

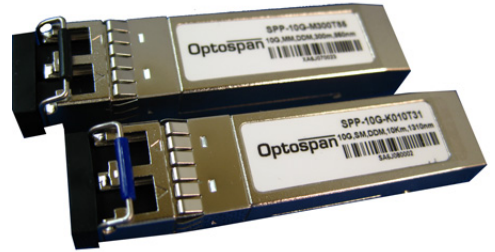
## Datasheet

### SONET/SDH SFP+ Optical Transceiver Product Features

- SONET OC-192 / STM-64 w/ CDR 3.5dB SONET/SDH SFP+
- 220m LRM SONET/SDH SFP+ for MMF @ 10Gbps
- 1310nm FP+PIN Laser 220m SONET/SDH SFP+
- 0°C - 70°C Temperature - Extended/Industrial Available
- 2-Wire Interface Digital Diagnostic Monitoring (SFF-8724)
- Hot-swappable for SONET/SDH 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# PSPS-81DT31M220

### SPS-81D-M220T31



### Applications

- SONET OC-192 / SDH STM-64
- OTN ITU-T G.709
- 10GBASE-LRM @ 10.31Gbps
- 10GbE & 10Gb/s FC w/FEC

### Description

OptoSpan SPS-81D-M220T31 is a Duplex SONET OC-192 / STM-64 w/ CDR SONET/SDH SFP+ with CDR, FEC & OTN G.709 transceiver designed for long distance optical communications up to 220m 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# PSPS-81DT31M220.

All OptoSpan long-reach SONET/SDH 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 220m SONET/SDH SFP+ Optical Transceiver

SPS-81D-M220T31	Distance: 220m				Fiber: 1310nm MMF	
	Tx Min dBm	Tx Max dBm	Rx Min dBm	Rx Max dBm	Link Attenuation dB	Power Budget dB
Product Specifications	-6.5	0.5	-10	1.5		
Optical Calculation Results			-7.6	-0.6	1.1	3.5



SFP+ SONET/SDH 220m transceiver | 10G LRM SONET OC-192 / STM-64 w/ CDR

### General Specifications

Parameter	Unit	Min.	Typ.	Max
Absolute Maximum Ratings				
Maximum Supply Voltage	V	-0.5		3.6
Storage Temperature	°C	-40		+85
Case Operating Temperature	°C	0		+70
Recommended Operating Condition				
Supply Voltage	V	3.15	3.3	3.45
Supply Current	mA			300
Data Rate	Gbps			11.1

### Electrical Characteristics

Parameter	Unit	Min.	Typ.	Max
Transmitter				
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
Receiver				
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



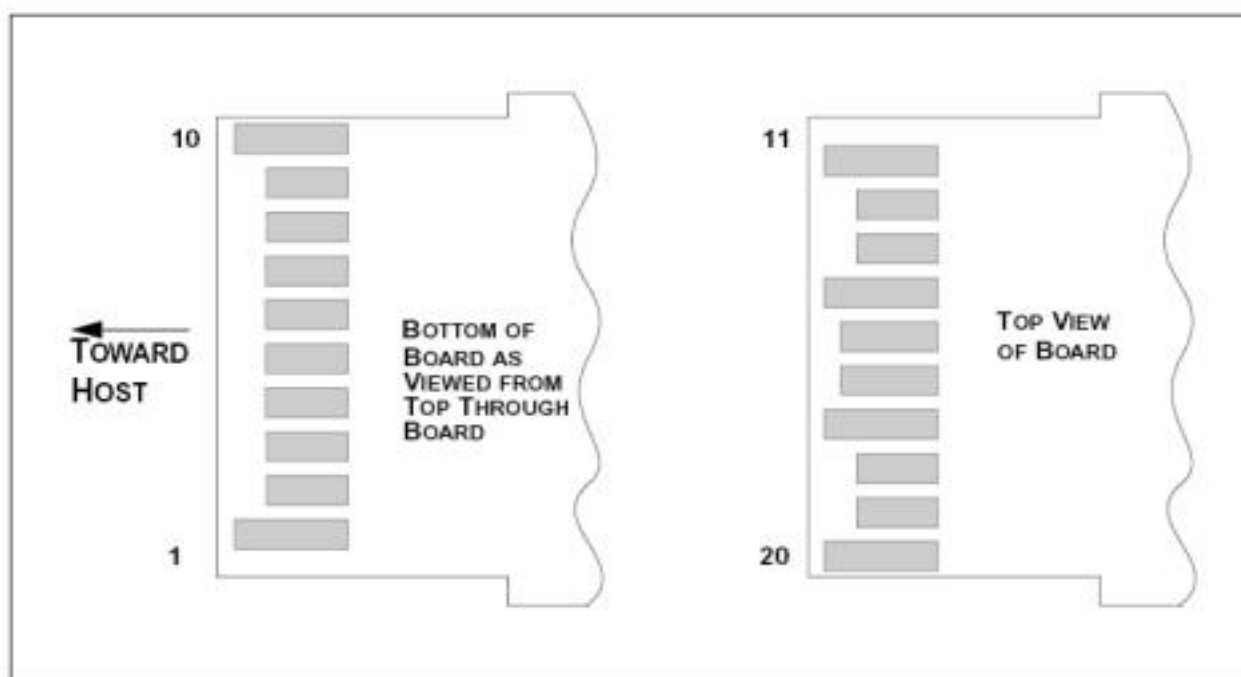
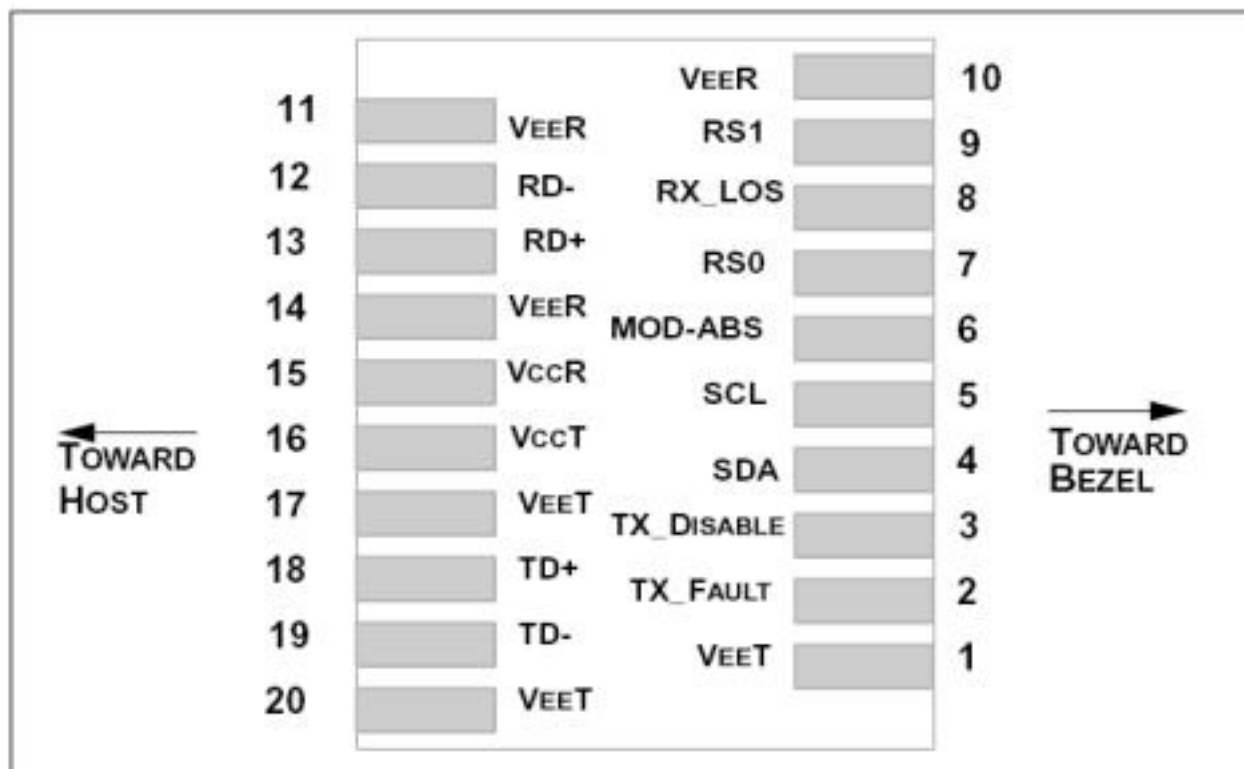
SFP+ SONET/SDH 220m transceiver | 10G LRM SONET OC-192 / STM-64 w/ CDR

## Optical Characteristics

Parameter	Unit	Min.	Typ.	Max
<b>Transmitter</b>				
Output Optical Power	dBm	-6.5		0.5
Optical Extinction Ratio	dB	3.5		
Optical Wavelength	nm	1260	1310	1355
Spectral Width	nm			3.5
Side Mode Suppression Ratio	dB			
<b>Receiver</b>				
Optical Center Wavelength	nm	1260		1555
Receiver Sensitivity @ 10.3125G	dBm	-10		1.5
LOS DE-Assert	dBm			-11
LOS Assert	dBm	-25		

## 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.

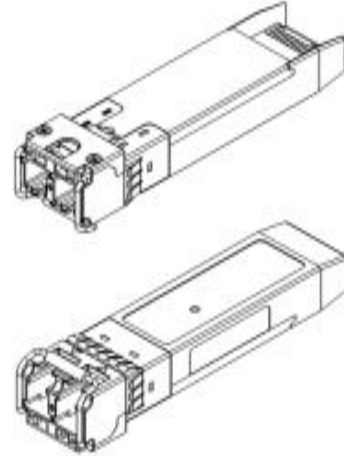
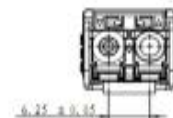
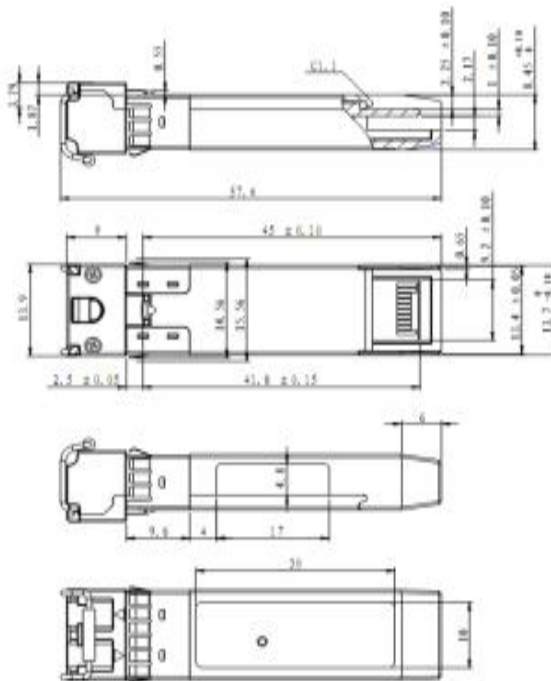
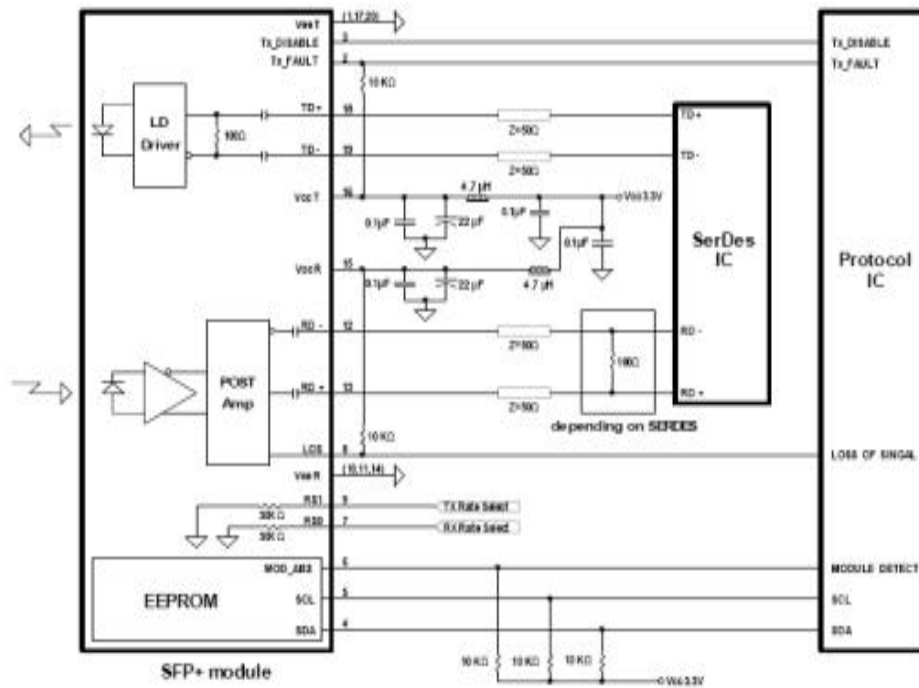




**SFP+ SONET/SDH 220m transceiver | 10G LRM SONET OC-192 / STM-64 w/ CDR**  
**PIN Functions**

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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## SFP+ SONET/SDH 220m transceiver | 10G LRM SONET OC-192 / STM-64 w/ CDR Mechanical Layouts



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