

## SFP-25GBASE-SR-CMX-AO

Cisco® SFP-25G-SR-S and Mellanox® MMA2P00-AS Compatible TAA Compliant 25GBase-SR SFP28 Transceiver (MMF, 850nm, 100m, LC, DOM)

### Features

- Hot-pluggable SFP28 form factor
- Supports 25Gbps data rate
- Compliant with IEEE 802.3by
- Maximum link length of 70m on OM3 and 100m on OM4 MMF
- 850nm VCSEL laser and PIN photo-detector
- Internal CDR on both Transmitter and Receiver channel
- Duplex LC connector
- Single 3.3V power supply
- Power dissipation <1W
- Digital diagnostics functions are available via the I2C interface
- Commercial Temperature range: 0°C to 70°C
- RoHS-6 compliant



### Applications

- 25GBase-SR Ethernet

### Product Description

This Cisco® SFP-25G-SR-S and Mellanox® MMA2P00-AS compatible SFP28 transceiver provides 25GBase-SR throughput up to 100m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Cisco® and Mellanox® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's SFP28 transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



### Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883E Method 3015.4
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	V <sub>CC</sub>	0	3.6	V
Storage Temperature	T <sub>S</sub>	-40	85	°C
Operating Case Temperature	T <sub>C</sub>	0	70	°C
Operating Humidity	RH	5	85	%
Receiver Power	R <sub>MAX</sub>	-10.3	3	dBm
Maximum Bitrate	B <sub>max</sub>		25.78	Gbps

### Electrical Characteristics (TOP=25°C, V<sub>CC</sub>=3.3Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	V <sub>CC</sub>	3.15	3.30	3.6	V	
Power Supply Current	I <sub>CC</sub>			303	mA	
Power Consumption	P <sub>DISS</sub>			1	W	
<b>Transmitter</b>						
Differential data input swing	V <sub>in,pp</sub>	40		1000	mV	
Input differential impedance	Z <sub>in</sub>	90	100	110	Ω	
<b>Receiver</b>						
Differential data output swing	V <sub>out, pp</sub>	500		1130	mV	
Output differential impedance	Z <sub>in</sub>	90	100	110	Ω	

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
Optical Power (average)	P <sub>AVE</sub>	-8.4		2.4	dBm	1
Optical Extinction Ratio	ER	2			dB	
Transmitter and Dispersion Penalty	TDP			4.3	dB	
Optical Wavelength	Tλ	840	850	860	nm	
Spectral Width (-20dB)	σ			0.6	nm	
Optical Power OMA	P <sub>OMA</sub>	-6.4		3	dBm	2
<b>Receiver</b>						
Receiver Sensitivity (average)	R <sub>AVE</sub>			-10.3	dBm	3
Receiver overload	P <sub>max</sub>	3			dBm	4
Receiver wavelength	Rλ	840	850	860	nm	

### Notes:

1. Coupled into a multi-mode fibre
2. Per IEEE 802.3by specification
3. Average power, back-to-back, @25.78Gbps, BER 1E-12, PRBS 2<sup>31</sup>-1.
4. Exceeding the Receiver overload can physically damage the module. Please use appropriate attenuation.

## Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	TX Fault	Transmitter Fault. LVTTTL-O	2
3	TX Disable	Transmitter Disable. Laser output disabled on high or open. LVTTT-I.	3
4	SDA	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTTL-I/O.	
5	SCL	2-Wire Serial Interface Data Line (Same as MOD-DEF2 in INF-8074i). LVTTTL-I.	
6	MOD_ABS	Module Absent, Connect to VeeT or VeeR in Module.	4
7	RS0	Rate Select 0, optionally controls SFP28 module receiver LVTTTL-I.	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation. LVTTTL-O.	2
9	RS1	Rate Select 1, optionally controls SFP28 module transmitter. LVTTTL-I.	5
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O.	
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I.	
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-O.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

### Notes:

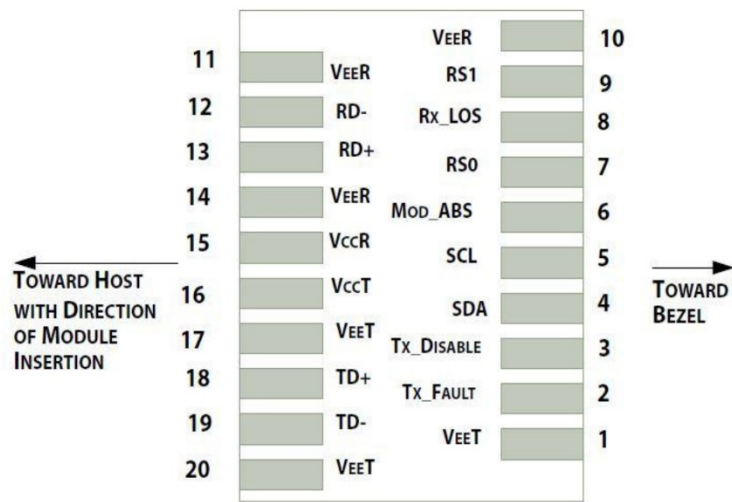
1. The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
2. This contact is an open collector/drain output and should be pulled up to the Vcc\_Host with resistor in the range 4.7KΩ to 10KΩ. Pull ups can be connected to one or several power supplies, however the host board design shall ensure that no module contract has voltage exceeding module VccT/R +0.5.V.
3. Tx\_Disable is an input contact with a 4.7KΩ to 10KΩ pull-up resistor to VccT inside module.
4. Mod\_ABS is connected to VeeT or VeeR in the SFP28 module. The host may pull the contract up to Vcc\_Host with a resistor in the range from 4.7KΩ to 10KΩ. Mod\_ABS is asserted "High" when the SFP28 module is physically absent from a host slot.
5. RS0 and RS1 are module inputs and are pulled low to VeeT with >30K resistors in the module. RS0 optionally selects the optical receive signaling rate coverage. RS1 optionally selects the optical transmit signaling rate coverage.

These contacts can also be used for RS0 and RS1 if implementing SFF8079. See SFF8079 for details. RS1 is commonly connected to VeeT or VeeR in the classic SFP modules. The host needs to ensure that it will

not be damaged if this contact is connected to VeeT or VeeR in the module.

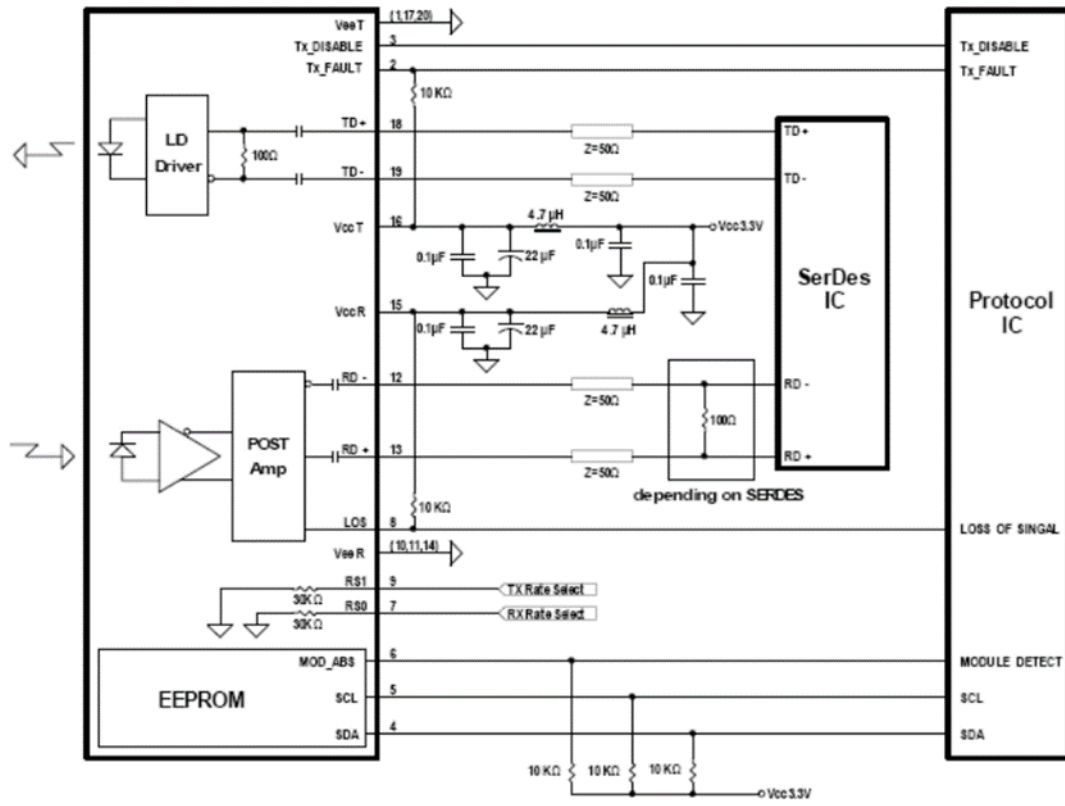
The SFP28 module provides two inputs RS0 and RS1 that can optionally be used for rate selection. RS0 controls the receive path signaling rate compatibility, and RS1 controls the transmit path signaling rate compatibility. The host and module may choose to use either, both, or none of these functions. Because contact 9 in the classic SFP INF-8074i is connected to VeeR, and SFP28 host utilizing RS1 must provide short circuit protection.

This rate select functionality can also be controlled by software as defined by SFF-8472. Optionally the rate select methods of Part 2 SFF-8079 may be used instead of the method described here by setting the management declaration bit (A0h byte 93 bit 2) to 1, see SFF-8472.

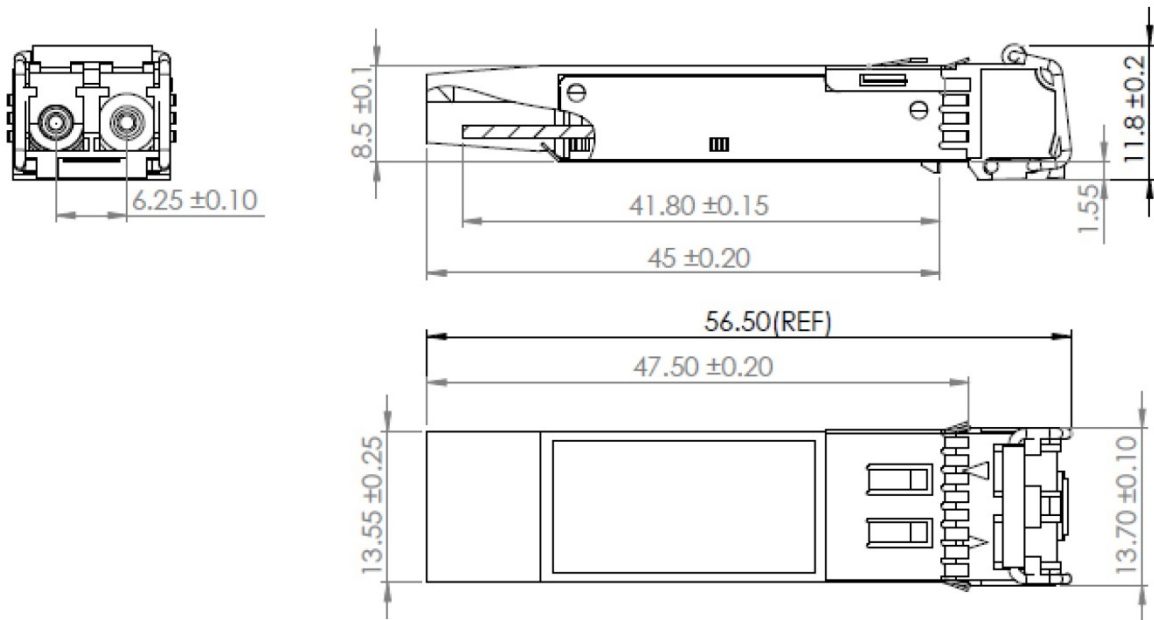


Pin-out of connector Block on Host board

## Recommended Circuit Schematic

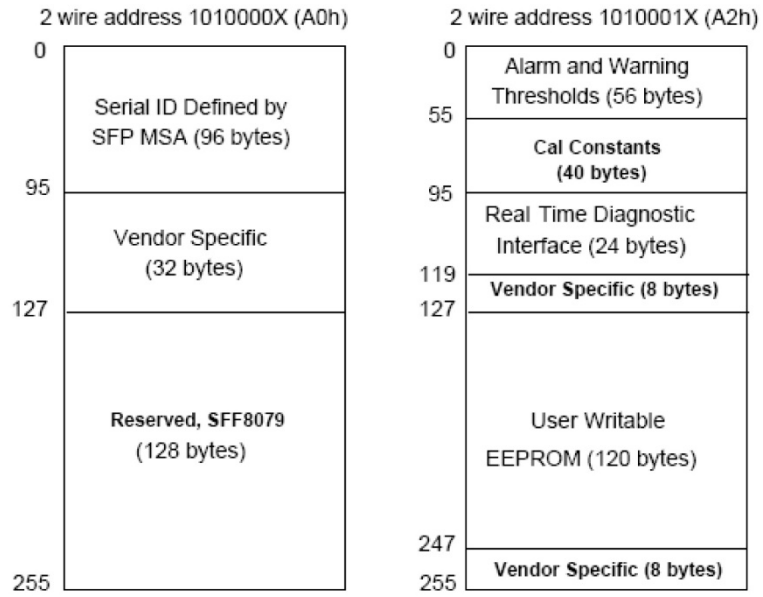


## Mechanical Specifications



## EEPROM Information

EEPROM memory map specific data field description is as below:



## **About AddOn Networks**

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.

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