

## LS-MM8525-S3C

### 25Gb/s SFP28 850nm Duplex 300m Transceiver

#### PRODUCT FEATURES

- Supports 25.78125Gb/s serial optical interface
- VCSEL laser transmitter and PIN photo-detector
- Hot-pluggable SFP28 form factor
- SFP28 MSA package with Duplex LC connector
- Power consumption less than 1.0 W
- Metal enclosure, for lower EMI
- Single +3.3V powersupply
- Internal CDR on both transmitter and receiver channel
- Electrical interface compliant to SFF-8431
- Built-in digital diagnostic functions
- Case operating temperature  
Commercial: 0°C to +70°C

#### Applications

- 25GBASE-SR 25G Ethernet
- 25.78125 Gb/s single lane 100GE SR4
- Other optical links



## Product Description

The SFP28 transceivers are high performance, cost effective modules supporting data rate of 25.78125Gbps and Maximum link length of 70m on OM3 MMF or 100m on OM4 MMF.

The transceiver consists of three sections: a 850nm Oxide VCSEL laser transmitter, a PIN photodiode integrated with a trans-impedance preamplifier (TIA) and MCU control unit. All modules satisfy class I laser safety requirements.

The transceivers are compatible with SFP Multi-Source Agreement and SFF-8472 digital diagnostics functions.

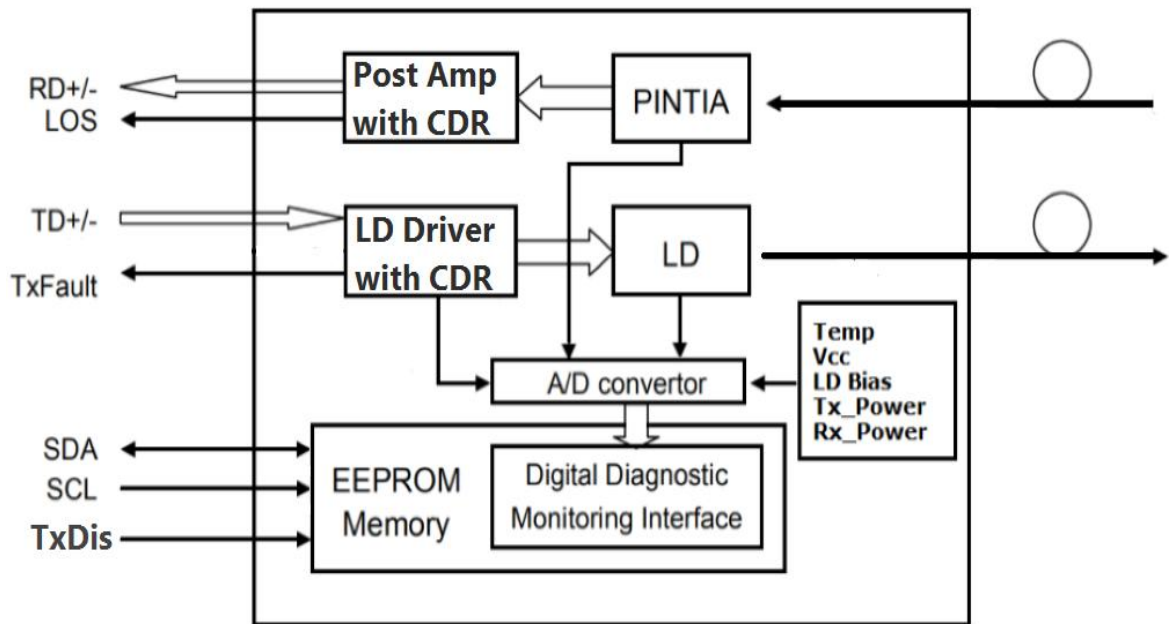


Figure 1. Transceiver functional Block Diagram

## Product Selection

Part Number	Operating Case temperature	DDMI
LS-MM8525-S3C	Commercial(0~70°C)	Yes

## Pin Descriptions

Pin	Symbol	Name/Description	NOTE
1	VEET	Module transmitter ground	1
2	Fault	Module transmitter Fault	2
3	Disable	Transmitter Disable; Turns off transmitter laser output	3
4	SDL	2 wire serial interface data input/output (SDA)	4
5	SCL	2 wire serial interface clock input (SCL)	4
6	MOD-ABS	Module Absent, connect to VeeR or VeeT in the module	2
7	RS0	Rate select0: module inputs and are pulled low to VeeT with >30 kΩ resistors in the module.	
8	LOS	Receiver Loss of Signal Indication	
9	RS1	Rate select1: module inputs and are pulled low to VeeT with >30 kΩ resistors in the module.	
10	VeeR	Module receiver ground	1
11	VeeR	Module receiver ground	1
12	RD-	Receiver inverted data out put	
13	RD+	Receiver non-inverted data out put	
14	VeeR	Module receiver ground	1
15	VccR	Module receiver 3.3V supply	
16	VccT	Module transmitter 3.3V supply	
17	VeeT	Module transmitter ground	1
18	TD+	Transmitter non-inverted data out put	
19	TD-	Transmitter inverted data out put	
20	VeeT	Module transmitter ground	1

### Notes:

1. The module ground pins 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.
3. This pin shall be pulled up with 4.7K-10Kohms to VccT in the module.

4. 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.

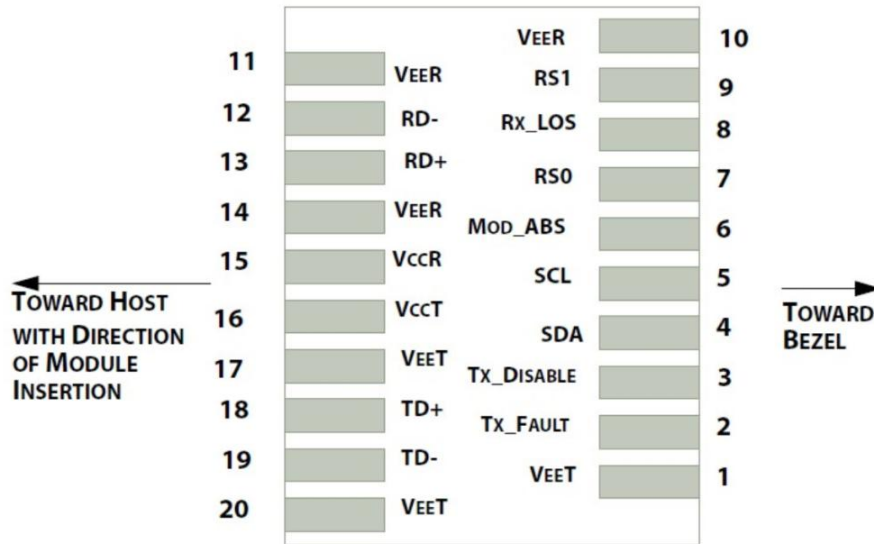


Figure2. Pin out of Connector Block on Host Board

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-50		+95	°C	
Relative Humidity	RH	0		95	%	
Power Supply Voltage	VCC	-0.3		+4	V	

## Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tc	0		70	°C	Commercial
Power Supply Voltage	Vcc	3.14	3.3	3.47	V	
Power Supply Current	Icc			300	mA	
Data Rate	BR		25.78125		Gbps	

Transmission Distance	TD	-	-	70	m	OM3 *1
Transmission Distance	TD	-	-	300	m	OM4 *1

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
<b>Transmitter</b>						
Tx Disable Input-High	VDISH	2		V <sub>CC</sub> +0.3	V	
Tx Disable Input-Low	VDISL	0		0.8	V	
Tx Fault Input-High	VTxFH	2		V <sub>CC</sub> +0.3	V	
Tx Fault Input-Low	VTxFL	0		0.8	V	
<b>Receiver</b>						
LOSS -High	V <sub>LOSH</sub>	2		V <sub>CC</sub> +0.3	V	
LOSS -Low	V <sub>LOSL</sub>	0		0.8	V	

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
<b>Transmitter</b>						
Average Output Power	POUT	-5		+2.4	dBm	
Extinction Ratio	ER	2.0			dB	
Center Wavelength	$\lambda_c$	840	850	860	nm	VCSEL Laser
Transmitter OFF Output Power	Poff			-45	dBm	
<b>Receiver</b>						
Receiver Sensitivity	SENS			-10.3	dBm	1
Receiver Overload		2			dBm	
Input Optical Wavelength	$\lambda_c$	840		860	nm	PIN-TIA
LOS De-assert	LOSD			-13	dBm	
LOS Assert	LOSA	-25			dBm	2

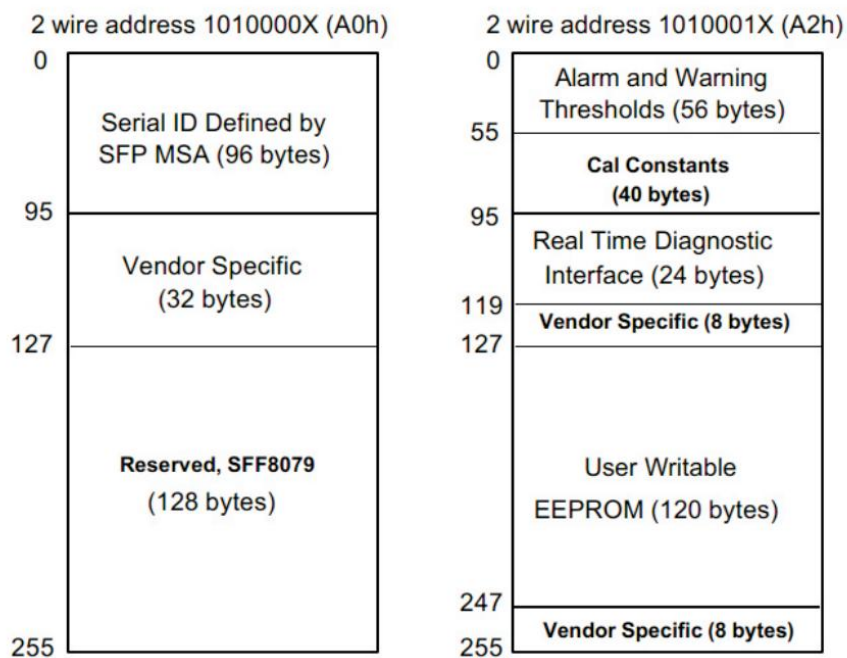
LOS Hysteresis		0.5	1.0		dB	
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**Note:**

1. Measured with worst ER=2.0dB, RPBS 2^31-1 test pattern @25.78125Gbps BER=<5E-5.

## EEPROM Information

EEPROM memory map specific data field description is as below:

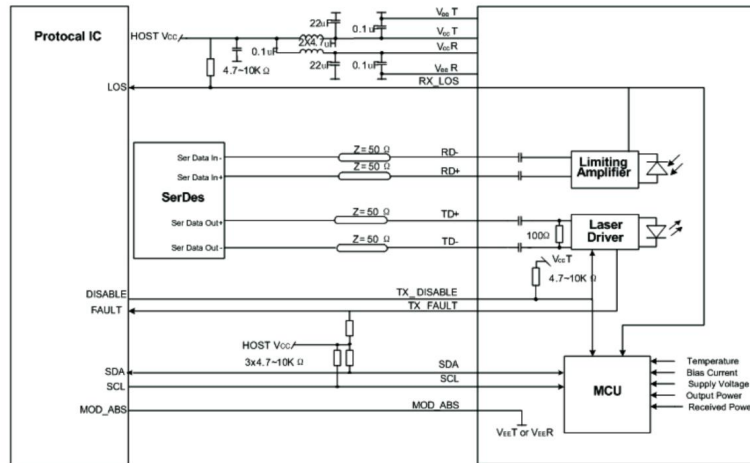


## Digital Diagnostic Monitoring Interface

Five transceiver parameter values are monitored. The following table defines the monitored parameter's accuracy.

Parameter	Range	Accuracy	Calibration
Temperature	0 to +70°C (C)	±3°C	Internal
Voltage	2.97 to 3.63V	±3%	Internal
Bias Current	0 to 100mA	±10%	Internal
TX Power	-6 to 3dBm	±3dBm	Internal
RX Power	-11 to 3dBm	±3dBm	Internal

## Recommend Circuit Schematic



## Mechanical Specifications

