

1.25G SFP LR Optical Transceiver

Product Features

- Supports data rates of 1.25Gb/s
- Compliant with SFP MSA
- Hot-pluggable SFP footprint
- 1310nm FP laser transmitter
- Duplex LC connector
- Built-in digital diagnostic functions
- Up to 10km on 9/125um SMF
- Single power supply 3.3V
- RoHS Compliant
- Class 1 laser product complies with EN 60825-1
- Operating temperature range: 0°C to 70°C



Application

- 1.25Gb/s Gigabit Ethernet
- 1.063Gb/s Fiber Channel
- Other Optical Link

Ordering Information

Table 1. Ordering Information

Part Number	Transmitter	Output Power	Receiver	Sensitivity	Reach	Temp	DDM	RoHS
AOM01S-K10	1310nm FP	-11~ -3dBm	PIN	< -24dBm	10km	0~ 70 oC	Available	Compliant

Absolute Maximum Ratings

Table 2. Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Storage Temperature	Ts	-40	-	85	° C	1
Relative Humidity	Rh	5	-	95	%	-
Supply Voltage	Vcc	-0.5	-	4.0	V	-

Notes:

1. Ambient temperature

Recommended Operating Conditions

Table 3. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Data Rate	DR	-	1.25	-	Gb/s	1
	DR	-	1.062	-	Gb/s	2
Bit Error Rate	BER	-	-	10 ⁻¹²		-
Operating Temperature	T _c	0	-	70	°C	3
Relative Humidity	RH	5	-	95	%	-
Supply Current	ICC	-	175	300	mA	4
Input Voltage	VCC	3.14	3.3	3.46	V	-

Notes:

1. IEEE 802.3
2. FC-PI-2 Rev 5
3. Case temperature
4. For electrical power interface

Transmitter Optical Characteristics

Table 4. Transmitter Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Output Optical Power	PTX	-11	-	- 3	dBm	1
Optical Center Wavelength	λ_c	1270	-	1355	nm	-
Optical Modulation Amplitude	OMA	174	-	-	μ W	2
Extinction Ratio	ER	9	-	-	dB	-
Tx Disabled Power	P _{TX_DIS}	-	-	-45	dBm	-
Spectral Width (RMS)	$\Delta\lambda$	-	-	3	nm	-
Optical Rise/Fall Time (20%-80%)	t _r /t _f	-	150	260	ps	-
Transmitter dispersion penalty	TDP	-	-	3.3	dB	-
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	-
Generated Jitter (peak to peak)	GJ _{pp}	-	-	0.15	UI	-
Optical Return Loss Tolerance	ORL	-	-	12	dB	-
Output Eye	Compliant with IEEE802.3z standard					

Notes:

1. Class 1 Product
2. Equivalent extinction ratio specification for FC

Receiver Optical Characteristics

Table 5. Receiver Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Receiver Overload	P_{OL}	-3	-	-	dBm	-
Optical Center Wavelength	λ_c	1260	-	1360	nm	-
Receiver Sensitivity	-	-	-	-24	dBm	-
OMA Rx Sensitivity	S_{OMA}	-	-	-22	dBm	-
Optical Return Loss	T_{ORL}	12	-		dB	-
Receiver Reflectance	R_{REFL}	-	-	-12	dB	-
Generated Jitter(peak to peak)	RJp-p	-	-	0.15	UI	-
LOS Assert	LOS-A	-35	-		dBm	-
LOS De-Assert	LOS-D	-	-	-27	dBm	-
LOS Hysteresis	LOS-H	0.5	-		dB	-

Transceiver Electrical Characteristics

Table 6. Transceiver Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes	
Transmitter							
Input differential impedance	RIN	-	100	-	Ω	-	
Single ended data input swing	$V_{IN,PP}$	250	-	1200	mV	-	
Transmit disable voltage	V_D	$V_{CC}-1.3$	-	VCC	V	-	
Transmit enable voltage	V_{EN}	V_{EE}	-	$V_{EE}+0.8$	V	-	
Transmit disable assert time	-	-	-	10	μs	-	
Receiver							
Single ended data output swing	$V_{OUT,PP}$	300		800	mV	-	
Data output rise/fall time (20%-80%)	t_r/t_f	-	-	300	PS	-	
RX_LOS	Loss of signal (LOS)	V_{OH}	$V_{CC}-0.5$		$V_{CC,HOST}$	V	-
	Normal Operation	V_{OL}	V_{EE}		$V_{EE}+0.5$	V	-

Pin Description

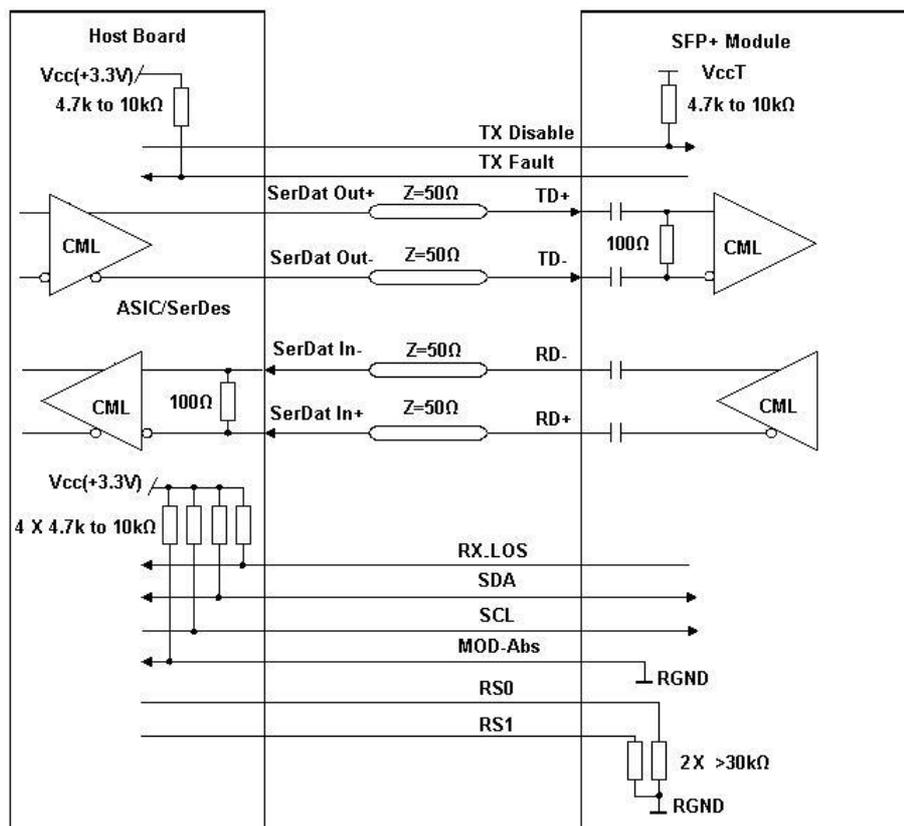
Table 7. Pin Description

PIN	Symbol	Description	Notes
1	VEET	Transmitter ground (common with receiver ground)	1
2	TX_FAULT	Transmitter Fault. Not supported	-
3	TX_DISABLE	Transmitter Disable. Laser output disabled on high or open	2
4	MOD_DEF(2)	Module Definition 2. Data line for serial ID	3
5	MOD_DEF(1)	Module Definition 1. Clock line for serial ID	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module	3
7	Rate Select	No connection required	-
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	4
9	VEER	Receiver ground (common with transmitter ground)	1
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	-
13	RD+	Receiver Non-inverted DATA out. AC coupled	-
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	-
19	TD-	Transmitter Inverted DATA in. AC coupled	-
20	VEET	Transmitter ground (common with receiver ground)	1

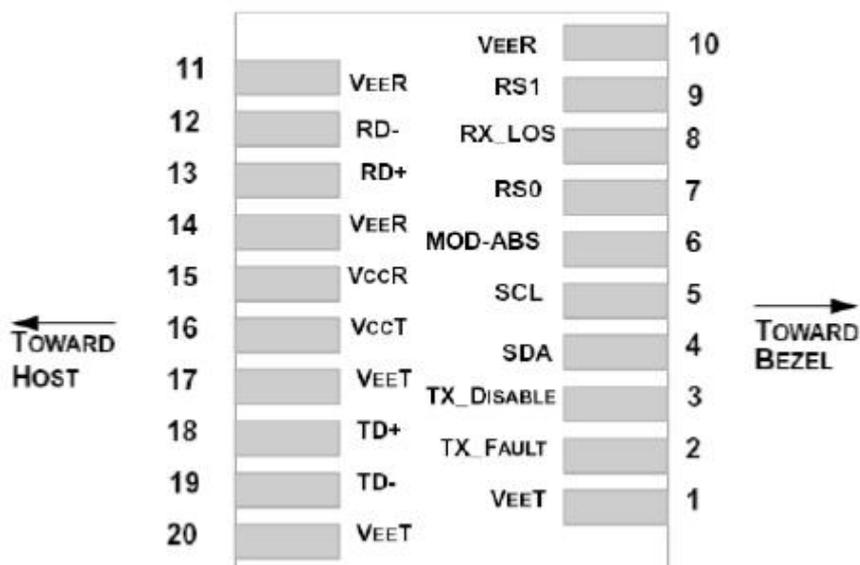
Notes:

1. Circuit ground is isolated from chassis ground
2. Disabled: TDIS > 2V or open, Enabled: TDIS < 0.8V
3. Should Be pulled up with 4.7k – 10k ohm on host board to a voltage between 2V and 3.6V
4. LOS is open collector output

Typical Interface Circuit

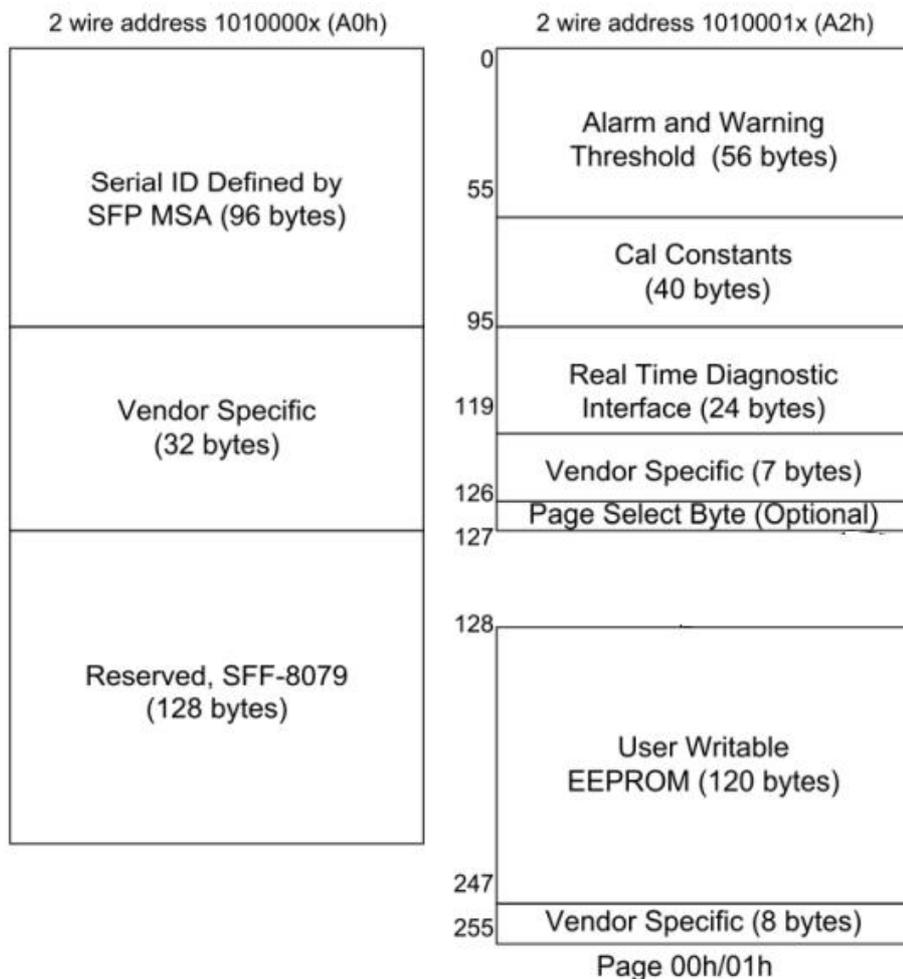


Electrical Pad Layout



EEPROM Information

The digital diagnostic memory map specific data field define as following. For detail EEPROM information, please refer to the related document of SFF 8472 Rev 12.0.



ESD

The SFP module and host SFI contacts (High Speed Contacts) shall withstand 1kV electrostatic discharge based on Human Body Model and all host contacts with exception of the SFI contacts (High Speed Contacts) shall withstand 2kV electrostatic discharge based on Human Body Model. The SFP+ module shall meet ESD requirements given in EN61000-4-2, criterion B test specification such that units are subjected to 15kV air discharges during operation and 8kV direct contact discharges to the case per section 2.9 in SFF-8431 REV4.1. However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

Laser Safety

This is a Class 1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

Ordering Information

Ordering P/Ns	Description
AOMO1S-K10	1.25G SFP LR, 10km, 1.25Gbps, Tx 1310nm, Rx 1310nm, SFP form-factor, Duplex LC/UPC receptacle connector, -40~85°C industrial temperature

Revision History

Version	Date	Description
V001	2024-02-23	New release