

## 10G SFP+ LR Optical Transceiver

### Product Features

- Up to 10km transmission distance over SMF
- 1310nm transmitter with DFB laser
- 1310nm receiver with PIN-TIA
- Single +3.3V power supply
- 0~70°C for commercial application
- 2-wire interface for integrated digital diagnostic Monitoring
- SFP+ package with duplex LC/UPC receptacle optical interface and SFI electrical interface
- RoHS compliant



### Application

- 10GBASE LR/LW, 10G FC and 10G CPRI

### Absolute Maximum Ratings

Parameter	Unit	Min.	Typical	Max.	Notes
Storage Temperature	°C	-40		85	
Operating Relative Humidity	%			85	
Power Supply not Damaged Voltage	V	-0.5		3.63	

### Recommended Operating Conditions

Parameter	Unit	Min.	Typical	Max.	Notes
Operating Case Temperature for Commercial	°C	-40		85	
Operating Case Temperature for Extended	°C	-20		85	
Operating Case Temperature for Industrial	°C	-40		85	
Power Supply Voltage	V	3.135	3.3	3.465	
Power Dissipation	W			1	
Bit Rate of D13399-SLC(EH)A	Gbps	1	10.3125	11.7	
Bit Rate of D13399-SLC(EH)B	Gbps	9.95	9.95	11.7	

# Characteristics

All performance is defined over the recommended operating environment unless otherwise specified.

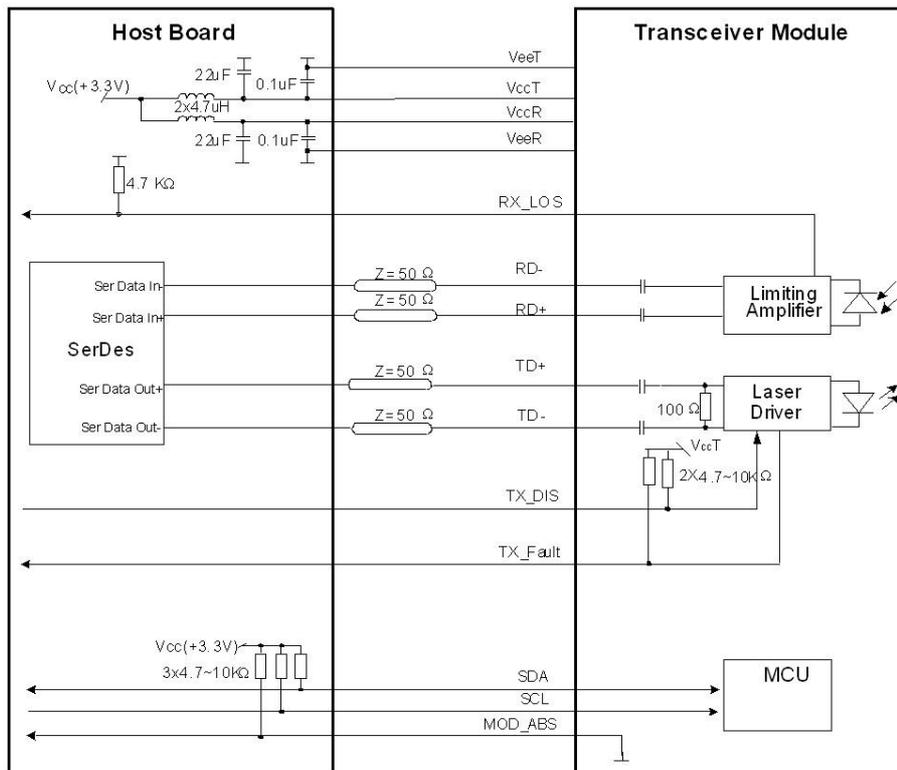
Parameter	Unit	Min.	Typical	Max.	Notes
<b>Transmitter</b>					
TX Central Wavelength	nm	1260	1310	1355	
Spectral Width (-20dB)	nm			1	
Side Mode Suppression Ratio (SMSR)	dB	30			
Mean Launched Power	dBm	-8.2		0.5	
Mean Launched Power (OMA)	dBm	-5.2			
Mean Launched Power (TX Off)	dBm			-45	
Extinction Ratio	dB	3.5			
Optical Return Loss Tolerance	dB			12	
Transmitter and dispersion Penalty	dB			3.2	
Transmitter Mask (PRBS2 <sup>31</sup> -1@10.3125G)	Compliant With IEEE Std 802.3ae				
<b>Receiver</b>					
Receive Wavelength	nm	1260	1310	1565	
Sensitivity (PRBS2 <sup>31</sup> -1@10.3125G, ER=6, BER<10 <sup>-12</sup> )	dBm			-14.4	
Sensitivity (PRBS2 <sup>31</sup> -1@10.3125G, OMA, BER<10 <sup>-12</sup> )	dBm			-12.6	
Saturation (PRBS2 <sup>31</sup> -1@10.3125G, ER=6, BER<10 <sup>-12</sup> )	dBm	0.5			
Loss of signal De-assert Level	dBm			-15	
Loss of signal assert Level	dBm	-30			
LOS Hysteresis	dB	0.5			
<b>Electrical Interface Characteristics</b>					
Data Input Swing Differential/TX	mV	200	-	2000	
Data Output Swing Differential/RX	mV	400		1600	
Data Differential Impedance	Ω	90	100	110	
LVTTL Output High	V	2.4		V <sub>cc</sub>	
LVTTL Output Low	V	0		0.4	
LVTTL Input High	V	2.0		V <sub>cc</sub> +0.3	
LVTTL Input Low	V	0		0.8	
<b>Timing Characteristics</b>					
LOS Assert Time (T <sub>LOSA</sub> )	us			100	
LOS De-assert Time (T <sub>LOSD</sub> )	us			100	

## PIN Function Definitions

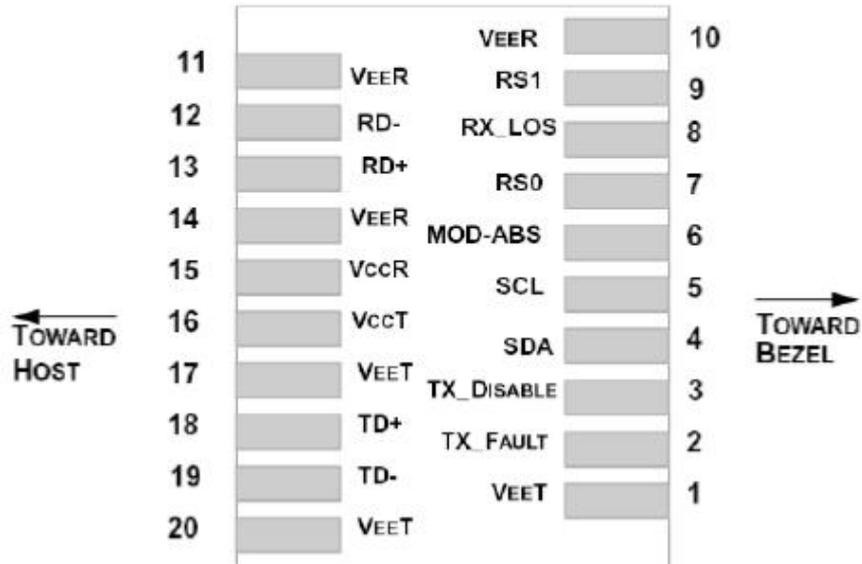
Pin No.	Symbol	Level / Logic	Description	Notes
1	VeeT		Module Transmitter Ground	
2	Tx_Fault	LVTTL-O	Module Transmitter Fault Indication	
3	Tx_DIS	LVTTL-I	Transmitter Disable; Active High Disable Transmitter Output	
4	SDA	LVTTL-I	2-Wire Serial Interface Data Line	

5	SCL	LVTTL-I/O	2-Wire Serial Interface Clock	
6	MOD_ABS	LVTTL-O	Module Absent, connected to ground in the module	
7	RS0		Not Connected	
8	RX_LOS	LVTTL-O	Loss of Receiver Signal Indication	
9	RS1		Not Connected	
10	VeeR		Module Receiver Ground	
11	VeeR		Module Receiver Ground	
12	RD-	CML-O	Receiver Inverted Data Output	
13	RD+	CML-O	Receiver Non-Inverted Data Output	
14	VeeR		Module Receiver Ground	
15	VccR		Module Receiver 3.3V Supply	
16	VccT		Module Transmitter 3.3V Supply	
17	VeeT		Module Transmitter Ground	
18	TD+	CML-I	Transmitter Non-Inverted Data Input	
19	TD-	CML-I	Transmitter Inverted Data Input	
20	VeeT		Module Transmitter Ground	

## Typical Interface Circuit

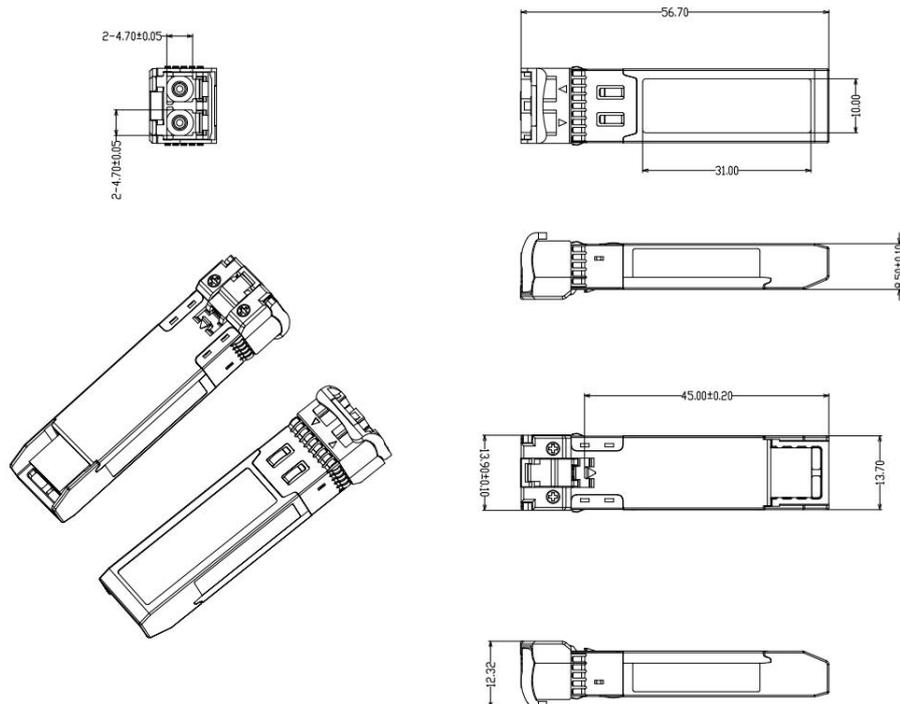


# Electrical Pad Layout



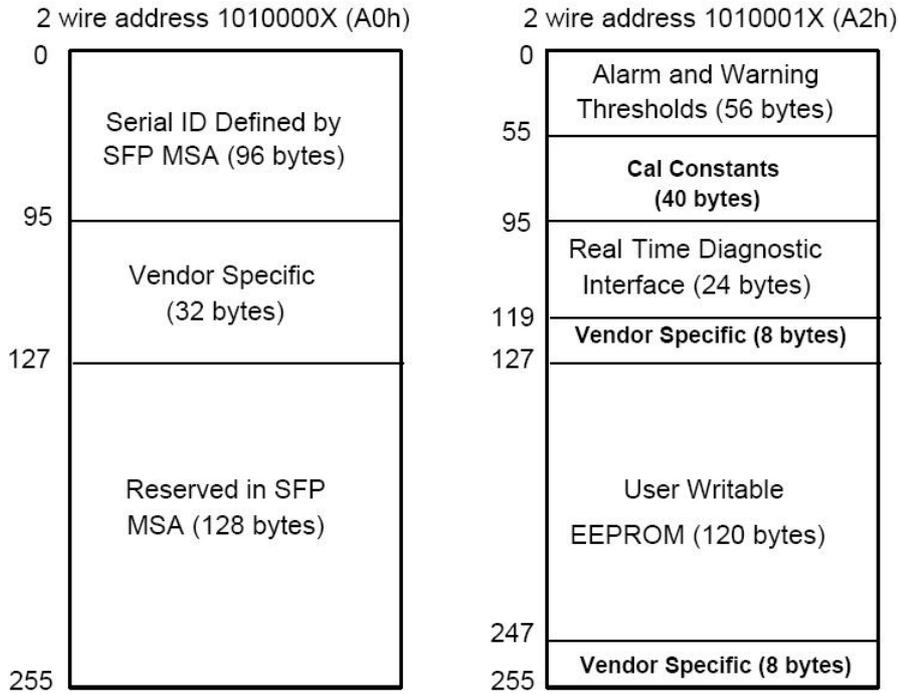
# Mechanical Specifications

For detail mechanical information, please refer to the related document of SFF-8432.



# 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
AOM10S-K10	10G SFP+, 10km, 1G~11.7Gbps, Tx 1310nm, Rx 1310nm, SFP+ form-factor, Duplex LC/UPC receptacle connector, 0~70°C Commercial temperature, DFB + PIN + none-CDR

## Revision History

Version	Date	Description
V001	2024-02-13	New release