## NADDOD

## 25Gb/s SFP28 SR 100m Optical Transceiver

## **Features**

- Data Rate Up to 25.78Gbps
- Built-in CDR
- Up to 70m transmission distance on OM3 MMF
- Up to 100m transmission distance on OM4 MMF
- 850nm VCSEL and PIN receiver
- 25GAUI C2M Electrical Interface
- 2-wire interface for integrated Digital Diagnostic monitoring
- SFP+ MSA package with duplex LC connector
- Hot pluggable
- Very low EMI and excellent ESD protection
- +3.3V power supply
- Power consumption less than 1W
- Operating case temperature: 0~+70°C

## **Applications**

- 25G BASE-SR
- CPRI

#### Compliance

- SFF-8431
- SFF-8432
- SFF-8472
- IEEE802.3by-2016
- RoHS compliance



#### Description

SFP-25G-SR transceiver is a high performance, cost effective modules, which is optimized for CPRI and 25G Ethernet, supporting MAX data-rate of 25.78Gbps, and transmission distance up to 70m on OM3 MMF.The transceiver consists of two sections: The transmitter section incorporates an 25G 850nm VCSEL, driver and CDR.. The receiver section consists of a PIN photodiode integrated with a transimpedance preamplifier (TIA),limiting amplifier and CDR. The transceiver is hot pluggable into the 20-pin connector.

The high-speed electrical interface is base on low voltage logic, with nominal 100 Ohms differential impedance and AC coupled in the transceiver.

A serial EEPROM in the transceiver allows the user to access transceiver monitoring and configuration data via the 2-wire SFP Management Interface.

### **Absolute Maximum Ratings**

Table1-Absolute Maximum Ratings									
Parameter	Symbol	Min.	Max.	Unit					
Storage Temperature	Ts	-40	+85	°C					
Supply Voltage	V <sub>CC3</sub>	0	3.6	V					
Relative Humidity(Non-condensing)	RH	5	85	%					
RX Input Average Power	Pmax	-	3.4	dBm					

## **Recommended Operating Conditions**

Table2-Recommended Operating Conditions										
Parameter	Symbol	Min.	Typical	Max.	Unit					
Operating Case Temperature	Tc	0		70	°C					
Power Supply Voltage	V <sub>CC3</sub>	3.13	3.3	3.47	V					
	Іссз			288	mA					
Power Dissipation	PD			1	W					
Data Rate			25.78125		Gbps					
Transmission Distance(OM4 MMF)				100	m					

## **Optical, Electrical Characteristic**

#### SFP-25G-SR(850nm Vcsel and PIN, 100m@OM4)

Tested under recommended operating conditions, unless otherwise noted

 Table3-Transmitter Operating Characteristic-Optical, Electrical

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Center Wavelength	λc	840	850	860	nm	
RMS Spectral Width				0.6	nm	
Laser Off Power	Poff	-	-	-30	dBm	
Average Optical Power	Pavg	-5	-	2.4	dBm	
Optical Modulation Amplitude	OMA	-6.4		3	dBm	

# NADDOD

Extinction Ratio	ER	2	-	-	dB	
Transmitter Dispersion Penalty	TDP	-	-	4.3	dB	
Optical Return Loss Tolerance		-	-	12	dB	
Optical Eye Mask		5			%	Note1
Differential input impedance			100		Ω	
Tx Input Diff Voltage	VI	180		700	mV	
Ty Foult	Vol	-0.3		0.4	V	At 0.7mA
Tx Fault	Іон	-50		37.5	uA	Note2
Ty Dischla	VIL	-0.3		0.8	V	
IX_DISABle	Vін	2		VCC+0.3	V	

Notes:

[1] BER =5x 10-5.

[2] Measured with a 4.7 k $\Omega$  load pulled up to Vcc.

Table4-Receiver Operating Characteristic-Optical, Electrical									
Parameter	Symbol	Min.	Тур.	Max.	Unit	Note			
Center Wavelength	λr	840	850	860	nm				
Receiver Sensitivity (Average Power)	Psens			-10.3	dBm	Note1			
Los Assert	LosA	-30		-	dBm				
Los Dessert	LosD			-13	dBm				
Los Hysteresis	LosH	0.5		-	dB				
Overload	Pin	2.4			dBm				
Receiver Reflectance				-12	dB				
Rx Output Diff Voltage	Vo	300		900	mV				
Py LOS	Vol	-0.3		0.4	V	At 0.7mA			
RX_LUS	Іон	-50		37.5	uA	Note2			
	VIL	-0.3		0.8	V				
	Vін	2		VCC+0.3	V				

Notes:

[1] ER=3dB; PRBS 2^31-1;BER =5x 10-5.

[2] Measured with a 4.7 k $\Omega$  load pulled up to Vcc.

## **Recommended Host Board Power Supply Circuit**



Figure1 Recommended Host Board Power Supply Circuit



## **Pin Description**



#### Figure2 Pin view

Table	5-Pin Assigni	ment		
Pin	Logic	Symbol	Name/Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTL-O	TX_Fault	Module Transmitter Fault	2
3	LVTTL-I	TX_Disable	Transmitter Disable; Turns off transmitter laser output	3
4	LVTTL-I/O	SDA	2-wire Serial Interface Data Line (Same as MOD-DEF2 as defined in the INF-8074i)	4
5	LVTTL-I/O	SCL	2-wire Serial Interface Clock (Same as MOD-DEF1 as defined in the INF-8074i)	4
6		MOD_ABS	Module Absent, connected to VeeT or VeeR in the module	5
7	LVTTL-I	RS0		6
8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication (In FC designated as RX_LOS, in SONET designated as LOS, and in Ethernet designated at Signal Detect)	2
9	LVTTL-I	RS1		
10		VeeR	Module Receiver Ground	1
11		VeeR	Module Receiver Ground	1
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Non-Inverted Data Output	
14		VeeR	Module Receiver Ground	1
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Transmitter 3.3 V Supply	
17		VeeT	Module Transmitter Ground	1
18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	1



Notes:

[1] The module signal ground pins, VeeR and VeeT, shall be isolated from the module case.

[2] This pin is an open collector/drain output pin and shall be pulled up with 4.7k-10kohms to Host\_Vcc on the host board.

Pull ups can be connected to multiple power supplies, however the host board design shall ensure that no module pin has voltage exceeding module VccT/R + 0.5 V.

- [3] This pin is an open collector/drain input pin and shall be pulled up with 4.7k-10kohms to VccT in the module.
- [4] See sff-8431 4.2 2-wire Electrical Specifications .
- [5] This pin shall be pulled up with 4.7k-10kohms to Host\_Vcc on the host board.

## **Monitoring Specification**



Figure3 Memory map



## Mechanical



	L	LI	1.2	L3	W	W1	W2	Н	HI	H2
MAX	56, 9	31.2	41.95	47.7	13.8	10.2	14.0	8.6	0.6	11.5
Typical	56.7	31.0	41.80	47.5	13.7	10.0	1953	8.5	0, 55	11.3
MIN	56.5	30, 8	41.65	47.3	13.5	9,8	1951	8.4	0.5	11.1



### 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