10GBASE-T SFP+ RJ-45 30m Copper Transceiver

Features

- Hot-pluggable SFP footprint
- Support 10GBASE-T / 5GBASE-T / 2.5GBASE-T / 1000BASE-T / 100BASE-T
- Compact RJ-45 connector assembly
- Commercial Temperature Range: 0 to 70°C
- 10 Gigabit Ethernet over Cat6a/Cat7 cable
- RoHS compliant and lead-free
- Single +3.3V power supply
- Detailed product information in EEPROM
- Physical layer IC can be accessed via 2-wire serial bus

Applications

- Ethernet over Cat6a/Cat7 cable

Compliance

- 10GBASE-T 10G Ethernet
- Compatible with IEEE Std 802.3
- ROHS

Description

10GBASE-T / 2.5GBASE-T / 1000BASE-T standards as specified in IEEE Std 802.3. 10GBASE-T SFP+ copper transceivers use the SFP's RX_LOS pin for link indication. If pull up SFP's TX_DISABLE pin, PHY GBASE-T SFP+ copper transceivers are based on the SFP Multi- Source Agreement (MSA). They are compatible with the 10GBASE-T / IC will be reset.

Absolute Maximum Ratings

Table1-Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	Ts	-40	+85	℃
Operating Temperature	Ts	0	+70	℃
Operating Relative Humidity	RH	0	+70	℃

Transmission Distances Ratings

Table2-Transmission Distances Ratings

Standard	Cable	Reach	Host Port
10GBASE-T	Cat6a/Cat7	30m	XFI
5GBASE-T/2.5GBASE-T	Cat5e	50m	5GBASE-R/2.5GBASE-X
1000BASE-T	Cat5e	100m	1000BASE-FX

Electrical Characteristic

Table3-Electrical Characteristic

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Current	Is		700	900	mA	2
Input Voltage	Vcc	3.13	3.3	3.47	V	
Maximum Voltage	Vmax			4	V	
Surge Current	Isurge		TBD		mA	
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	

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

Notes:

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

[2].3.0W max power over full range of voltage and temperature. See caution note below

Pin Description

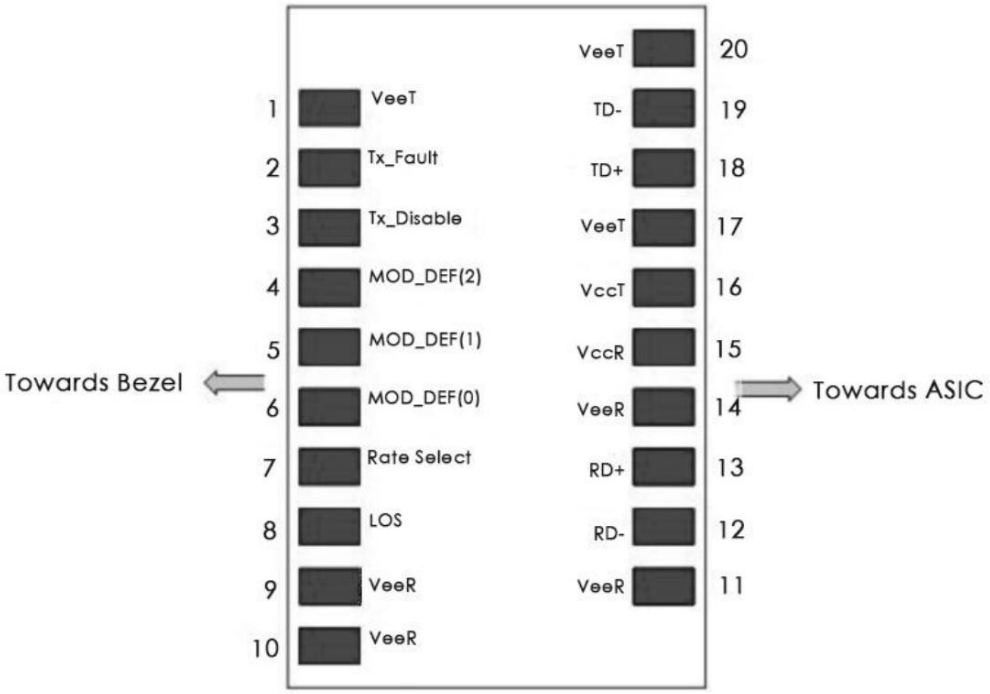

Figure1 Pin view

SFP+ Module PIN Definition

Table4-SFP+ Module PIN Definition

Pin	Symbol	Name / Description	Power Sequence Order	Note
1	VeeT	Transmitter Ground(Common with Receiver Ground)	1st	1
2	TX_Fault	Module Transmitter Fault	3rd	
3	TX_Dis	Transmitter Disable. Laser output disabled on high or open	3rd	2
4	MOD-DEF2	Module Definition 2. Data line for Serial ID.	3rd	3
5	MOD-DEF1	Module Definition 1. Clock line for Serial ID	3rd	3
6	MOD-DEF0	Module Definition 0. Grounded within the module.	3rd	3
7	Rate Select	Not used	3rd	
8	RX_LOS	High indicates no linked. low indicates linked	3rd	4
9	VeeR	Receiver Ground	3rd	1
10	VeeR	Module Receiver Ground	1st	1
11	VeeR	Module Receiver Ground	1st	1
12	RD-	Receiver Inverted DATA out. AC Coupled.	3rd	
13	RD+	Receiver Non-inverted DATA out. AC Coupled.	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 in. AC Coupled.	3rd	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	3rd	
20	VeeT	Module Transmitter Ground	1st	

Notes:

[1] Circuit ground is connected to chassis ground.

[2] PHY disabled on TDIS ＞2.0V or open, enabled on TDIS ＜0.8V

[3] Should be pulled up with 4.7k - 10k Ohms 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

[4] LVTTL compatible with a maximum voltage of 2.5V.

Monitoring Specification

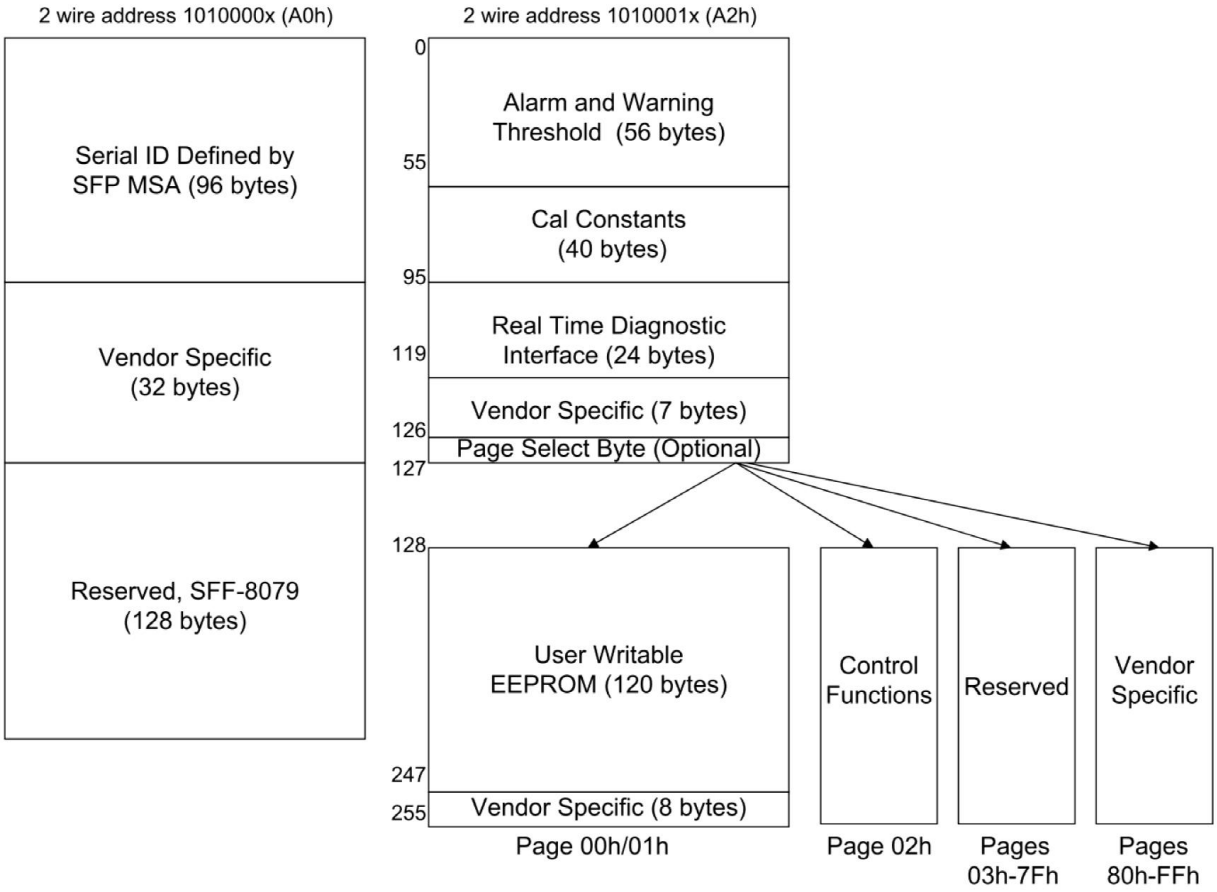

Figure2 Memory map