

## Datasheet

### SFP+ Optical Transceiver Product Features

- 10GBASE-ER/EW Ethernet 21dB SFP+
- 60 km ER SFP+ for SMF @ 10Gbps
- 1270Tx-1330Rx DFB+PIN Laser 60 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-81DB27K060

### SPP-81D-K060B27



### Applications

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

### Description

OptoSpan SPP-81D-K060B27 is a Single Fiber BiDirectional 10GBASE-ER/EW Ethernet 10G Ethernet transceiver designed for long distance optical communications up to 60 km with signaling rates up to 10Gbps.

OptoSpan 10Gb 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# PSPP-81DB27K060.

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 60 km SFP+ Optical Transceiver

SPP-81D-K060B27	Distance: 60 km				Fiber: 1270Tx-1330Rx SMF	
	Tx Min dBm	Tx Max dBm	Rx Min dBm	Rx Max dBm	Link Attenuation dB	Power Budget dB
Product Specifications	1	6	-20	-6		
Optical Calculation Results			-19.8	-14.8	20.8	21



SFP+ Single Fiber 60 km transceiver | 10G ER 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	0		+70
<b>Recommended Operating Condition</b>				
Supply Voltage	V	3.15	3.3	3.45
Supply Current	mA			430
Data Rate	Gbps		9.95/10.31	

### 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		Vcc+0.3
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	85	100	115
LOS Output Voltage - High	V	2		Vcc+0.3
LOS Output Voltage - Low	V	0		0.8

## Optical Characteristics

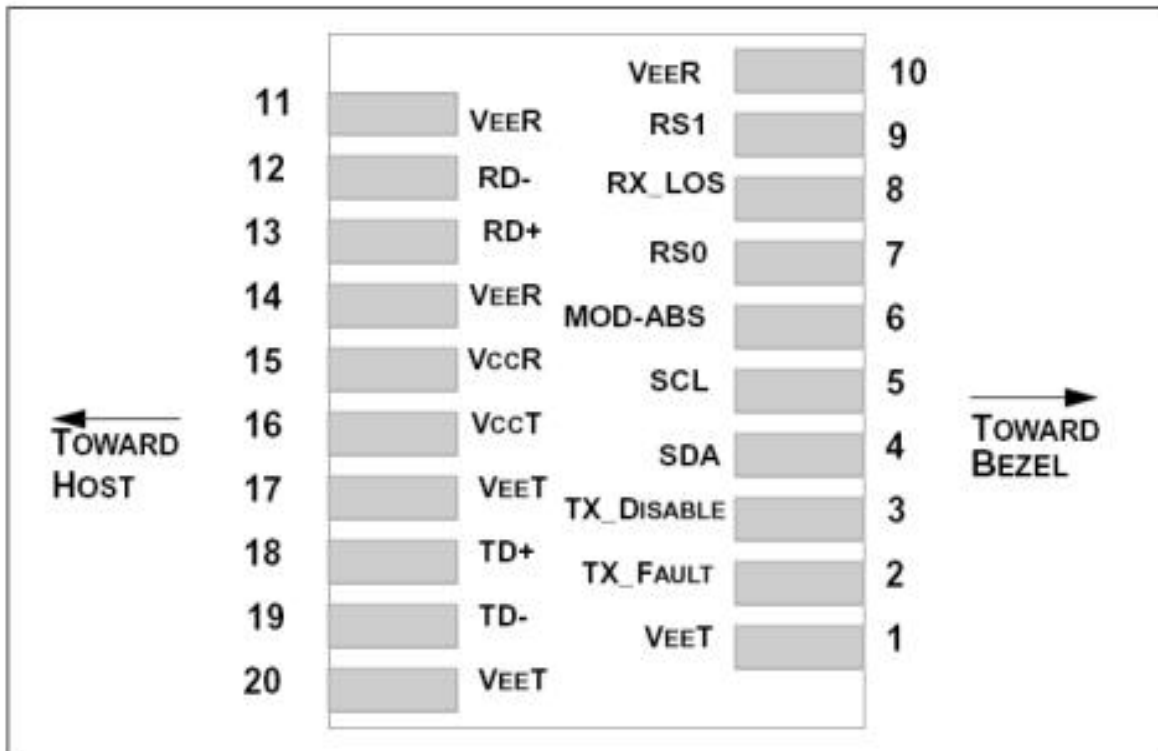
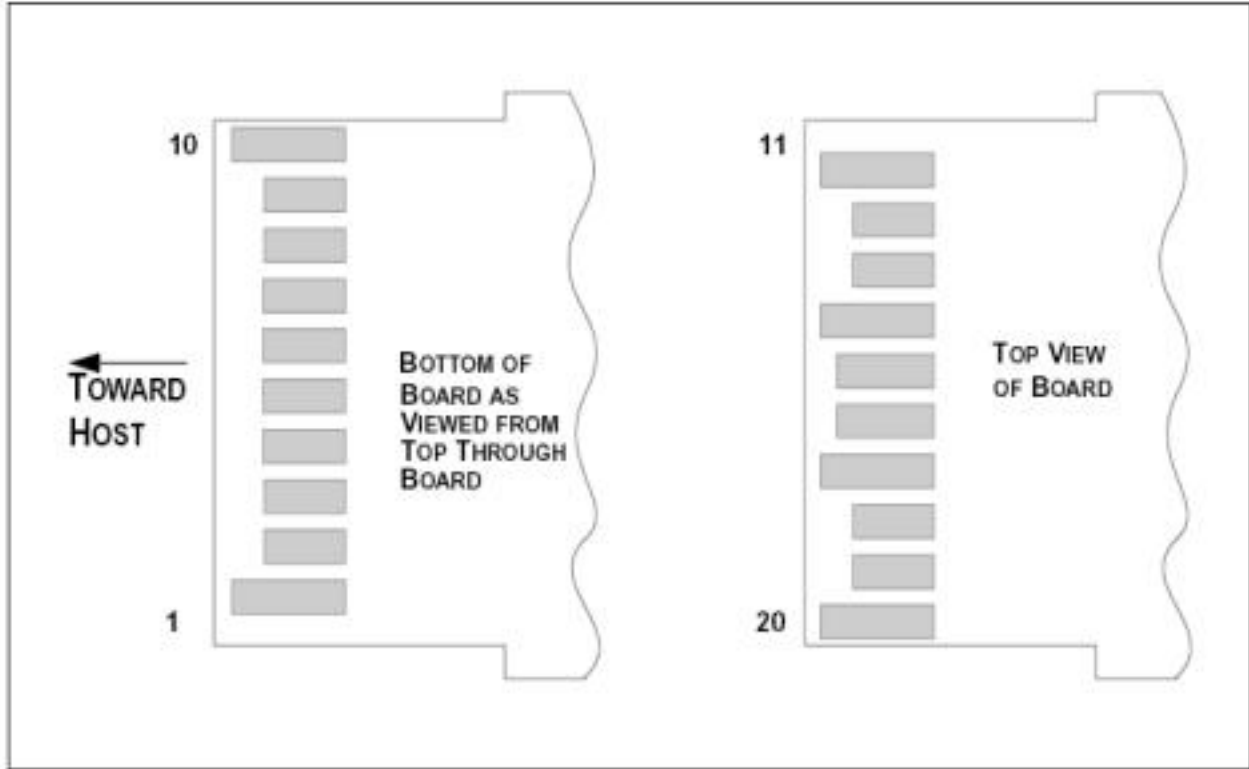
Parameter	Unit	Min.	Typ.	Max
<b>Transmitter</b>				
Output Optical Power	dBm	1		6
Optical Extinction Ratio	dB	3.5		
Optical Wavelength	nm	1260	1270	1280
Spectral Width	nm			1
Side Mode Suppression Ratio	dB	30		
<b>Receiver</b>				
Optical Center Wavelength	nm	1320		1340
Receiver Sensitivity @ 10G	dBm	-20		-6
LOS DE-Assert	dBm			-21
LOS Assert	dBm	-30		

## 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 60 km transceiver | 10G ER Ethernet  
PIN Layout

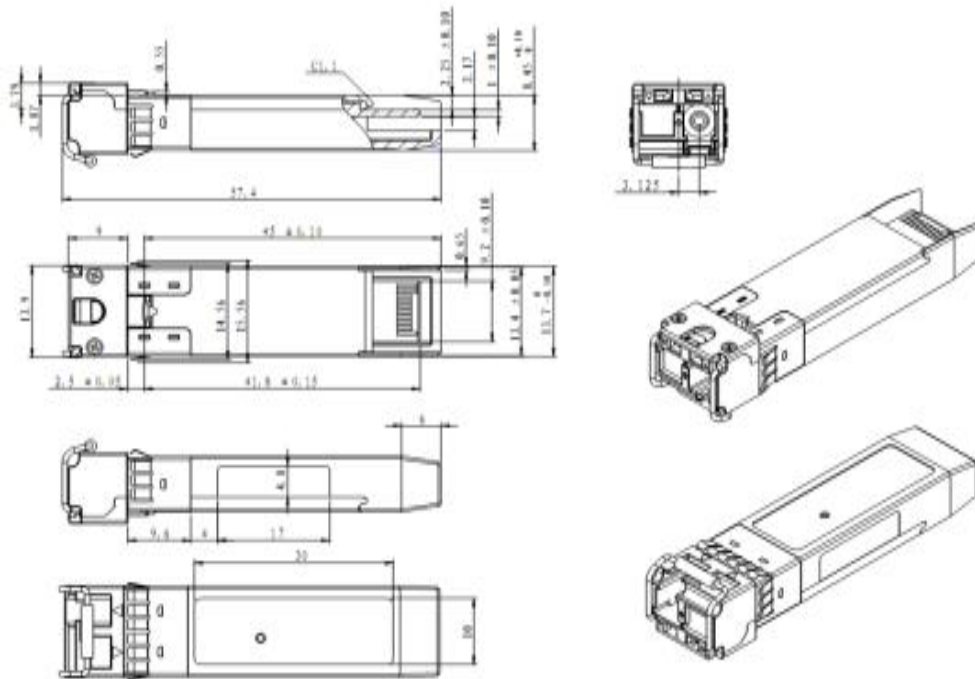
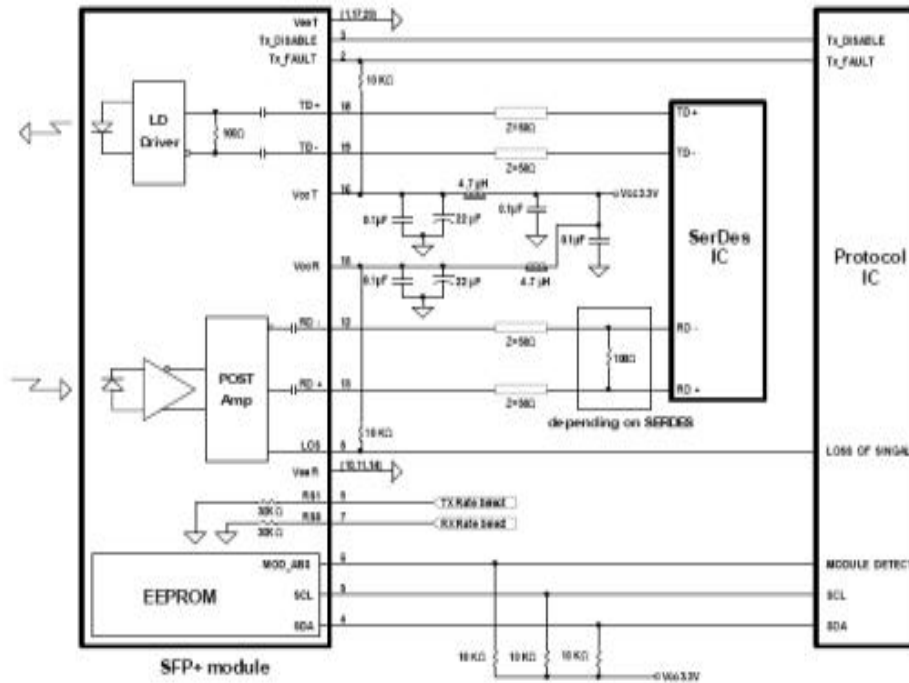




**SFP+ Single Fiber 60 km transceiver | 10G ER Ethernet  
PIN Functions**

Pin #	Name - Description
1	Transmitter Ground
2	Transmitter Fault
3	Transmitter Disable. Laser output disabled on high or open
4	2-wire Serial Interface Data Line
5	2-wire Serial Interface Clock Line
6	Module Absent. Grounded within the module
7	RS0 for Rate Select: Open or Low = Module supports $\leq 4.25$ Gbps
8	Loss of Signal indication. Logic 0 indicates normal operation
9	No connection required
10	Receiver Ground
11	Receiver Ground
12	Receiver Inverted DATA out. AC Coupled
13	Receiver DATA out. AC Coupled
14	Receiver Ground
15	Receiver Power Supply
16	Transmitter Power Supply
17	Transmitter Ground
18	Transmitter Ground
19	Transmitter Inverted DATA in. AC Coupled
20	Transmitter Ground
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

## SFP+ Single Fiber 60 km transceiver | 10G ER Ethernet 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.