

SFP 3G Video Transceiver

SOSP-3130-02D

SOSP-3130-20D

SOSP-3130-40D



● Features :

- Up to 3GB/s, Video optical data links
- Digital diagnostic SFF-8472 compliant
- Compliant with SMPTE 424M/297M
- Low Noise Wide dynamic range PIN-PD receiver
- Metal package for lower EMI
- +3.3V single power supply
- Power consumption less than 1W
- LC duplex connector
- AC coupling for data interface
- Operating case temp
Standard temp: 0~+70°C
- Compliant with SFP MSA

● Absolute Maximum Ratings

Table 1- Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V _{CC3}	-0.5	-	+3.6	V	
Storage Temperature	T _s	-40	-	85	°C	
Operating Humidity	RH	+5%	-	+95	%	

● Recommended Operating Conditions

Table 2- Recommended operating Conditions

Parameter		Symbol	Min.	Typical	Max.	Unit	Notes
Operating	Standard	T _C	0		+70	°C	
Case Temperature	Industrial		-40		+85	°C	
Power Supply Voltage		V _{CC}	3.13	3.3	3.47	V	

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Power Supply Current	I _{cc}	-	-	300	mA	
Power Dissipation	P _d	-	-	1	W	
Data Rate			3000		Mbps	

● Electrical Characteristics

Table 3- Electrical Characteristics

Parameter	Symbol	Unit	Min.	Typ.	Max.	Notes
Electrical Characteristics						
Supply Current	ICC	mA	-	-	300	
Differential Data Input Swing		mV	200	-	2400	1
Differential Data Output Swing		mV	750	900	1050	2
Differential Data input impedance		Ω	-	100	-	1
Signal Level(LVTTL H)		V	2.4	-	VCC	
Signal Level(LVTTL L)		V	0	-	0.8	

Note:

1. DC coupled internally and terminated internally..
2. CML output, AC coupled internally

● Optical Characteristics

Table 4-Optical Characteristics

SOCS-1330-10 (1310nm DFB and PIN,10KM,NO DDMI)

SOCS-1330-10D (1310nm DFB and PIN,10KM, DDMI)

Parameter	Symbol	Unit	Min.	Typ.	Max.	Notes
Optical transmitter Characteristics						
Data Rate		Mbps	-		3000	
Center Wavelength Range	λ _C	nm	1290	1310	1330	
Spectral Width(@-20dB)	Δλ	nm	-	-	7.7	
Launch Optical Power	P ₀	dBm	-5	-	0	1
Extinction Ratio	ER	dB	8.2	-	-	

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Jitter Generation(pK-pK)		UI			0.1	
Jitter Generation(RMS)		UI			0.01	
Eye Diagram	Complies with STM - 16 eye masks when filtered					
Optical receive Characteristics						
Data Rate		Mbps	-		3000	
Receiver Sensitivity		dBm	-	-	-20	
Overload Input Optical Power	P_{IN}	dBm	0	-	-	
Center Wavelength Range	λ_c	nm	1260		1580	
LOS	LOS _A	dBm	-31	-	-	
	LOS _D		-	-	-21	
LOS Hysteresis		dB	0.5	-		

Note:

1. Coupled into 9/125 SMF.
2. Measured with PRBS 2²³-1 test pattern @3Gbps.BER=10E-10.

Table 5-Optical Characteristics

SOCS-1530-40 (1550nm DFB and PIN,40KM,NO DDMI)

SOCS-1530-40D (1550nm DFB and PIN,40KM, DDMI)

Parameter	Symbol	Unit	Min	Typ	Max	Notes
Optical transmitter Characteristics						
Data Rate		Mbps	-		3000	
Center Wavelength Range	λ_C	nm	1530	1550	1570	
Launch Optical Power	P_0	dBm	-5	-	0	1
Extinction Ratio	ER	dB	8.2	-	-	
Jitter Generation(pK-pK)		UI			0.1	
Jitter Generation(RMS)		UI			0.01	
Eye Diagram	Complies with STM - 16 eye masks when filtered					
Optical receive Characteristics						
Data Rate		Mbps	-		3000	
Receiver Sensitivity		dBm	-	-	-20	2

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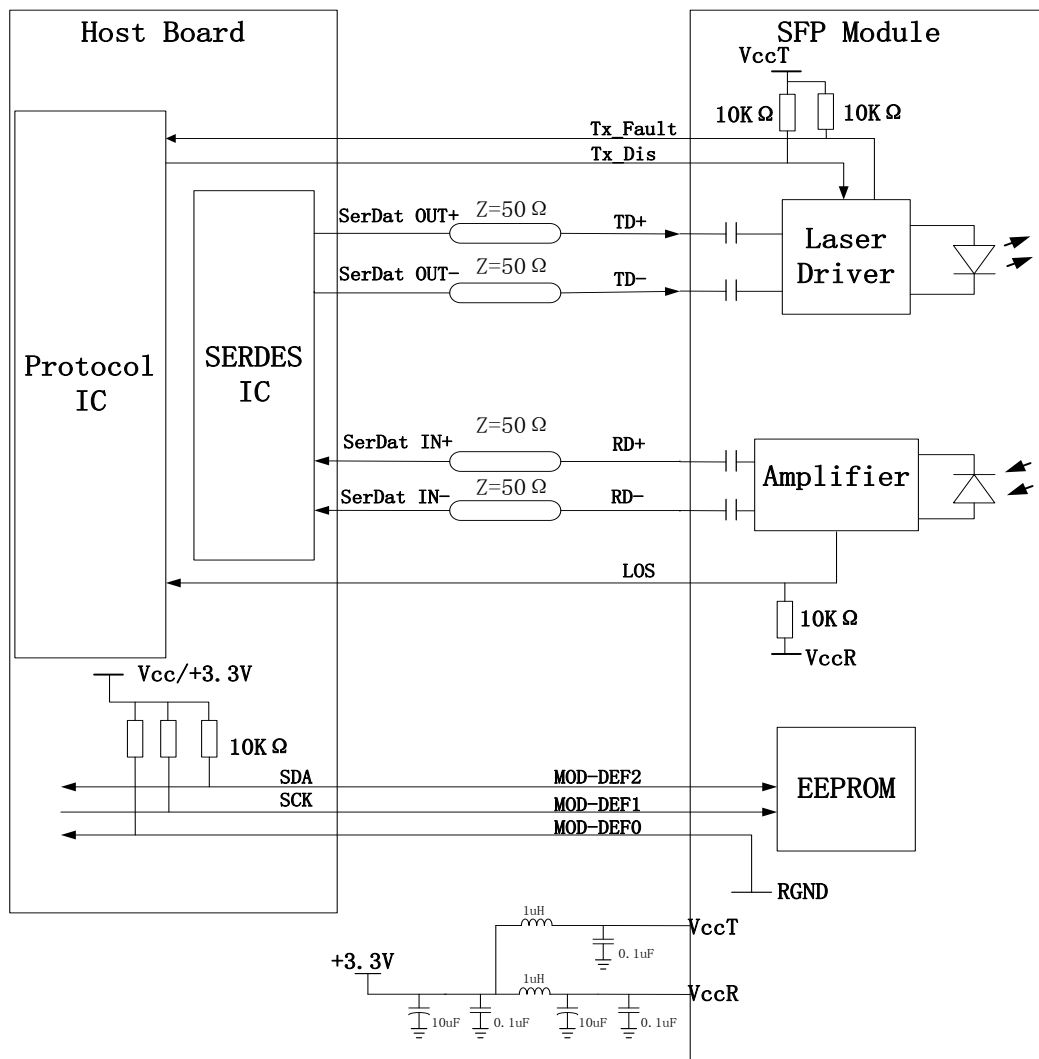
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Overload Input Optical Power		P_{IN}	dBm	0	-	-	2
Center Wavelength Range		λ_c	nm	1260		1580	
LOS	LOS _A		dBm	-31	-	-	
	LOS _D		dBm	-	-	-21	
LOS Hysteresis			dB	0.5	-	4	

● Recommended Interface Circuit



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Figure 1, Recommended Interface Circuit

● Recommended Host Board Power Supply Circuit

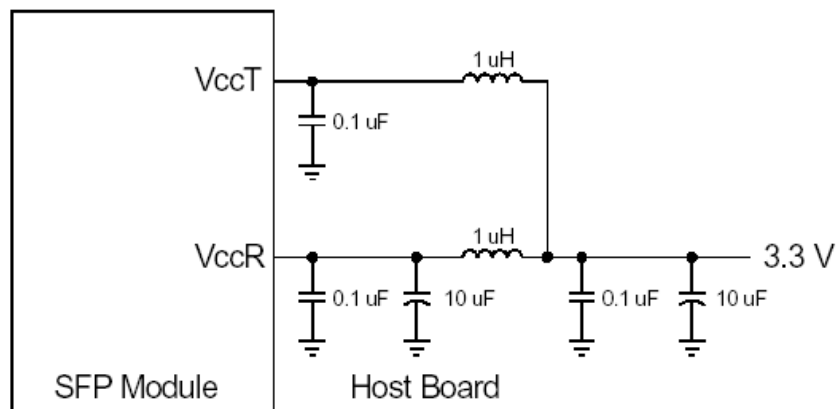


Figure 2, Recommended Host Board Power Supply Circuit

● Pin arrangement

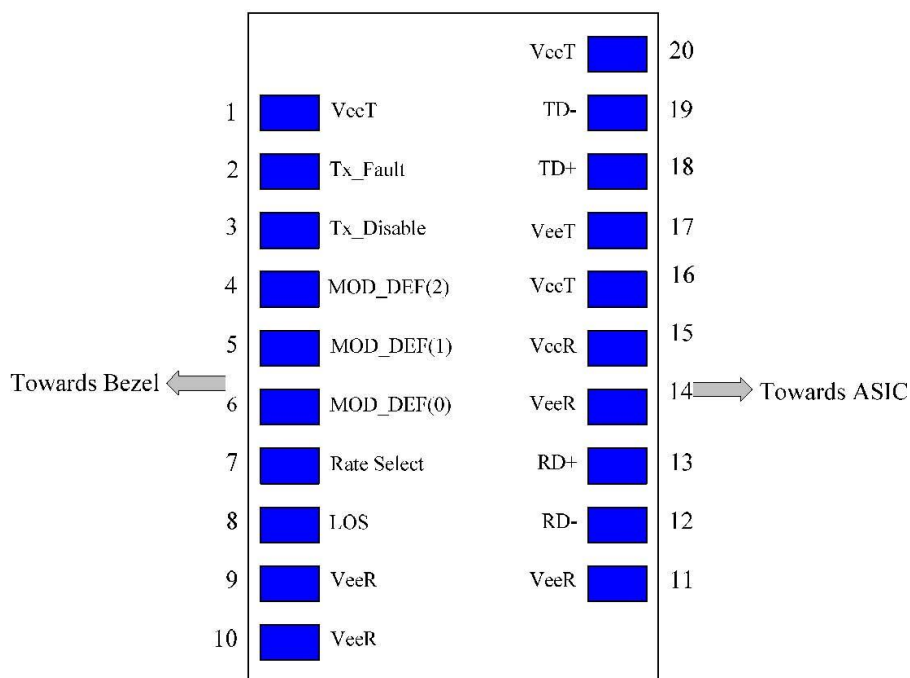


Figure 3, Pin View

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Table 6-Pin Function Definitions

Pin	Name	FUNCTION	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	
2	Tx_Fault	Transmitter Fault Indicatio	3	Note 1
3	Tx_Disable	Transmitter Disable	3	Note 2, Module disables on high or open
4	MOD-DEF2	Module Definition 2	3	Note 3, Data line for Serial ID.
5	MOD-DEF1	Module Definition 1	3	Note 3, Clock line for Serial ID.
6	MOD-DEF0	Module Definition 0	3	Note 3, Grounded within the module.
7	Rate Select	Not Connect	3	Function not available
8	LOS	Loss of Signal	3	Note 4
9	VeeR	Receiver Ground	1	Note 5
10	VeeR	Receiver Ground	1	Note 5
11	VeeR	Receiver Ground	1	Note 5
12	RD-	Inv. Received Data Out	3	Note 6
13	RD+	Received Data Out	3	
14	VeeR	Receiver Ground	1	Note 5
15	VccR	Receiver Power	2	3.3V ± 5%
16	VccT	Transmitter Power	2	3.3V ± 5%
17	VeeT	Transmitter Ground	1	Note 5
18	TD+	Transmit Data In	3	
19	TD-	Inv. Transmit Data In	3	
20	VeeT	Transmitter Ground	1	Note 5

Notes:

1. TX Fault is open collector output which should be pulled up externally with a 4.7K ~10KΩ resistor on the host board to voltage between 2.0V and V_{CC}+0.3V. Logic 0 indicates normal operation; logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
2. TX Disable input is used to shut down the laser output per the state table below. It is pulled up within the module with a 4.7~ 10K resistor.
Low (0- 0.8V): Transmitter on

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- Between (0.8V and 2V): Undefined
 High (2.0 – VccT): Transmitter Disabled
3. MOD-DEF 0, 1, 2. These are the module definition pins. They should be pulled up with a 4.7~10K resistor on the host board to supply less than VccT+0.3V or VccR+0.3V. MOD-DEF 0 is grounded by the module to indicate that the module is present. MOD-DEF 1 is clock line of two wire serial interface for optional serial ID. MOD-DEF 2 is data line of two wire serial interface for optional serial ID.
 4. LOS (Loss of signal) is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; logic 1 indicates loss of signal. In the low state, the output will be pulled to less than 0.8V.
 5. These are the differential receiver outputs. They are AC-coupled 100Ω differential lines which should be terminated with 100Ω differential at the user SERDES. The AC coupling is done inside the module and thus not required on the host board.
 6. These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module.

● Digital Diagnostic Memory Map

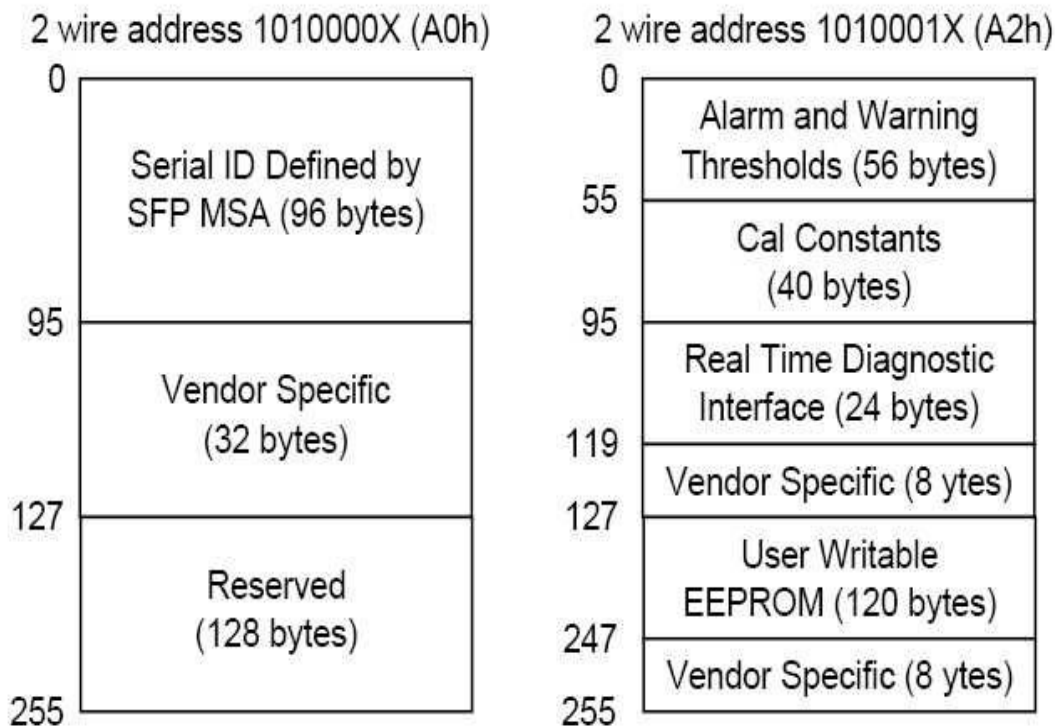


Figure 4, memory map

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● Mechanical Diagram

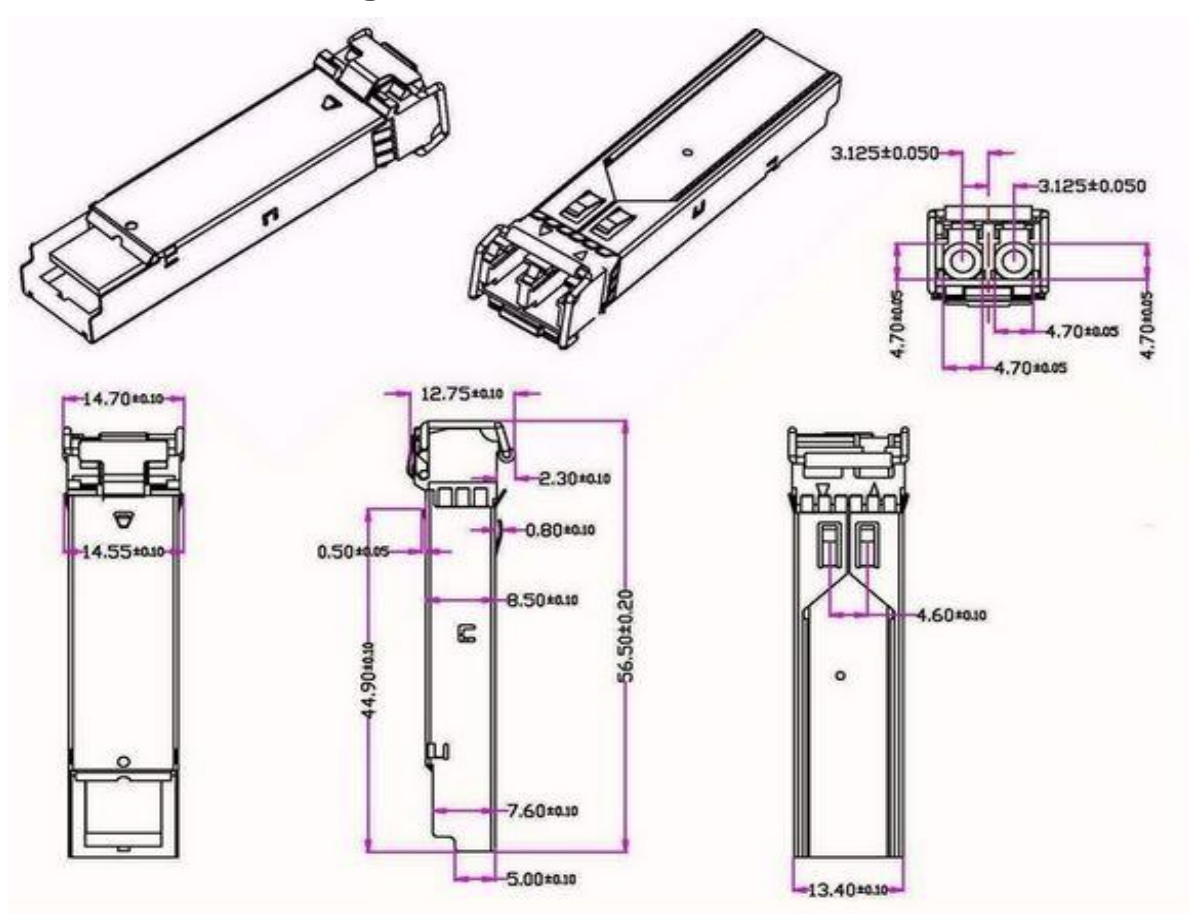


Figure 5, mechanical diagram

● Ordering Information

Table 7-Ordering Information

Part Number	Product Description
SOSP-3130-10	SFP 1310nm,3G, 10-20KM, NO DDM ,0°C ~70°C

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SOSP-3130-40	SFP 1550nm,3G, 40KM, NO DDM ,0°C~70°C
SOSP-3130-10D	SFP 1310nm,3G, 10-20KM, DDM ,0°C~70°C
SOSP-3130-40D	SFP 1550nm,3G, 40KM, DDM ,0°C~70°C

- Notice

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