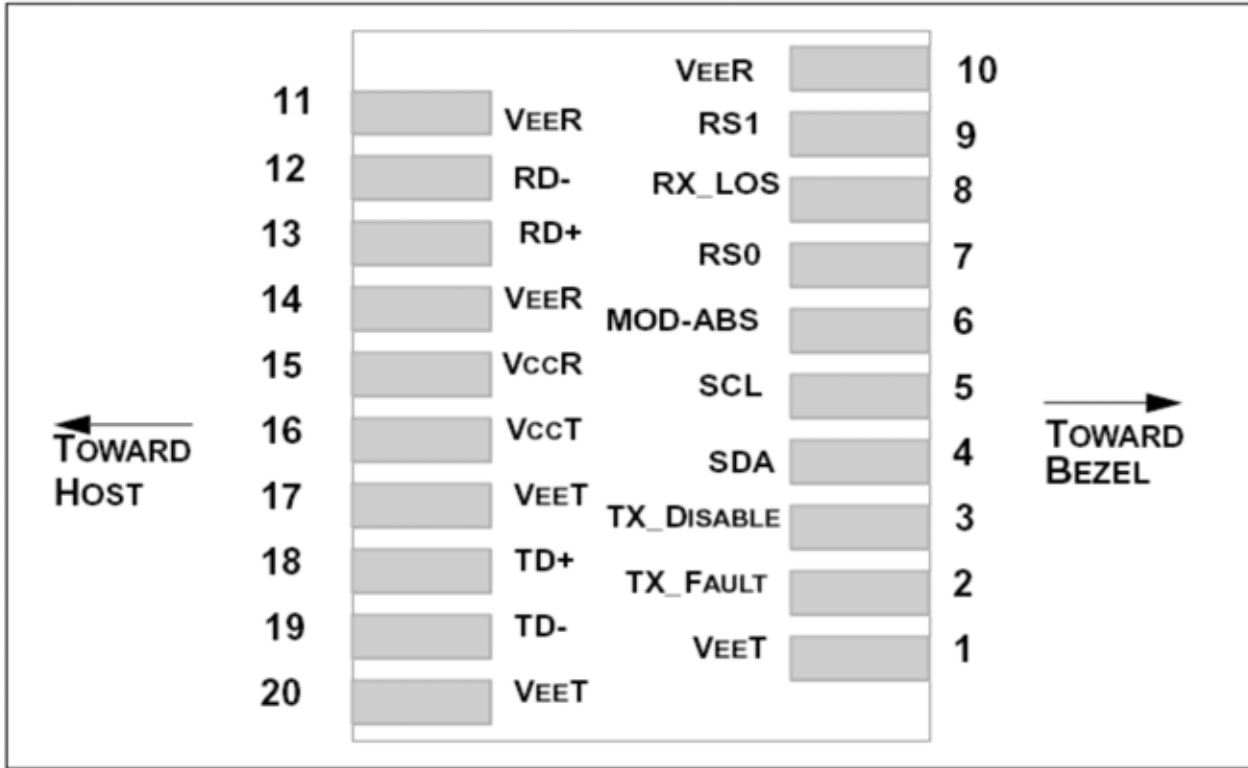
## Optical Characteristics

Parameter	Unit	Min.	Typ.	Max
<b>Transmitter</b>				
Output Optical Power	dBm	-6		0
Optical Extinction Ratio	dB	3.5		
Optical Wavelength	nm	1270	1310	1355
Spectral Width	nm			1
Side Mode Suppression Ratio	dB	30		
<b>Receiver</b>				
Optical Center Wavelength	nm	1260		1565
Receiver Sensitivity @ 10.3Gbps	dBm	-14.4		0.5
LOS DE-Assert	dBm			-16
LOS Assert	dBm	-28		

## 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.

## PIN Layout



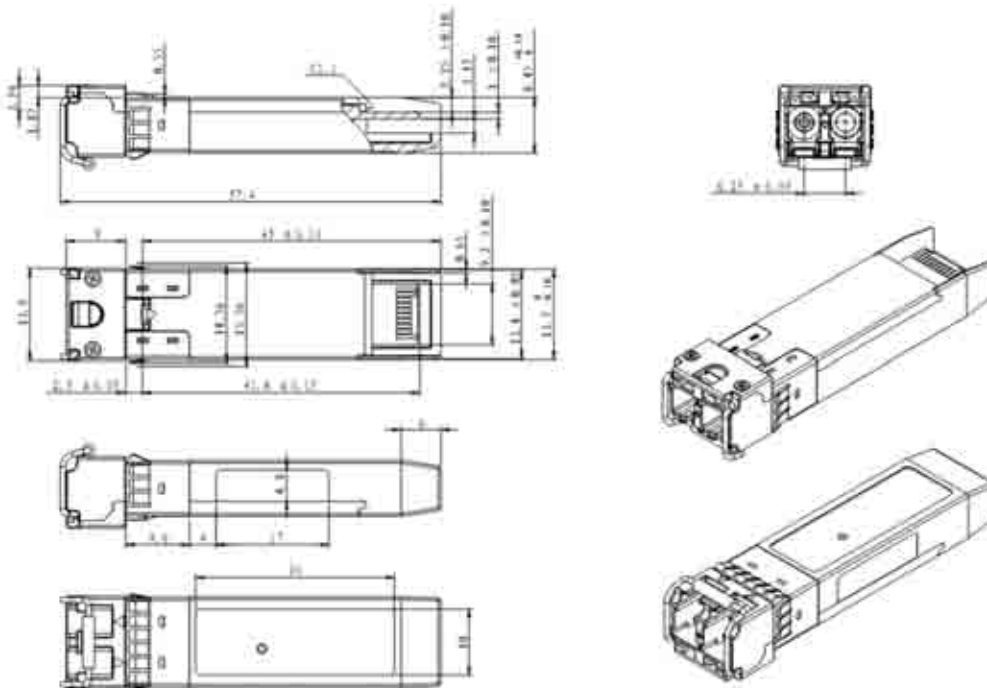
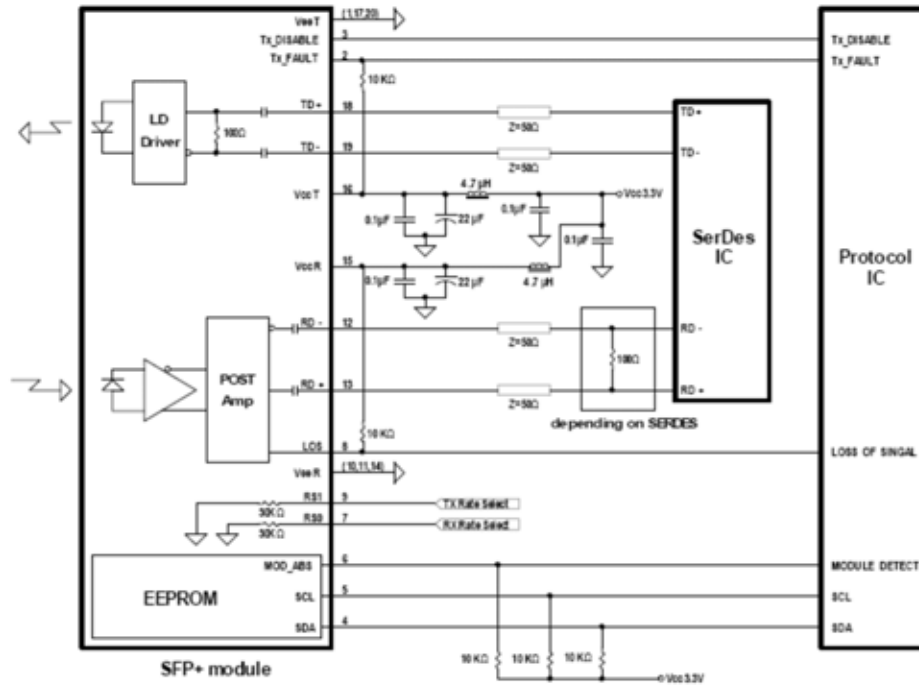


SFP+ 10 km transceiver | 10G LR Ethernet

### PIN Functions

Pin #	Name - Description
1	Transmitter Ground
2	Transmitter Fault Indication
3	Transmitter Disable
4	Module Definition 2
5	Module Definition 1
6	Module Definition 0
7	RX Rate Select (LVTTL)
8	Loss of Signal
9	TX Rate Select (LVTTL)
10	Receiver Ground
11	Receiver Ground
12	Inv. Received Data out
13	Received Data Out
14	Receiver Ground
15	Receiver Power
16	Transmitter Power
17	Transmitter Ground
18	Transmit Data In
19	Inv. Transmit Data In
20	Transmitter Ground
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## Mechanical Layouts



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