Specification

Small Form Factor Pluggable

Dual Transmitter (Non-MSA)

LC Receptacle – SFP+

12 Gigabit SDI 2T



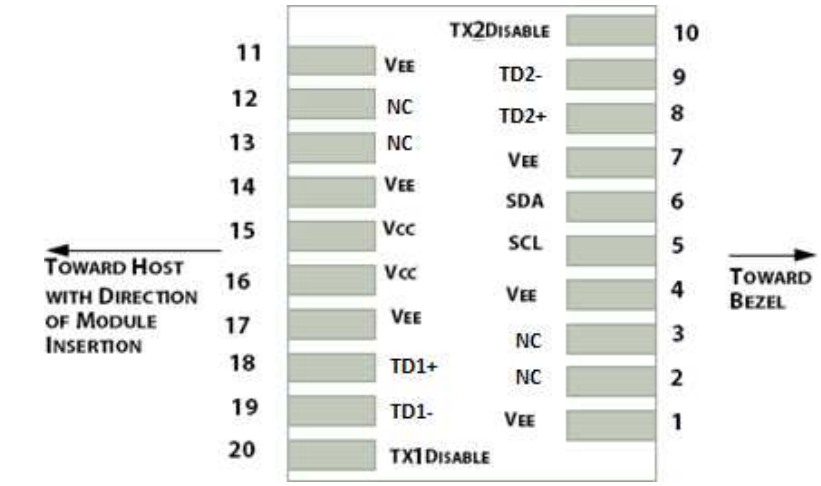
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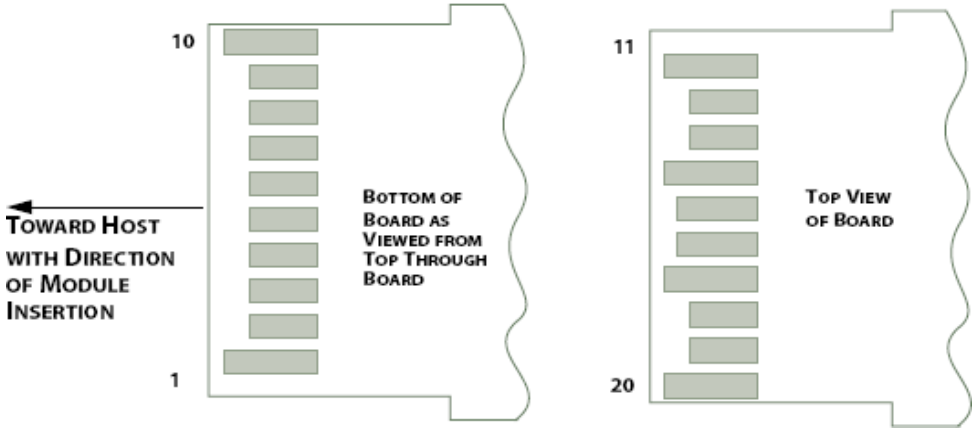
Model Name	Voltage	Category	Device type	Interface	Temperature	Distace	Latch Color
TIN-A1E61-F14	3.3V	Non MSA	1310 nm DFB	AC -AC / TTL	0°C ~ 70°C	10km	Blue

Features

- 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
- Operating case temperature range: Commercial Temperature 0°C~ 70°C

Pin Definition and Descriptions





PIN	Logic	Symbol	Name / Description	Note
1		Vee	Module Ground	1
2		NC		
3		NC		
4		Vee	Module Ground	1
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	
6	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	
7		Vee	Module Ground	1
8	CML-I	TD2+	Transmitter Non-Inverted Data Input	
9	CML-I	TD2-	Transmitter Inverted Data Input	
10	LVTTL-I	TX2_Dis	Transmitter Disable; Turns off transmitter laser output	2
11		Vee	Module Ground	1
12		NC		
13		NC		
14		Vee	Module Ground	1
15		Vcc	Module 3.3 V Supply	
16		Vcc	Module 3.3 V Supply	
17		Vee	Module Ground	1
18	CML-I	TD1+	Transmitter Non-Inverted Data Input	
19	CML-I	TD1-	Transmitter Inverted Data Input	
20	LVTTL-I	TX1_Dis	Transmitter Disable; Turns off transmitter laser output	2

Note:

1. **Module ground pins are isolated from the module case and chassis ground within the module.**
2. **Shall be pulled up with 4.7k to 10k ohm to Vcc in 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	Top	0		70	℃
Power Supply Current	Icc			750	mA
Power Consumption				2.5	W
Data rate			11.88		Gbps

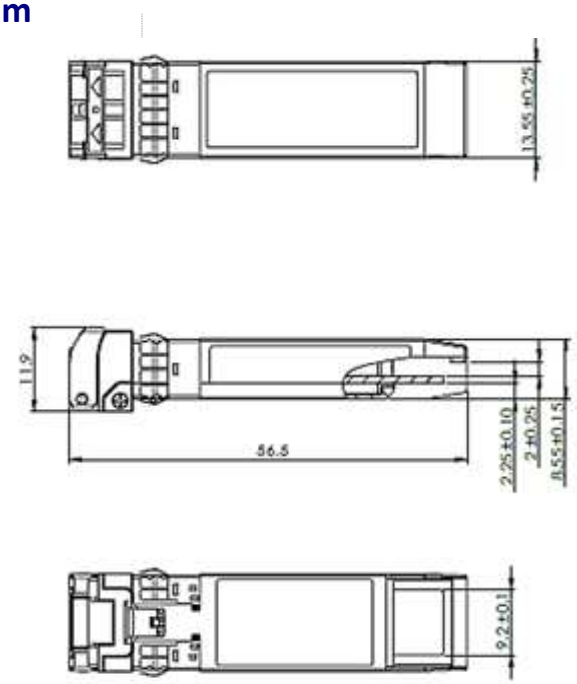
Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max	Unit	Notes
Transmitter						
Average Launch Power	Po	-5.0		1.0	dBm	
Center wavelength	λ	1300	1310	1320	nm	
Spectrum Width	σλ			1.0	nm	@-20dB
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction ratio	ER	3.5			dB	
Relative Intensity Noise	RIN		-130		dB/Hz	
Average launch power of OFF transmitted	P_{off}			-30	dBm	

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
High-Speed Signal Interface Specification						
Input Data Rate			11.88		Gbps	
Differential Input Impedance	Rin		100		Ω	
Low-Speed Signal Interface Specification						
Input High Voltage		2.3			V	
Input Low Voltage				0.8	V	

Mechanical (mm) : ± 0.5mm



LASER Safety

This is a Class 1 Laser Product according to IEC/EN60825-1:2014 (Third Edition). This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

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.
08/02/2019	2.2	Picture correction. Typo correction.