NADDOD

1.25Gb/s SFP 550m SFP Transceivers

Features

- Up to 1.25Gbps data-rate
- Duplex LC receptacle optical interface compliant
- Single +3.3V power supply
- Hot-pluggable
- Receiver Loss of Signal Output
- Serial ID module on MOD(0-2)
- International Class 1 laser safety certified
- 850nm VCSEL laser transmitter
- Operating temperature range:0~+70℃
- Up to 550m transmission distance on 50/125μm OM3 MMF fiber
- ROHS Compliant

Applications

- Gigabit Ethernet
- Fiber Channel
- Switch to Switch Interface
- Other Optical Links

Compliance

- SFP MSA
- SFF-8472
- IEEE802.3z
- RoHS

Description

The SFP-1GE-SR series multi-mode transceivers are small form factor pluggable module for bi-directional serial optical data communications such as Gigabit Ethernet 1000BASE-SX and Fiber Channel FC-PH-2 for 100-M5-SN-1 and 100-M6-SN-1. It is with the SFP 20-pin connector to allow hot plug capability. This module is designed for multi-mode fiber and operates at a nominal wavelength of 850nm.

The transmitter section uses a Vertical Cavity Surface Emitted Laser (VCSEL) which is a Class 1 laser compliant according to International Safety Standard IEC 60825. The receiver section uses an integrated GaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC.*Exceeding any one of these values may destroy the device immediately.

Absolute Maximum Ratings

Table 1-Absolute Maximum Ratings

Parameter	Symbols	Min	Typical	Max	Unit	Notes
Storage Temperature	Ts	-40	-	+85	ºC	
3.3V Supply Voltage	VCC	-0.5	-	+4	V	

Recommended Operating Conditions

Table 2-Recommended Operating Conditions

Parameter	Symbols	Min	Typical	Max	Unit	Notes
Operating Case temperature	Tc	0	-	+70	℃	
3.3V Supply Voltage	VCC	3.135	3.3	3.465	V	
Total Data Rate			1.25/1.063		Gbps	

Electrical Characteristic

Tested under recommended operating conditions, unless otherwise noted

Table 3- Electrical Characteristic

Parameter	Symbols	Min	Typical	Max	Unit	Notes
Single Ended Data Input Swing				1100	mV	
Single Ended Data Output Swing		300		600	mV	
TX_fault/LOS output (TTL)	VOH	2.0		Vcc	V	
	VOL	0		0.8	V	
TX_disable input (TTL)	VOH	2.0		Vcc	V	
	VOL	0		0.8	V	
Optical transmitter Characteristics						
Launch Optical Power	Po	-9		-3	dBm	
Center Wavelength	λc	830	850	860	nm	
Extinction Ratio	ER	9			dB	1
Total Jitter*(note2)	TJ			0.47	UI	1
Eye Diagram		Complies with IEEE802.3z eye masks when filtered				1
Optical receiver Characteristics						
Center Wavelength	λC	770		870	nm	
Receiver Sensitivity	Pmin			-18	dBm	2

Receiver Overload	Pmax	-3			dBm	
LOS De-assert	LosD			-20	dBm	
LOS Assert	LosA	-35			dBm	

Notes:

[1]Filtered, measured with a PRBS 27-1 test pattern @1.25Gbps

[2]Minimum avera0ge optical power measured at BER less than $1E^{-12}$, with a 27-1 PRBS and ER=9Db.
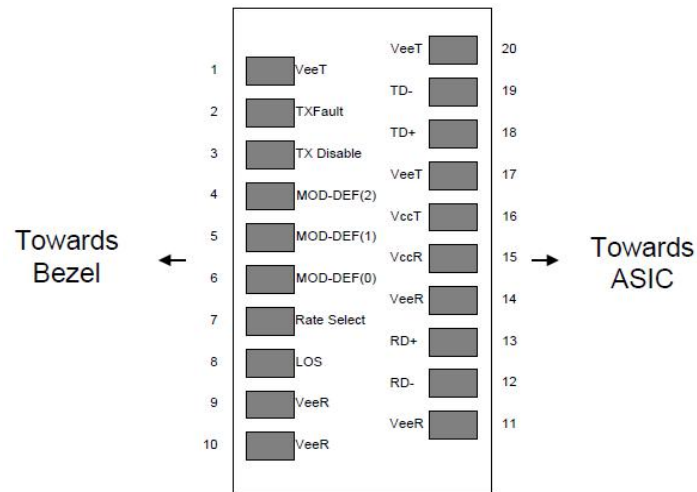
Pin Description

Figure1 Pin view

Pin	Name	Description	Notes
1	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1
2	T_{FAULT}	Transmitter Fault.Open Drain. Logic "0" indicates normal operation.	2
3	T_{DIS}	Transmitter Disable. Laser output disabled on high or open.	3
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	4
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	4
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	4
7	Rate Select	No connection required.	
8	LOS	Loss of Signal indication. Open Drain. Logic "0" indicates normal operation.	5
9	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
10	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
11	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out(CML). AC Coupled	
13	RD+	Receiver Non-inverted DATA out(CML). AC Coupled	
14	V_{EER}	Receiver Ground (Common with Transmitter Ground)	1
15	V_{CCR}	Receiver Power Supply	
16	V_{CCT}	Transmitter Power Supply	
17	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	V_{EET}	Transmitter Ground (Common with Receiver Ground)	1

Table 4-Pin Function Definitions

Notes:

[1] Circuit ground is internally isolated from chassis ground.

[2] TX Fault is an open drain output, which should be pulled up with 4.7K – 10KΩ resistor on the host board. Pull up voltage between 2.0V to VccT/R+0.3V. When high, output indicates a laser fault of some kind. Low indicates normal

operation. In the low state, the output will be pulled to < 0.8V. When sensing an improper power level in the laser driver, the SFP sets this signal high and turns off the laser. TX-FAULT can be reset with the TX-DISABLE line. The signal is in LVTTL level.

[3] TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with 4.7K – 10KΩ resistor. Its states are: Low (0 – 0.8V): Transmitter on; (>0.8, < 2.0V): Undefined; High (2.0V to VccT/R+0.3V): Transmitter Disabled; Open: Transmitter Disabled. The TX-DISABLE signal is high (LVTTL logic "1") to turn off the laser output. The laser will turn on when TX-DISABLE is low (LVTTL logic "0").

[4] Should be pulled up with 4.7K - 10KΩ on host board to a voltage between 2.0V to VccT/R+0.3V. MOD_DEF (0) pulls line low to indicate module is plugged in.

[5] LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with 4.7K – 10KΩ resistor. Pull up voltage between 2.0V to VccT/R+0.3V. When high, this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

[6] The RX-LOS is high (LVTTL logic "1") when there is no incoming light from the companion transceiver. This signal is normally used by the system for the diagnostic purpose. The signal is operated in LVTTL level.
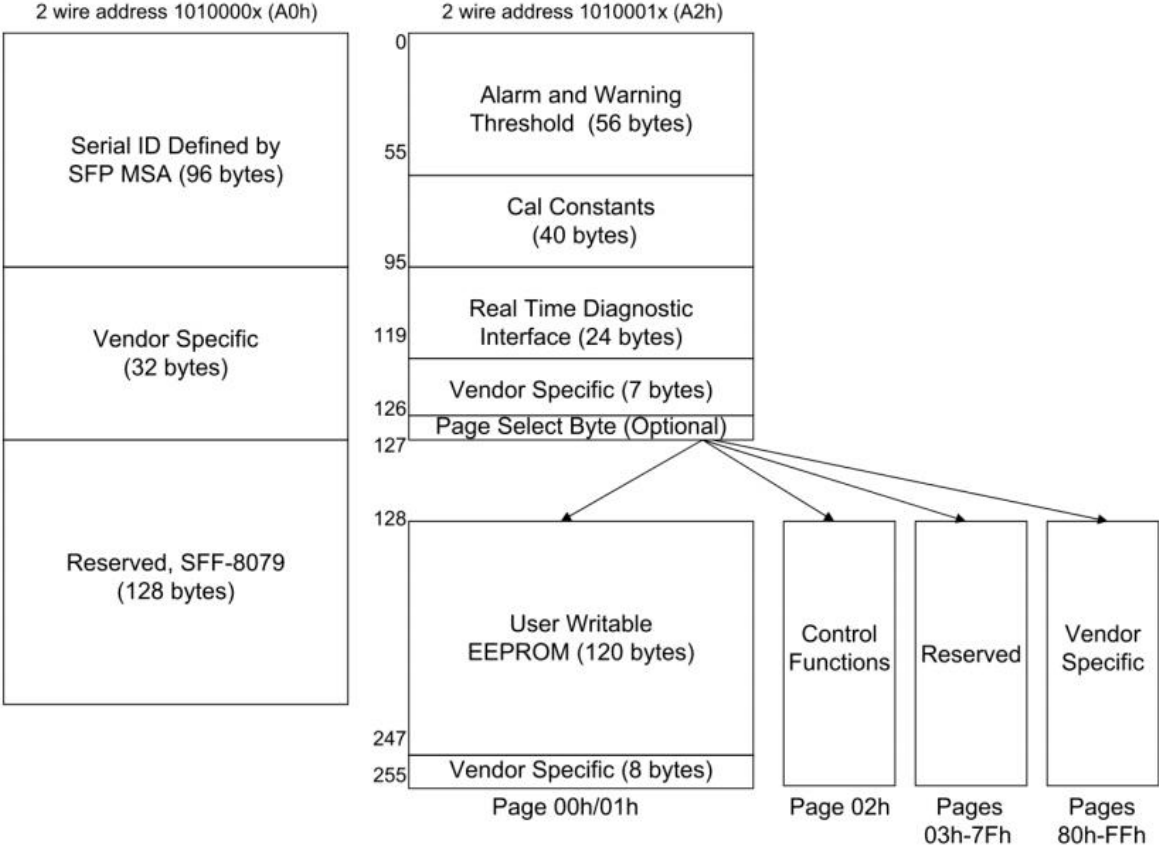
Monitoring Specification

Figure2 Memory Map

Caution

All adjustments have been done at the factory before the shipment of the devices. No maintenance and user serviceable part is required. Tampering with and modifying the performance of the device will result in voided product warranty.

Contact Information

Naddod Networking Technology Co.,Ltd.

Address: 302, Building F1, Optics Valley Software Park, Guanshan 1st Road
East Lake High-tech Zone, Wuhan ,P.R.China

Tel:4000698860

Tel:027-59728168

Email:marketing@naddod.com

Website: www.naddod.com