1000BASE-T SFP Copper Transceiver

Features

- Up to 1.25Gbps bi-directional data links

- SFP form with compact RJ-45 connector

- Single +3.3V power supply

- 1000 BASE-T operation in host systems with SERDES interface

  (MXP-24RJSX,MXP-24RJSDX)

- Link lengths: up to 100 meter

- Detailed product information in EEPROM

- Physical layer IC can be accessed via 2-wire serial bus

- For 100m reach over cat 5 UTP cable

- Low power consumption

- Power consumption less than 1W

- Operating case temperature： 0 ~ +70℃

Applications

- 1.25 Gigabit Ethernet over Cat 5 cable

Compliance

- Compatible with SFP MSA

- Compatible with IEEE Std 802.3

- ROHS

Description

SFP-1G-T 1000BASE-T Copper Small Form Pluggable (SFP) modules are based on the SFP Multi Source Agreement (MSA). It is compliant with the Gigabit Ethernet and 1000BASE-T standards as specified in IEEE STD 802.3 and 802.3ab.

Absolute Maximum Ratings

Table1-Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	Ts	-40	+85	℃
Operating Relative Humidity	RH	5	+85	%
Supply Voltage	Vcc	-0.5	+3.6	V

Recommended Operating Conditions

Table2-Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Case Temperature	TC	0	25	70	℃
Supply Current	Icc	300		350	mA
Power Supply Voltage	VCC	3.135	3.3	3.465	V
Surge Current	Isurge			30	mA

Electrical Characteristic

Table3-Electrical Characteristic

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Differential Input Voltage	Vin p-p	500		2400	mV	
Differential Output Voltage	Vout p-p	500		1200	mV	
Data rate		10		1250	Mbps	
Bit Error Rate	BER		10^{-10}			
Low-Speed Signals, Electronic Characteristics						
SFP Output LOW	VOL	0		0.5	V	1
SFP Output HIGH	VOH	host_Vcc - 0.5		host_Vcc + 0.3	V	1
SFP Input LOW	VIL	0		0.8	V	1
SFP Input HIGH	VIH	2		Vcc +0.3	V	1
High-Speed Electrical Interface, Transmission Line-SFP						
Line Frequency	fL		125		MHz	2

Tx Outputimpedance	Zout,TX		100		Ohm	3
Rx InputImpedance	Zin,RX		100		Ohm	3
High-Speed Electrical Interface, Host-SFP						
Single ended data input swing	Vin	250		1200	mV	
Single ended dataoutput swing	Vout	350		800	mV	
Rise/Fall Time	Tr,Tf		175		psec	
Tx Input Impedance	Zin		50		Ohm	
Rx OutputImpedance	Zout		50		Ohm	

Notes:

[1] 4.7k to 10k pull-up to host_Vcc,measured at host side of connector;

[2] 5-level encoding, per IEEE 802.3

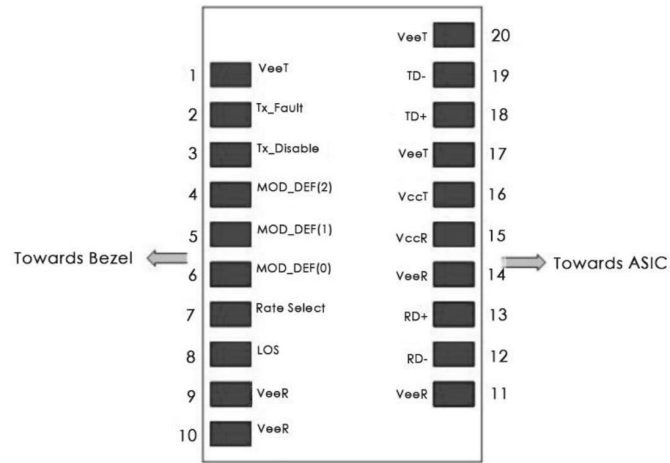[3] Differential, for all frequencies between1MHz and 125MHz

Pin Description

Figure1 Module Interface to Host

SFP Module PIN Definition

Table4-SFP Module PIN Definition

	Symbol	Name / Description	Power Sequence Order	Note
1	VeeT	Module Transmitter Ground	1st	
2	TX_Fault	Module Transmitter Fault	3rd	
3	TX_Dis	Transmitter Disable; Turns off transmitter laser output	3rd	1
4	MOD-DEF2	Module Definition 2	3rd	2
5	MOD-DEF1	Module Definition 1	3rd	2
6	MOD-DEF0	Module Definition 0	3rd	2
7	Rate Select	Not used	3rd	
8	RX_LOS	Loss of Signal	3rd	
9	VeeR	Receiver Ground	3rd	
10	VeeR	Module Receiver Ground	1st	
11	VeeR	Module Receiver Ground	1st	
12	RD-	Receiver Inverted Data Output	3rd	
13	RD+	Receiver Data Output	3rd	
14	VeeR	Module Receiver Ground	1st	
15	VccR	Module Receiver 3.3 V Supply	2nd	
16	VccT	Module Receiver 3.3 V Supply	2nd	
17	VeeT	Module Transmitter Ground	1st	
18	TD+	Transmitter Non-Inverted Data Input	3rd	
19	TD-	Transmitter Inverted Data Input	3rd	
20	VeeT	Module Transmitter Ground	1st	

[1] PHY disabled on TDIS > 2.0V or open, enabled on TDIS < 0.8V, used to reset the module.

[2] Should be pulled up with 4.7k – 10k Ohm on host board to a voltage between   2.0 V and 3.6 V.MOD_DEF(0) pulls line low to indicate module is plugged in .
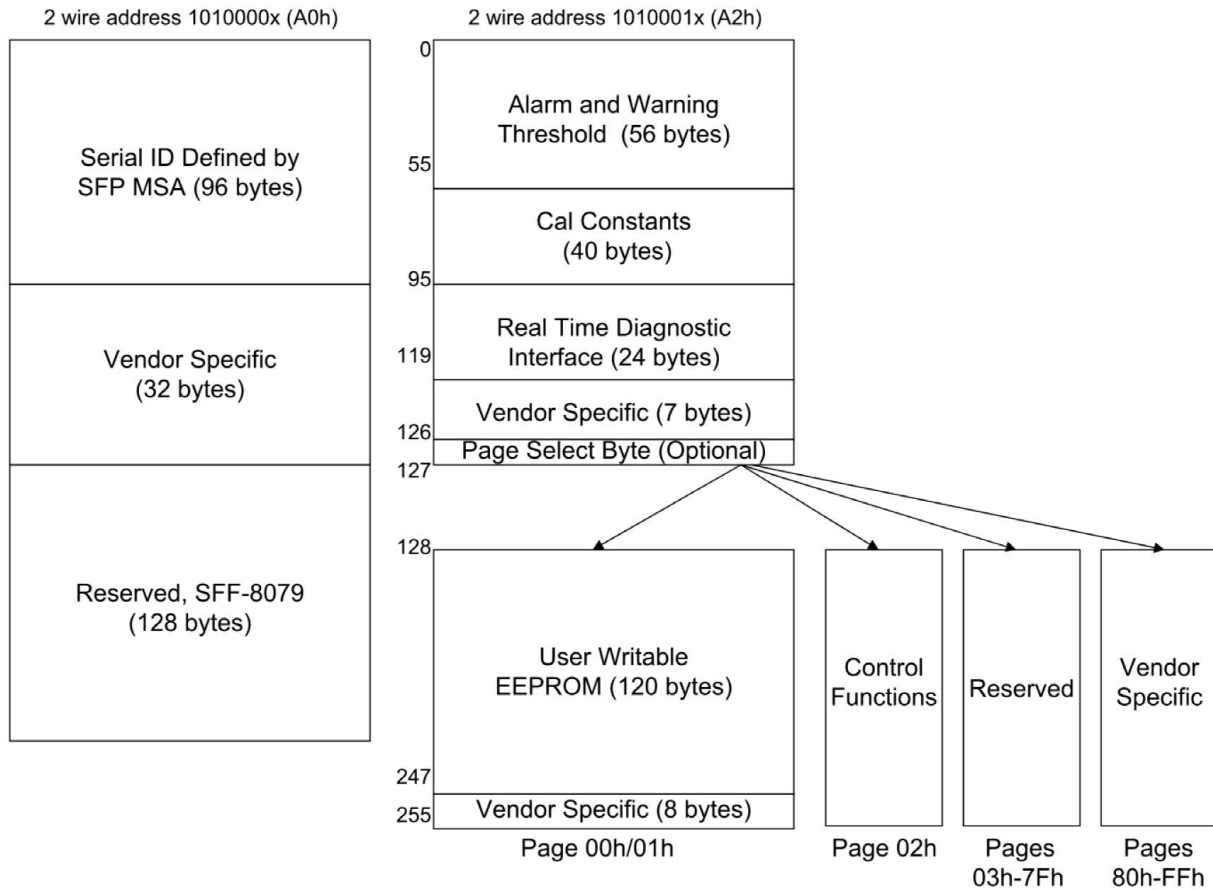
Monitoring Specification

Figure2 Memory map

Further Information :

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3. NADDOD assumes no responsibility for the use or reliability of equipment or software not provided by NADDOD.