

## Features :

- Support 10GBASE-SR/10GBASE-SW/10G Fiber Channel application
- Compliant to SFP+ Electrical MSA SFF-8431
- Compliant to SFP+ Mechanical MSA SFF-8432
- Multi rate of up to 11.3Gbps
- Transmission distance up to 300m (OM3 MMF)
- +3.3V single power supply
- Low power consumption
- Operating case temp : 0~+70°C
- RoHS 6/6 compliant

## Absolute Maximum Ratings

Table 1- Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V <sub>CC3</sub>	-0.5	-	+3.6	V	
Storage Temperature	T <sub>s</sub>	0	-	70	°C	
Operating Humidity	RH	+5	-	+95	%	

## Recommended Operating Conditions

Table 2- Recommended operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T <sub>c</sub>	0	-	+70	°C	
Power Supply Voltage	V <sub>CC</sub>	3.14	3.3	3.47	V	
Power Supply Current	I <sub>CC</sub>	-	-	300	mA	
Power Dissipation	P <sub>d</sub>	-	-	1.0	W	
Bit Rate	BR	-	10.3125	-	Gbps	

## Electrical Characteristics

Table 3- Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes	
<b>Transmitter</b>							
Differential Data Input Swing	$V_{in,P-P}$	100	-	1000	mV <sub>PP</sub>		
Input Differential Impedance	$Z_{IN}$	80	100	120	$\Omega$		
Tx_Fault	Normal Operation	$V_{OL}$	0	-	+0.4	V	
	Transmitter Fault	$V_{OH}$	2.0	-	$V_{CC}$	V	
Tx_Disable	Normal Operation	$V_{IL}$	0	-	+0.8	V	
	Laser Disable	$V_{IH}$	1.7	-	$V_{CC}+0.3$	V	
<b>Receiver</b>							
Differential Date Output	$V_{out}$	300	-	1000	mV		
Output Differential Impedance	$Z_D$	80	100	120	$\Omega$		
Output Rise Time(20-80%)	$T_R$	24	-	-	ps		
Output Fall Time (20-80%)	$T_F$	24	-	-	ps		
Rx_LOS	Normal Operation	$V_{OL}$	0	-	+0.4	V	
	Lose Signal	$V_{oH}$	2.0	-	$V_{CC}$	V	

## Optical Characteristics

Table 4-Optical Characteristics

Parameter	Symbol	Unit	Min	Typ	Max	Notes
<b>Optical transmitter Characteristics</b>						
Bit Rate	BR	Gbps	9.953	10.3125	11.3	
Center Wavelength Range	$\lambda_c$	nm	840	850	860	
Average Launch power Tx_off	P <sub>off</sub>	dBm	-	-	-45	
Launch Optical Power	P <sub>0</sub>	dBm	-7.0	-	0	1

## SFP+ 10G SR Transceiver SOSP-8599-03

Extinction Ratio	ER	dB	3.0	-	-	
Jitter P-P	JP	ps	-	-	30	
Jitter RMS	JR	ps	-	-	5	
Optical Rise/Fall time	Tr/tf	ps	-	-	60	
Eye Diagram	Compliant With IEEE 802.3-2005					
<b>Optical receiver Characteristics</b>						
Bit Rate	BR	Gbps	9.953	10.3125	11.3	
Receiver Sensitivity	RS	dBm	-	-	-10.3	2
Overload Input Optical Power	P <sub>IN</sub>	dBm	0	-	-	2
Center Wavelength Range	$\lambda_c$	nm	840	850	860	
LOS	LOS <sub>D</sub>	dBm	-	-	-11.5	
	LOS <sub>A</sub>		-24.5	-	-	
LOS Hysteresis		dB	0.5	-	-	

**Note:**

1. Coupled into MMF.
2. Measured with PRBS 2<sup>31</sup>-1 test pattern @10.3125Gbps.BER=10E-12

### Recommended Interface Circuit

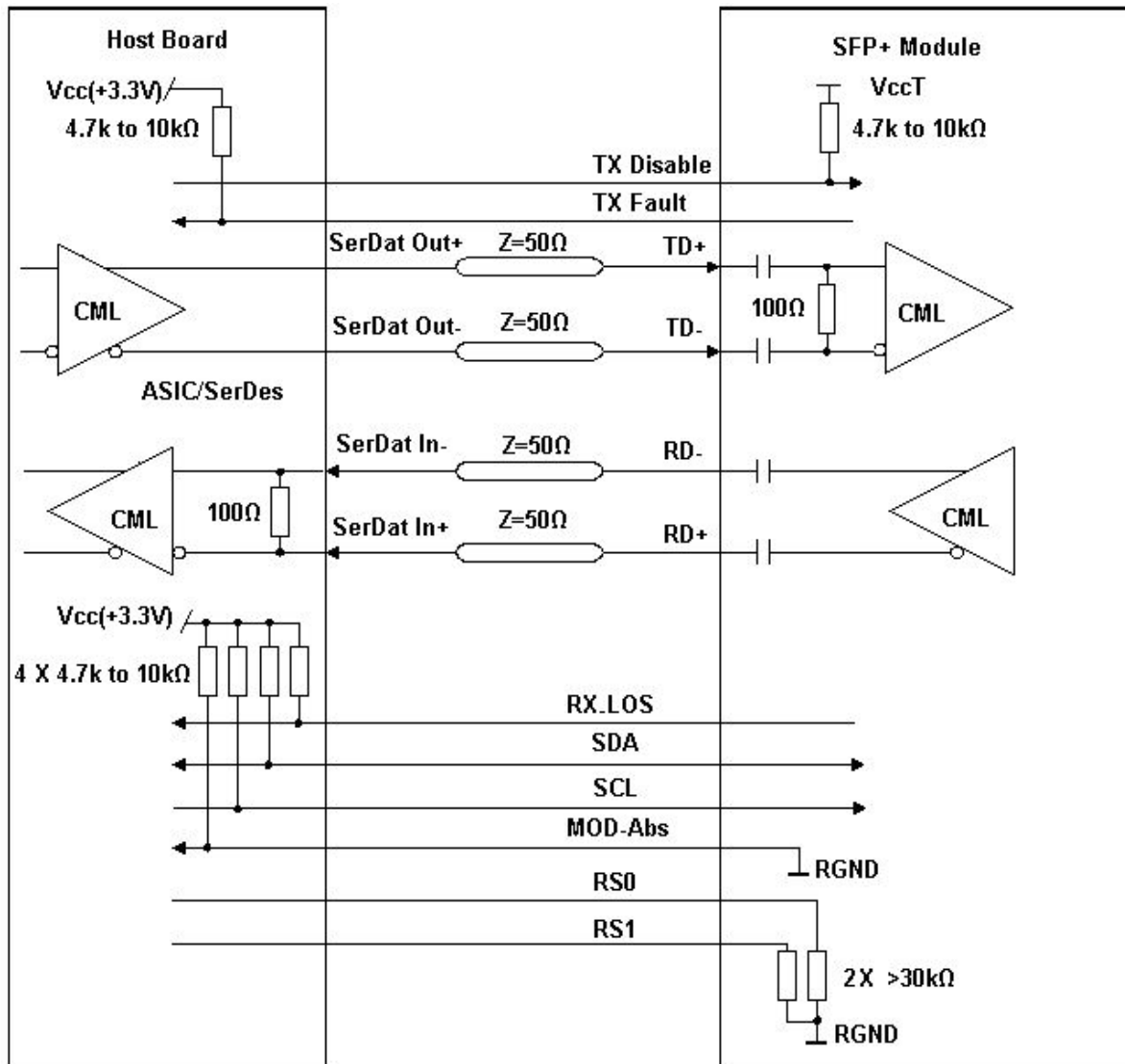


Figure 1, Recommended Interface Circuit

## Recommended Host Board Power Supply Circuit

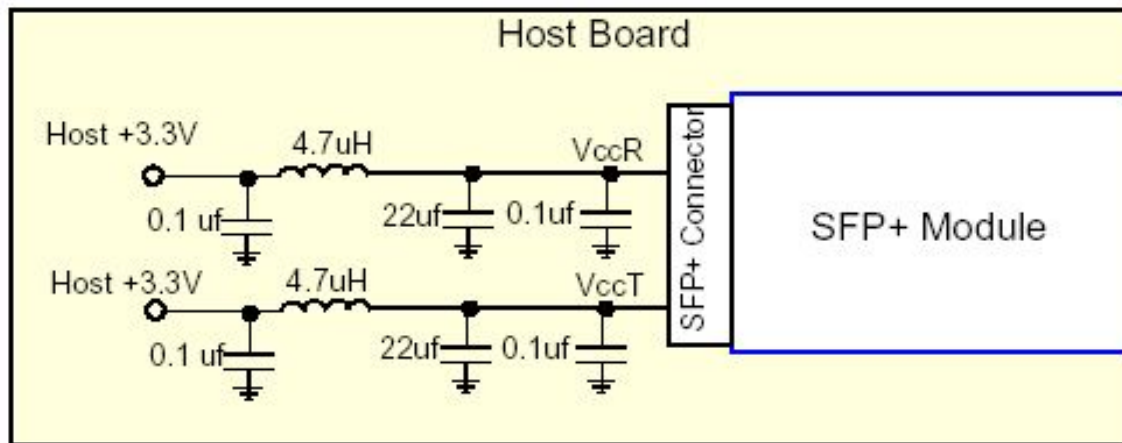


Figure 2, Recommended Host Board Power Supply Circuit

## Pin arrangement

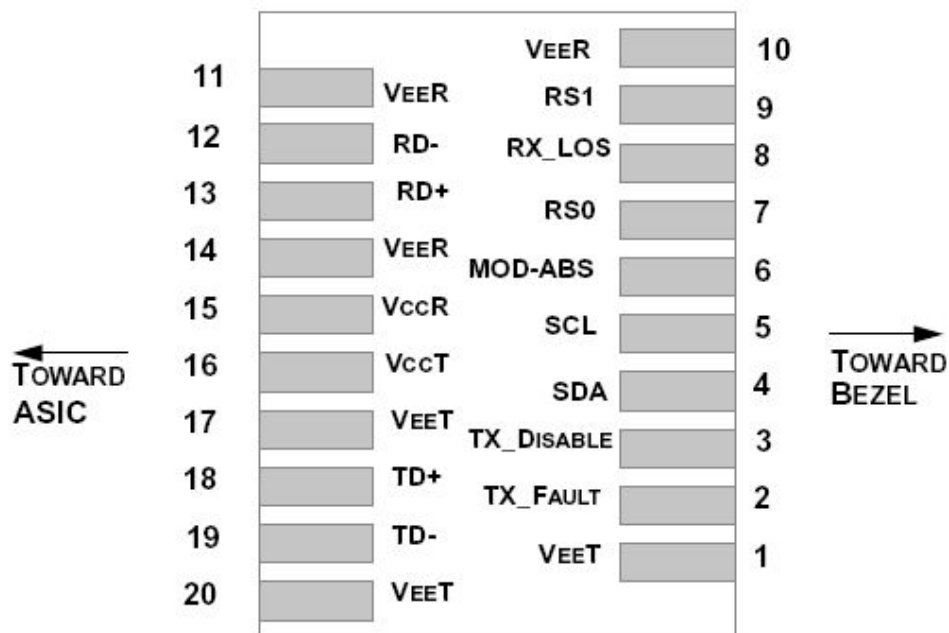


Figure 3, Pin View

**Table 5-Pin Function Definitions**

Pin	Symbol	Name/Description	Notes
1	VEET	Module Transmitter Ground	1
2	TX_FAULT	Module Transmitter Fault	2
3	TX_DISABLE	Transmitter Disable; Turns off transmitter laser output	3
4	SDA	2-Wire Serial Interface Data Line (MOD-DEF2)	
5	SCL	2-Wire Serial Interface Clock (MOD-DEF1)	
6	MOD_ABS	Module Absent, connected to V <sub>EE</sub> T or V <sub>EE</sub> R in the	2
7	RS0	Rate Select 0, optionally controls SFP+ module receiver as the following when HIGH input Bit Rate>4.25 Gbps	
8	RX_LOS	Receiver Loss of Signal Indication (in FC designated as RX_LOS, in SONET designated as LOS,	2
9	RS1	Rate Select 1, optionally controls SFP+ module transmitter as the following when HIGH input Bit Rate>4.25 Gbps and when LOW input Bit Rate ≤4.25 Gbps.	
10	V <sub>EE</sub> R	Module Receiver Ground	1
11	V <sub>EE</sub> R	Module Receiver Ground	1
12	RD-	Receiver Inverted Data Output	
13	RD+	Receiver Non-Inverted Data Output	
14	V <sub>EE</sub> R	Module Receiver Ground	1
15	V <sub>CC</sub> R	Module Receiver 3.3 V Supply	
16	V <sub>CC</sub> T	Module Transmitter 3.3 V Supply	
17	V <sub>EE</sub> T	Module Transmitter Ground	1
18	TD+	Transmitter Non-Inverted Data Input	
19	TD-	Transmitter Inverted Data Input	
20	V <sub>EE</sub> T	Module Transmitter Ground	1

**Note:**

1. The module ground pins are isolated from the module case.
2. The pins shall be pulled up with 4.7K-10Kohms to a voltage between 3.14V and 3.46V on host board.
3. The pin is pulled up to VCCT with a 4.7K-10KΩ resistor in the module.

## Digital Diagnostic Memory Map

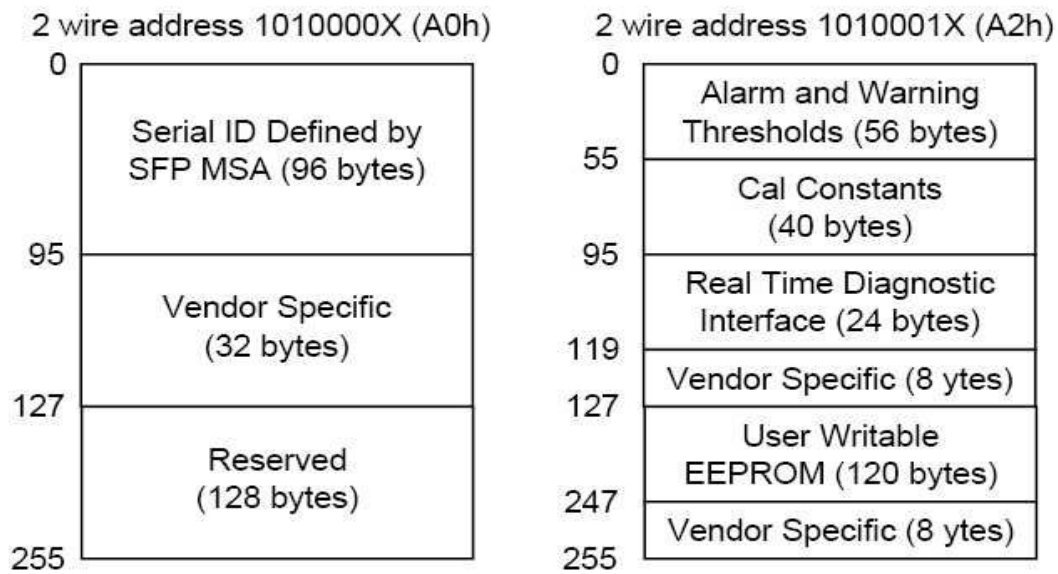


Figure 4, Memory Map

## Mechanical Diagram

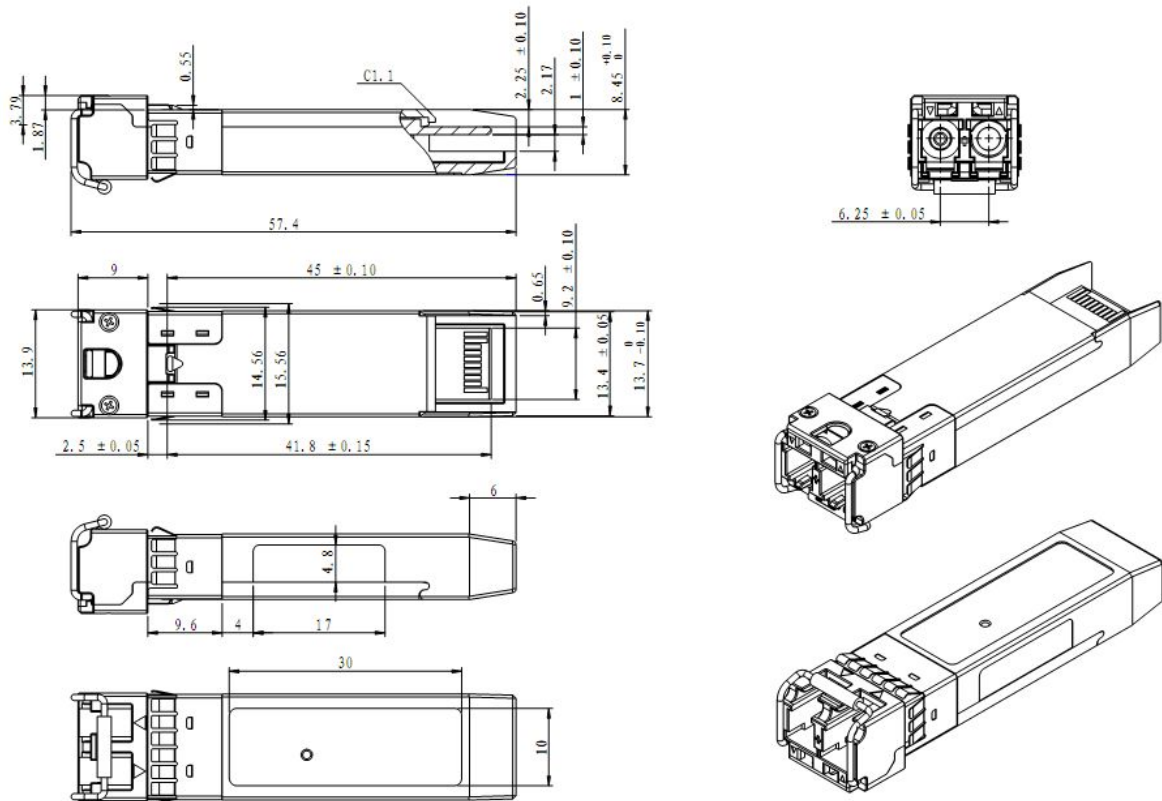


Figure 5, Mechanical Diagram

## Order Information

Table 6-Order Information

Part No.	Bit Rate (Gbps)	Laser (nm)	Fiber Type	DDMI	Connector
SOSP-8599-03	10.3125	850	MMF	YES	LC





## **SFP+ 10G SR Transceiver SOSP-8599-03**

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