

Product Specification

SFP-WDM-SM- * -LC



1. Product Features

- GiSObit Ethernet
- GiSObit Fiber Channel
- SFP MSA package with LC connector
- Compliant with IEEE 802.3ah
- Class 1 safety certified
- Digital diagnostic monitor interface compatible with SFF-8472
- Metal enclosure, for lower EMI
- Transmission with 9/125 μ m SMF
- Single 3.3V Power Supply and LVTTTL Logic
- Very low EMI and excellent ESD protection
- Operating case temperature
Standart temp: 0°C to +70°C
Industrial temp: -40°C to +85°C

2. Applications

- Switch to Switch Interface
- GiSObit Ethernet
- Switched Backplane Applications
- Router/Server Interface
- Other Optical Links

3. Product Description

RCI SFP-SM-100M- * - LC Small Form Factor Pluggable (SFP) transceivers are compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA). The module data link up to 20, 40 and 80 KM in 9/125um single mode fiber with speed 1.25G.

4. Absolute Maximum Ratings

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

5. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case temp	T _c	0		70	°C
		-40		85	
Power Supply Voltage	V _{cc}	3.14	3.3	3.46	V
Power Supply Current	I _{cc}			300	mA
Power Dissipation	P _d			1	W
Data Rate			1250		Mbps
Transmission Distance				20	KM

6. Specification of Transmitter

Parameter	Symbol	Min.	Typical	Max.	Unit	
Average Output Power	P _{out}	20km		-9	-3	
		40km		-5	0	
		80km		0	5	
Extinction Ratio	ER	9			dB	
Mean Wavelength	λ	SFP-WDM-SM-0220AD-LC SFP-WDM-SM-0240AD-LC	1290	1310	1330	nm
		SFP-WDM-SM-02204D-LC SFP-WDM-SM-02404D-LC	1480	1490	1500	nm
Spectral Width(RMS)	Δλ	SFP-WDM-SM-0220AD-LC SFP-WDM-SM-0240AD-LC	1540	1550	1560	nm
		SFP-WDM-SM-02204D-LC SFP-WDM-SM-02404D-LC				
P _{out} TX Disable Asserted	P _{out}			-45	dB	
Rise/Fall Time (20%~80%)	T _r / T _f			260	ps	
Optical Eye Mask		IEEE 802.3ah Compliant				

7. Specification of Receiver

Parameter	Symbol	Min.	Typical	Max.	Unit
Receiver Power	P_{IN}			-23	dBm
Centre Wavelength	SFP-WDM-SM-0220AD-LC SFP-WDM-SM-0240AD-LC	1290	1310	1330	nm
	SFP-WDM-SM-02204D-LC SFP-WDM-SM-02404D-LC	1480	1490	1500	nm
Receiver Sensitivity Overload	$R_{sens,high}$	-3			dBm
Damage Threshold For Receive	$P_{IN,damage}$	0			dBm
LOS	LOS_A	-35			dBm
	LOS_D			-25	
LOS Hysteresis		0.5			dB

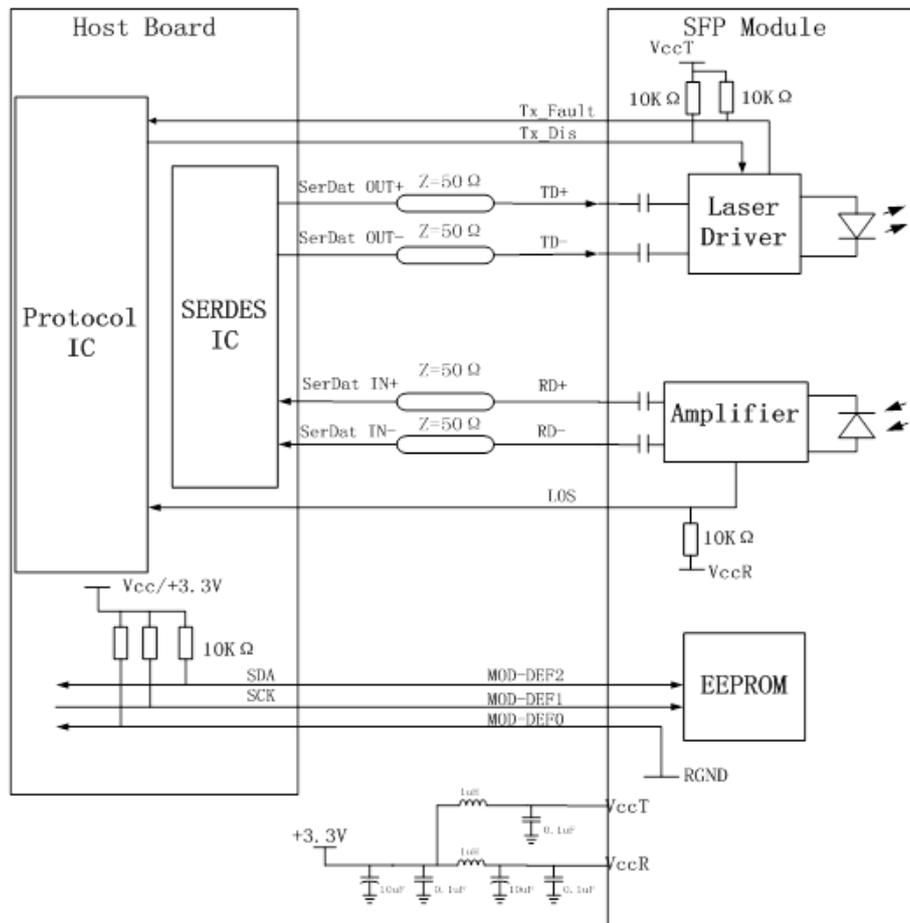
8. Electrical Interface Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Differential Data Input Swing	$V_{in,p-p}$	200		2400	mV
Differential Data Output Swing	$V_{out,p-p}$	1450	1600	1750	mV
Differential Data input impedance	R_{IN}	80	100	120	Ω
Tx_Disable	Laser Disable	V_D	2.0	VCC+0.5	V
	Normal Operation	V_{EN}	GND	GND+0.8	V
Tx_Fault	Transmitter Fault	V_{OH}	2.0	VCC+0.5	V
	Normal Operation	V_{OL}	GND	GND+0.8	V
Rx_LOS	Los Signal	V_{OH}	2.0	VCC+0.5	V
	Normal Operation	V_{OL}	GND	GND+0.8	V

Notes:

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

9. Recommend Circuit Schematic



11. Pin Descriptions

Pin	Symbol	Name/Description	Plug Seq.
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	TX Fault	Transmitter Fault. Not supported. ^[1]	3
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. ^[2]	3
4	MOD_DEF2	Module Definition 2. Data line for Serial ID. ^[3]	3
5	MOD_DEF1	Module Definition 1. Clock line for Serial ID. ^[3]	3
6	MOD_DEF0	Module Definition 0. Grounded within the module. ^[3]	3
7	Rate Select	No connection required ^[not available]	3
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. ^[4]	3
9	VeeR	Receiver Ground (Common with Transmitter Ground) ^[1]	1
10	VeeR	Receiver Ground (Common with Transmitter Ground) ^[1]	1
11	VeeR	Receiver Ground (Common with Transmitter Ground) ^[1]	1
12	RD-	Receiver Inverted DATA out. AC Coupled ^[3]	3
13	RD+	Receiver Non-inverted DATA out. AC Coupled ^[3]	3
14	VeeR	Receiver Ground (Common with Transmitter Ground) ^[1]	1
15	VccR	Receiver Power Supply ^[2]	2
16	VccT	Transmitter Power Supply ^[2]	2
17	VeeT	Transmitter Ground (Common with Receiver Ground) ^[1]	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. ^[3]	3
19	TD-	Transmitter Inverted DATA in. AC Coupled. Transmitter ^[3]	3
20	VEET	Ground (Common with Receiver Ground) ^[1]	1

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 VCC+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 |
| Between (0.8V and 2.0V): | Undefined |
| High (2.0 - VccT): | Transmitter Disabled |
- [3] 3MOD-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.

12. Pin arrangement

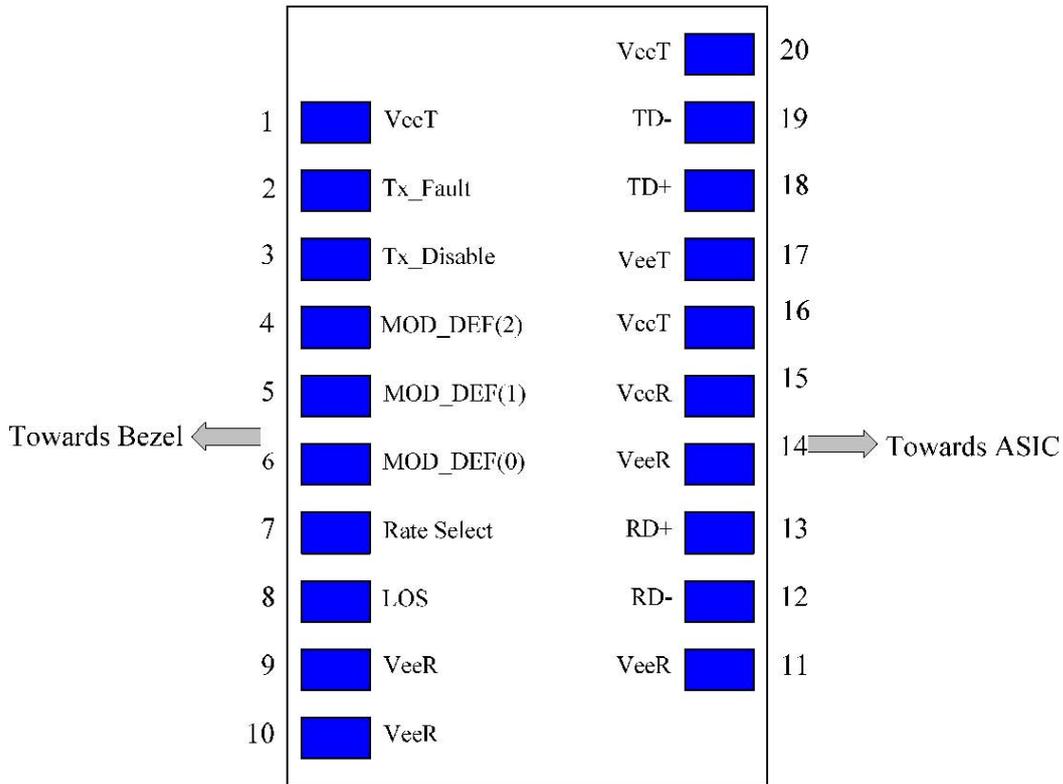


Figure 1. Pin out of Connector Block on Host Board.

13. Digital Diagnostic Memory Map

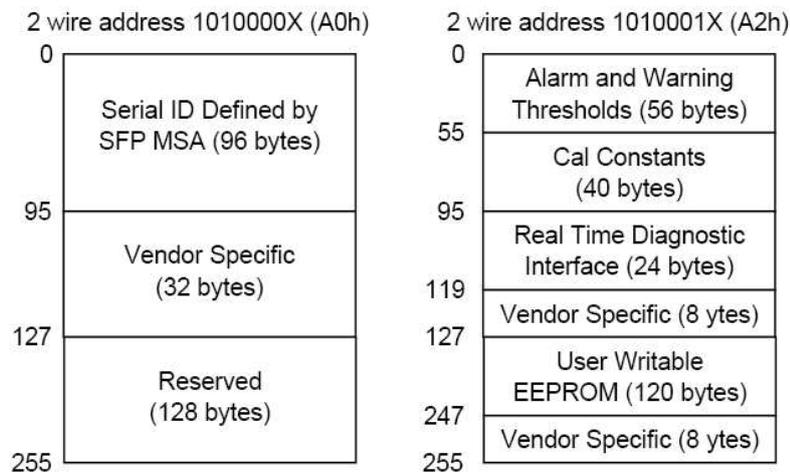


Figure 2. Memory Map

14. Mechanical Diagram

(Unit: mm)

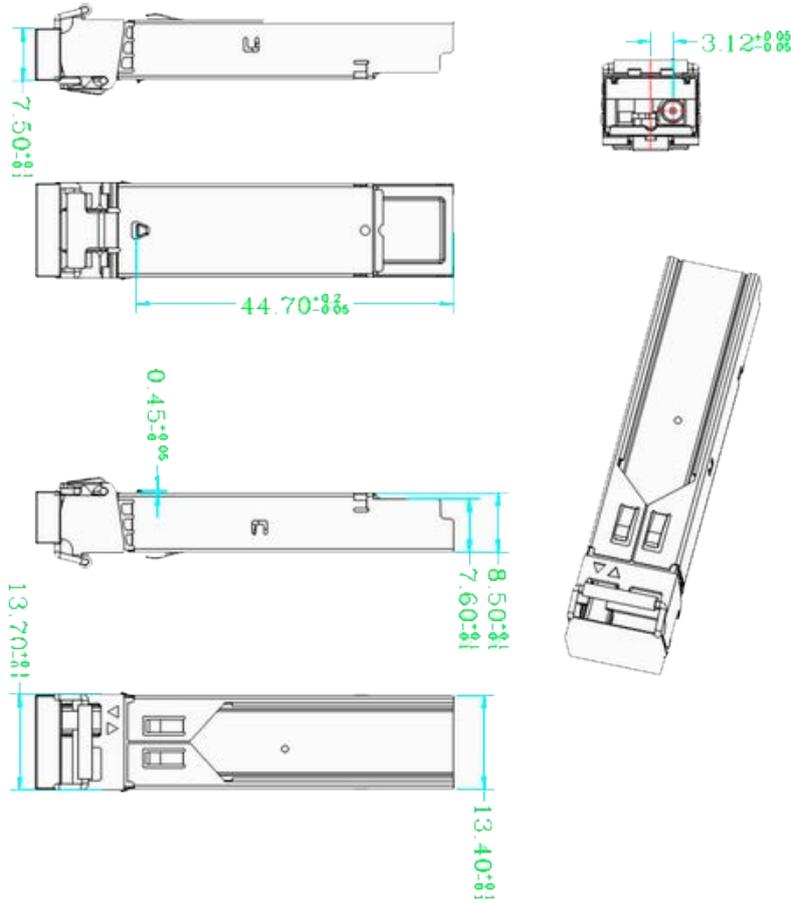


Figure 3. Mechanical Diagram