

## 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  $\mu$ 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 <sub>s</sub>	-40	85	°C
Operating Humidity	RH	5	95	%
Power Supply Voltage	V <sub>cc</sub>	-0.5	+3.6	V

#### 5. Recommended Operating Conditions

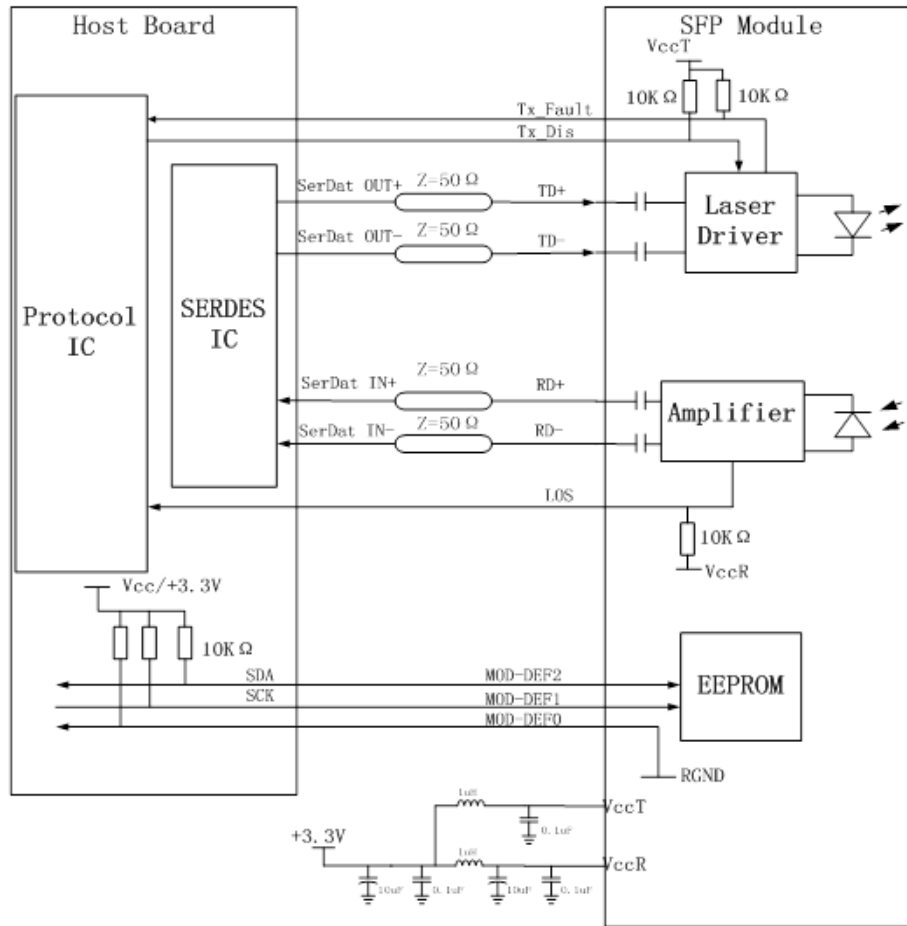
Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case temp	T <sub>c</sub>	0		70	°C
		-40		85	
Power Supply Voltage	V <sub>cc</sub>	3.14	3.3	3.46	V
Power Supply Current	I <sub>cc</sub>			300	mA
Power Dissipation	P <sub>d</sub>			1	W
Data Rate			1250		Mbps
Transmission Distance				20	KM

#### 6. Specification of Transmitter

Parameter	Symbol	Min.	Typical	Max.	Unit	
Average Output Power	P <sub>out</sub>	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
			1540	1550	1560	nm
Spectral Width(RMS)	Δλ			1	nm	
P <sub>out</sub> TX Disable Asserted	P <sub>out</sub>			-45	dB	
Rise/Fall Time (20%~80%)	T <sub>r</sub> / T <sub>f</sub>			260	ps	
Optical Eye Mask		IEEE 802.3ah Compliant				



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

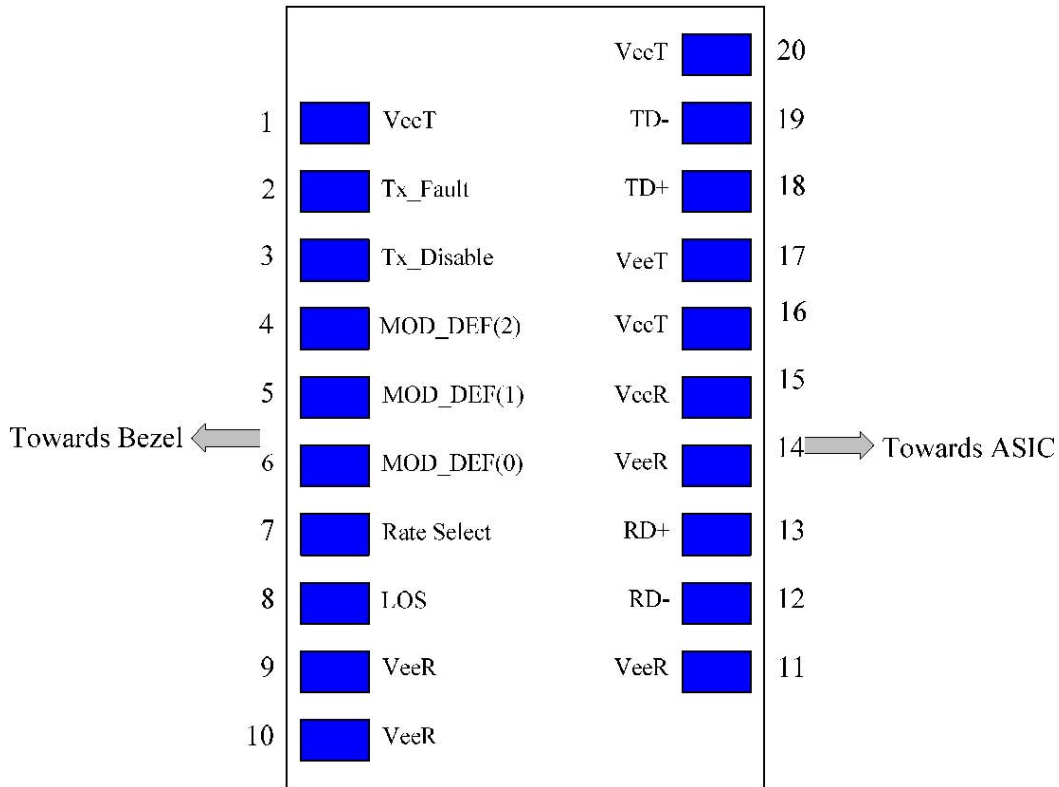


Figure 1. Pin out of Connector Block on Host Board.

## 13. Digital Diagnostic Memory Map

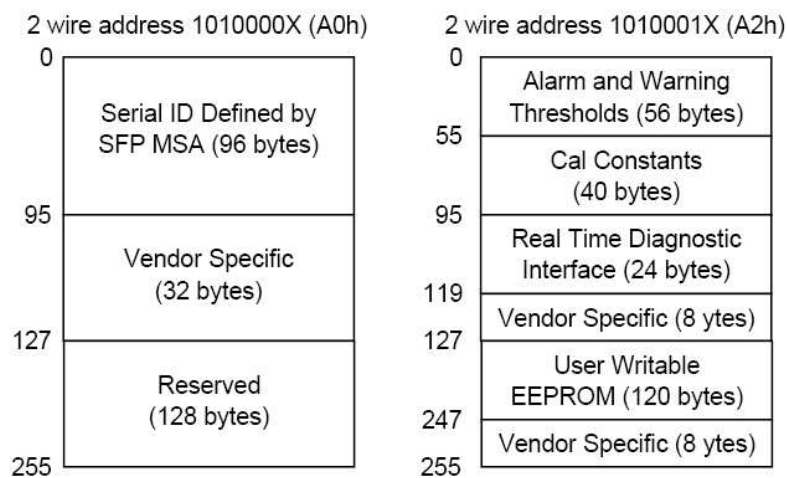


Figure 2. Memory Map

## 14. Mechanical Diagram

(Unit: mm)

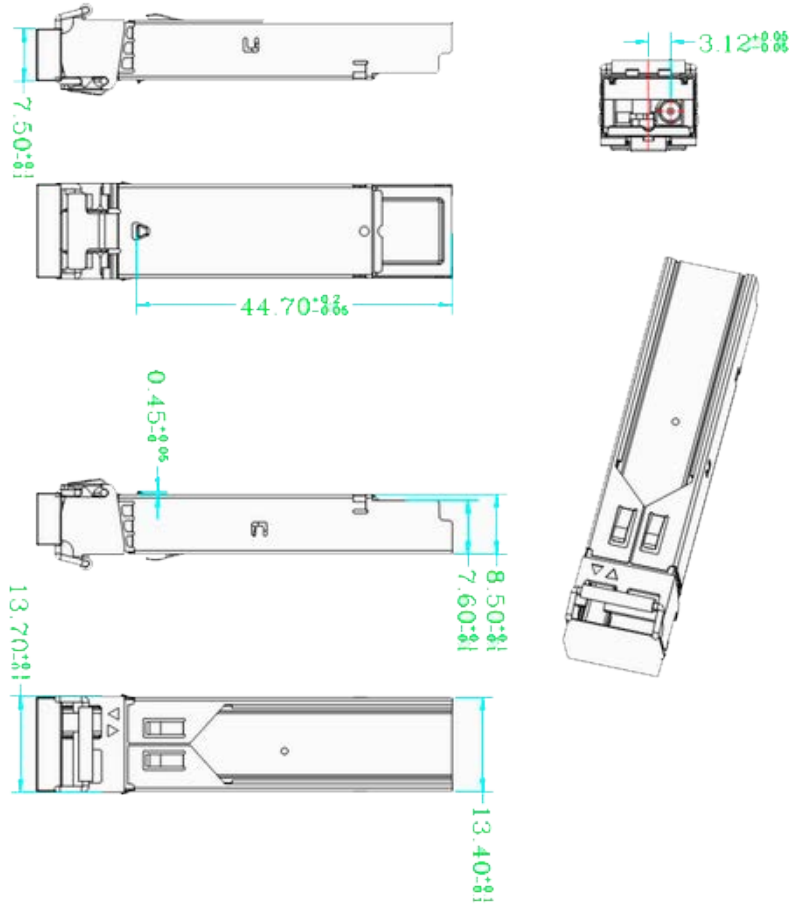


Figure 3. Mechanical Diagram