Specification

Small Form Factor Pluggable

Single Receiver (MSA)

LC Receptacle – SFP+

12 Gigabit SDI 1R



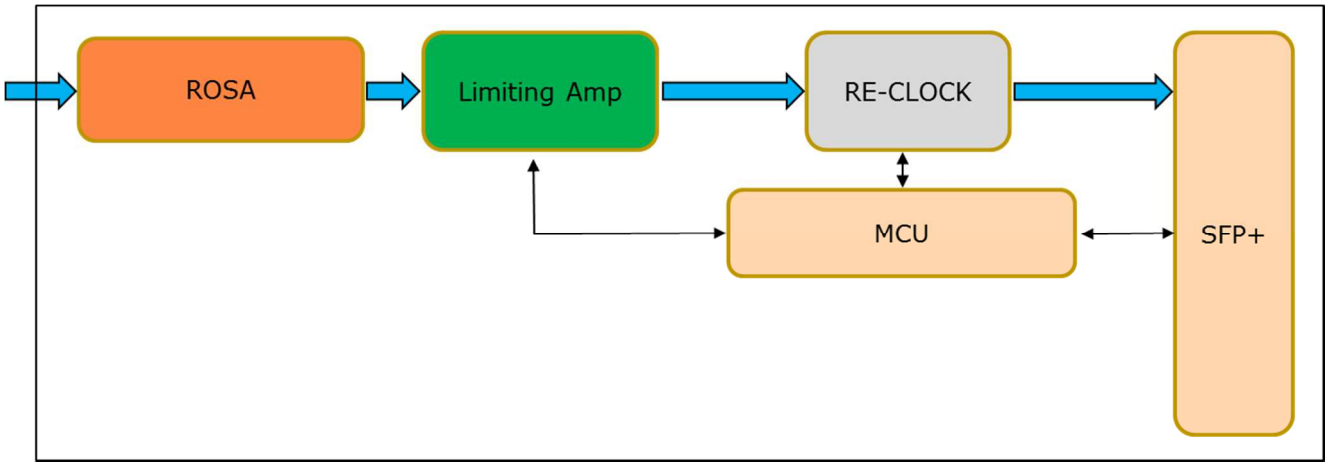
T I M – A 1 E O 1 – F 1 3

Model Name	Voltage	Category	Device type	Interface	Temperature	Distace	Latch Color
TIM-A1EO1-F13	3.3V	With DDMI	InGaAs PIN	AC -AC / TTL	0°C ~ 70°C	10km	Blue

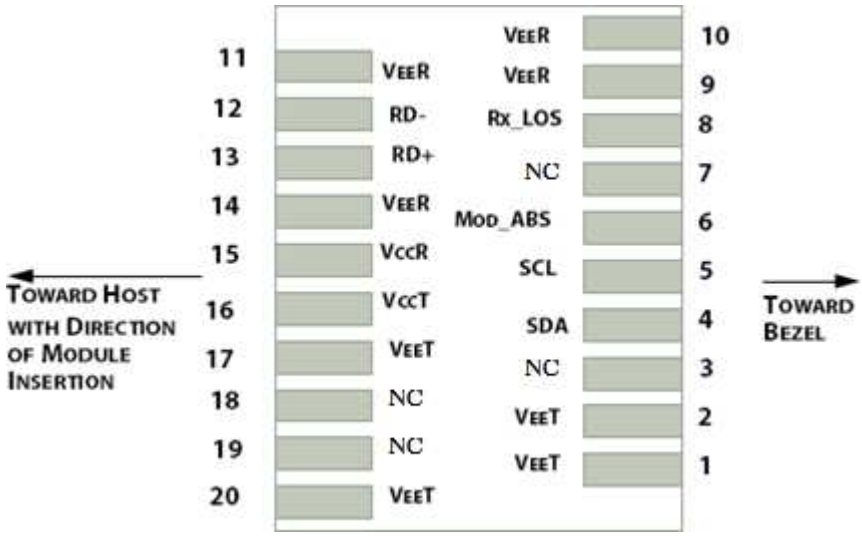
Features

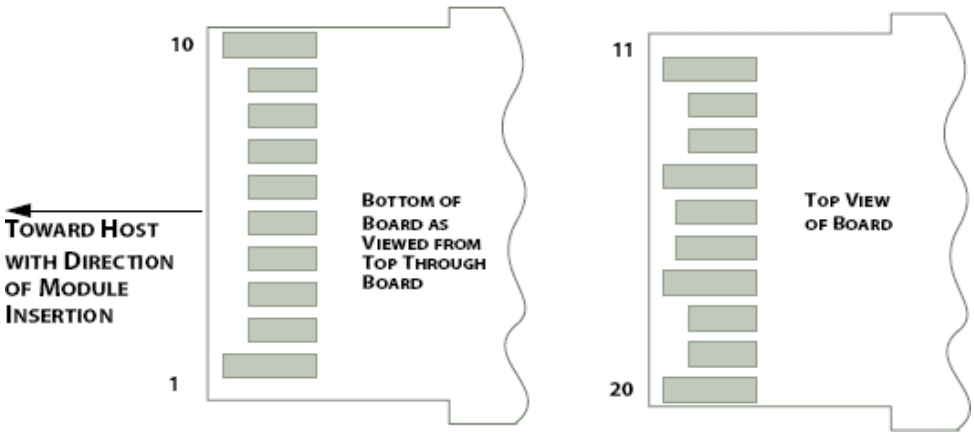
- Compliant with SFP+ MSA
- Data Rate up to 12 Gbps
- Re-Clock built-in
- SMPTE ST-2082, ST2081, 424M, 292M, 259M compliant
- Support video pathological patterns for 12G-SDI, 6G-SDI, 3G-SDI and HD-SDI, SD-SDI
- LC receptacle
- Hot Pluggable
- All-metal housing for superior EMI shielding performance
- SFF-8472 built in digital diagnostic Functions
- Operating case temperature range: Commercial Temperature 0°C~ 70°C

Single Receiver Block Diagram



Pin Definition and Descriptions





PIN	Logic	Symbol	Name / Description	Note
1		VeeT	Module Transmitter Ground	1
2		VeeT	Module Transmitter Ground	1
3		NC		
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	
6		Mod_ABS	Module Absent, connected to VeeT or VeeR in the module	
7		NC		
8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication	
9		VeeR	Module Receiver Ground	1
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 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		NC		
19		NC		
20		VeeT	Module Transmitter Ground	1

Note:

1. **Module ground pins are isolated from the module case and chassis ground within the module.**

Absolute Maximum Ratings

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	V_{CC}	0	3.6	V
Storage Temperature	Ts	-40	85	℃
Relative Humidity	RH	5	95	%
Optical Receiver Power (Damage)	Pmax		1.5	dBm

Recommended Operating Environment

Parameters	Symbol	Min.	Typical	Max	Unit
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V
Operating Case Temperature	T_{op}	0		70	℃
Power Supply Current	Icc			600	mA
Power Consumption				2	W
Data rate			11.88		Gbps

Optical Characteristics

Receiver						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max**	**Unit**	**Notes**
Sensitivity@11.88Gbps				-11.0	dBm	1
Sensitivity@6Gbps				-12.0	dBm	1
Sensitivity@2.97Gbps				-12.0	dBm	1
Sensitivity@1.485Gbps				-12.0	dBm	1

Notes:

1 . Measured with pathological pattern; BER < 10^{-12}

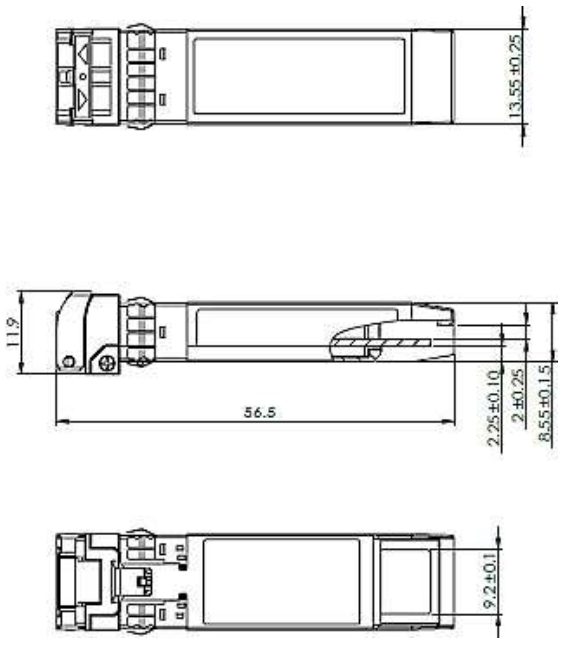
Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
High-Speed Signal Interface Specification						
Output Data Rate			11.88		Gbps	
Differential Output Impedance	Rout		100		Ω	
Low-Speed Signal Interface Specification						
Output High Voltage		2.6			V	
Output Low Voltage				0.5	V	

Control And Status I/O Timing Characteristics

Parameter	Symbol	Min	Max	Unit	Condition
LOS Assert Time	t_loss_on		100	µs	Time from LOS state to RX LOS assert
LOS Deassert Time	t_loss_off		100	µs	Time from non-LOS state to RX LOS deassert
Serial ID Clock Rate	f_serial_clock		100	kHz	

Mechanical (mm) : ± 0.5mm



ESD

Normal ESD precautions are 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.

Contact Information

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Revision History

Date	Version	Description
07/17/2018	1.0	Initial release.
01/22/2019	2.0	1. Cover page update. 2. Electrical Characteristics update.
02/25/2019	2.1	1. Footer style change. 2. Contact information has been added on the last page.