

SOSPB-3524-02D    SOSPB-5324-02D  
 SOSPB-3524-20D    SOSPB-5324-20D  
 SOSPB-3524-40D    SOSPB-5424-40D

● **Features :**

- SDH STM-16    SONET OC- 48
- High Speed Data Communication
- SFP MSA package with Simplex SC connector
- Compliant with ITU -T G.957
- transmission with 9/125 μm SMF
- Single 3.3V Power Supply and LVTTTL Logic
- Very low EMI and excellent ESD protection
- Operating Case Temperature: 0°C ~+70°C
- RoHS compliant
- Class 1 laser safety certified

● **Absolute Maximum Ratings**

**Table 1- Absolute Maximum Ratings**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	V <sub>cc</sub>	-0.5	-	+3.6	V	
Storage Temperature	T <sub>s</sub>	-40	-	85	°C	
Operating Relative Humidity	RH	+5	-	+95	%	

● **Recommended Operating Conditions**

**Table 2- Recommended operating Conditions**

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Operating Case Temperature	T <sub>C</sub>	0	-	70	°C	
Power Supply Voltage	V <sub>CC</sub>	3.14	3.3	3.46	V	

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Power Supply Current	$I_{CC}$	-	-	300	mA	
Power Dissipation	$P_D$	-	-	1	W	
Data Rate		-	2488	-	Mbps	

## ● Electrical Characteristics

**Table 3- Electrical Characteristics**

Parameter		Symbol	Min.	Typ.	Max.	Units	Notes
Differential Data Input Swing		$V_{in\ p-p}$	200	-	2400	mV	1
Input Differential Impedance		$R_{IN}$	80	100	120	$\Omega$	
Tx_Disable	Laser Disable	$V_{OH}$	2.0	-	$V_{CC}+0.5$	V	
	Normal Operation	$V_{OL}$	GND	-	GND+0.8	V	
TX_Fault	Transmitter Fault	$V_{OH}$	2.0	-	$V_{CC}+0.5$	V	
	Normal Operation	$V_{OL}$	GND	-	GND+0.8	V	
Differential Date Output Swing		$V_{out\ p-p}$	750	900	1050	mV	2
Rx_LOS	Los Signal	$V_{OH}$	2.0	-	$V_{CC}+0.5$	V	
	Normal Operation	$V_{OL}$	GND	-	GND+0.8	V	

Note:

1. Internally AC coupled, input termination may be required for CML or LVPECL applications.
2. Internally AC coupled, CML differential output stage.

## ● Optical Characteristics

**Table 4-Optical Characteristics**

Parameter	Symbol	Min.	Typ.	Max.	Unit		Notes
<b>Transmitter</b>							
Average Output	$P_{OUT}$	-10		-3	dBm	2km	1

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Power		-5		0		20km/40km	
Mean Wavelength	$\lambda$	1290	1310	1330	nm	SOBS-3524-xxx	
		1480	1490	1500		SOBS-4524-xxx	
		1540	1550	1560		SOBS-5324-xxx SOBS-5424-xxx	
Extinction Ratio	ER	8.2	-	-	dB		
Spectral Width(RMS)	$\Delta\lambda$	-	-	1	nm		
$P_{out}$ @TX Disable Asserted	$P_{OUT}$	-	-	-45	dB		
Rise/Fall Time (20%~80%)	$T_r/T_f$			260	ps		
<b>Receiver</b>							
Receiver Power	$P_{in}$		-	-20	dBm		2
Centre Wavelength	$\lambda_C$	1290	1310	1330	nm	SOBS-5324-xxx	
		1480	1490	1500		SOBS-5424-xxx	
		1530	1550	1570		SOBS-3524-xxx SOBS-4524-xxx	
Receiver Overload	$R_{sens,high}$	-3	-	-	dBm		
Damage Threshold For Receive	$P_{in, damage}$	0					
Receiver Reflectance	$RX_r$	-	-	-12	dB		
LOS De-Assert	$LOS_D$	-	-	-21	dB		
LOS Assert	$LOS_A$	-31	-	-	dB		
LOS Hysteresis		0.5		-	dB		

**Note:**

1. Coupled into 9/125 SMF.
2. Measured with PRBS 2<sup>23</sup>-1 test pattern @2.488Gbps.BER=10E-12

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● **Recommended Interface Circuit**

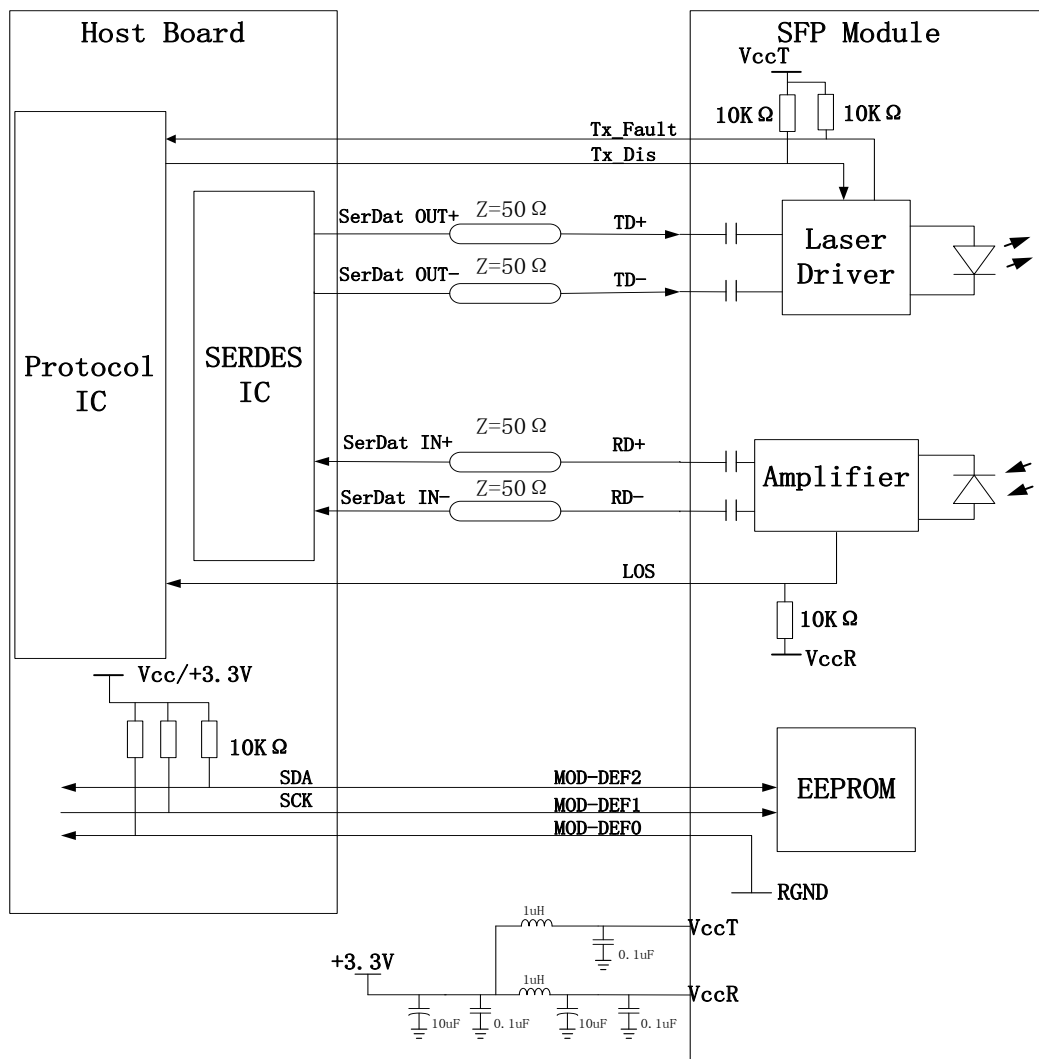


Figure 1, Recommended Interface Circuit

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● **Pin arrangement**

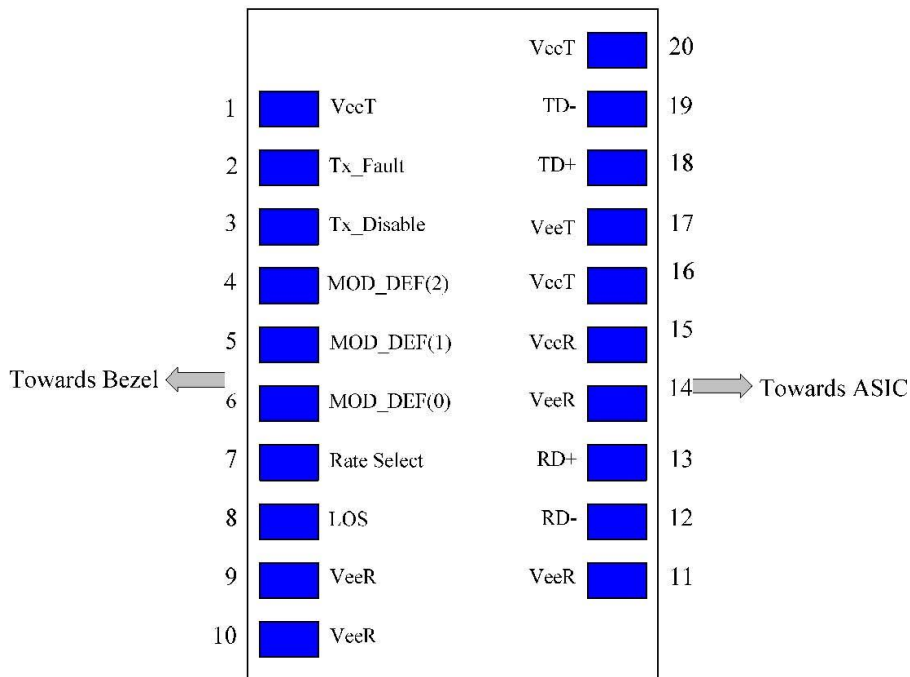


Figure 2, Pin View

**Table 5-Pin Function Definitions**

Pin	Name	FUNCTION	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	
2	TX Fault	Transmitter Fault Indication	3	1
3	TX Disable	Transmitter Disable	3	2
4	MOD-DEF 2	Module Definition 2	3	3
5	MOD-DEF 1	Module Definition 1	3	3

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6	MOD-DEF 0	Module Definition 0	3	3
7	Rate Select	Not Connect	3	
8	LOS	Loss of Signal	3	4
9	VeeR	Receiver Ground	1	
10	VeeR	Receiver Ground	1	
11	VeeR	Receiver Ground	1	
12	RD-	Inv. Received Data Out	3	
13	RD+	Received Data Out	3	
14	VeeR	Receiver Ground	1	
15	VccR	Receiver Power	2	3.3V ± 5%
16	VccT	Transmitter Power	2	3.3V ± 5%
17	VeeT	Transmitter Ground	1	
18	TD+	Transmit Data In	3	
19	TD-	Inv. Transmit Data In	3	
20	VeeT	Transmitter Ground	1	

**Note:**

- 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<sub>CC</sub>+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.
- 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
Between (0.8V and 2V):	Undefined
High (2.0 – V <sub>CC</sub> T):	Transmitter Disabled
Open:	Transmitter Disabled
- 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 V<sub>CC</sub>T+0.3V or V<sub>CC</sub>R+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.
- 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 V<sub>CC</sub>+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.

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● **Digital Diagnostic Memory Map**

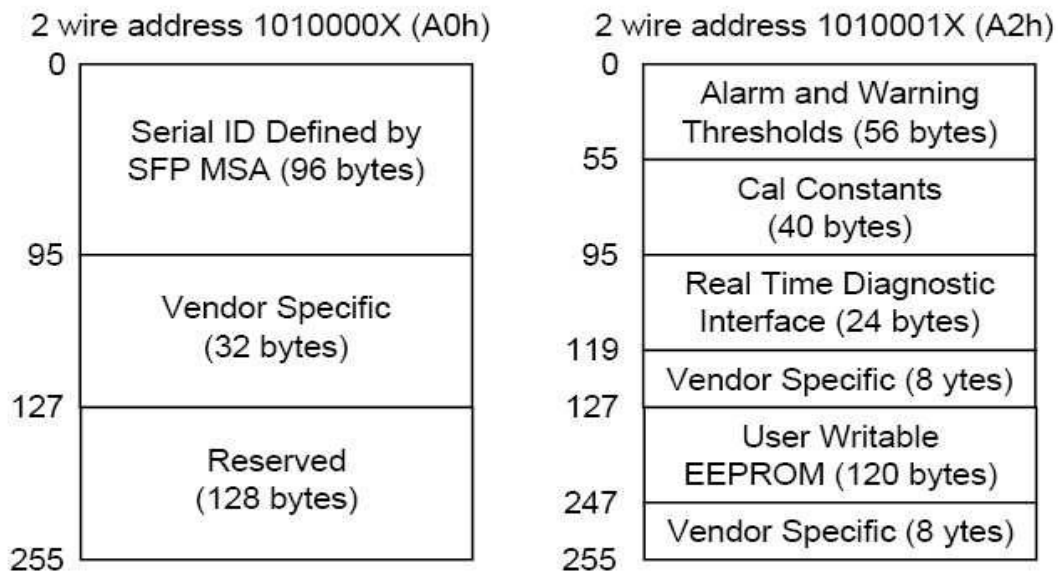


Figure 3, memory map

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● **Mechanical Diagram**

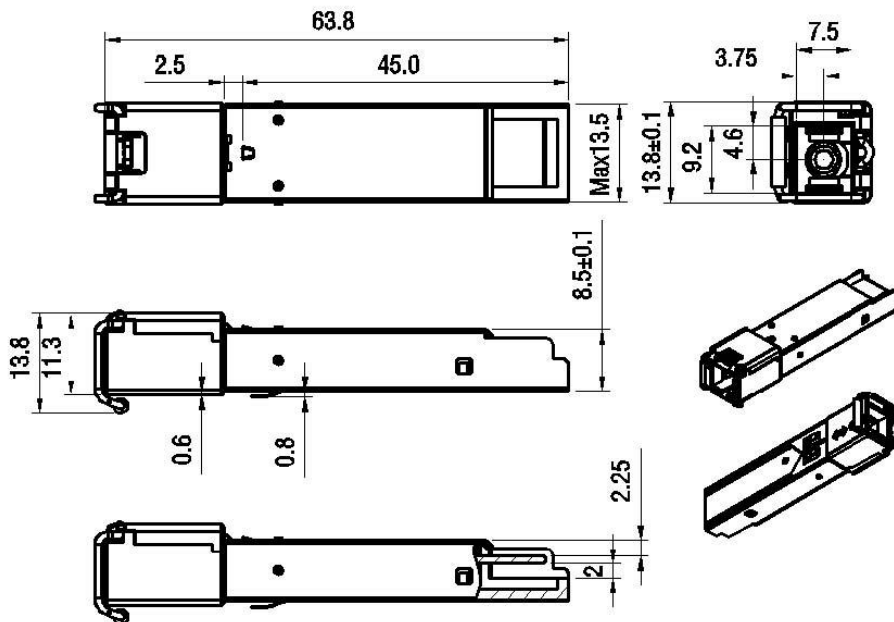


Figure 4, mechanical diagram

● **Ordering information**

Table 6 Ordering information





## SFP Bi-Di 2.5Gbps Transceiver

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Part No.	DD M	Tx Wavelength	Rx Wavelength	Fiber Type	Optical Interface	Distance
SOSPB-3524-02D	YES	1310nm	1550nm	SMF	SC/LC	2km
SOSPB -3524-02	NO					
SOSPB -5324-02D	YES	1550nm	1310nm	SMF	SC/LC	2km
SOSPB -5324-02	NO					
SOSPB -3524-20D	YES	1310nm	1550nm	SMF	SC/LC	20km
SOSPB -3524-20	NO					
SOSPB -5324-20D	YES	1550nm	1310nm	SMF	SC/LC	20km
SOSPB -5324-20	NO					
SOSPB -4524-40D	YES	1490nm	1550nm	SMF	SC/LC	40km
SOSPB -4524-40	NO					
SOSPB -5424-40D	YES	1550nm	1490nm	SMF	SC/LC	40km
SOSPB -5424-40	NO					

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