

Specification
Small Form Factor Pluggable
Immersion Liquid Cooling SFP+ Transceiver Pigtail
10 Gigabit Ethernet



TAS - AxNH5 - P1M##

↑
Operating Temperature range:
0°C ~ +70°C or 0°C ~ +85°C
↑
Length: 1M...150M

Ordering Information:

Model Name	TAS-A1NH5-P1M01	TAS-A1NH5-P1M10	TAS-A1NH5-P1MF0	TAS-AJNH5-P1M01	TAS-AJNH5-P1M10	TAS-AJNH5-P1MF0
Voltage	3.3V					
Device type	Multi-mode VCSEL/PIN					
Interface	AC-AC/TTL					
Temperature	0°C ~+70°C			0°C ~+85°C		
Length	1M	10M	150M	1M	10M	150M
Latch Color	Black ██████					
Connector	LC/UPC					

■ Features

- Hot pluggable
- Bit rate up to 10 Gbps
- PIN photodetector
- 850nm VCSEL transmitter
- Single +3.3Vcc power supply
- Low Power Consumption (< 0.8W)
- Compatible with immersion cooling liquid
- Compatible with 10GBASE-SR
- Operating case temperature option of 0 ~ 70°C and 0 ~ 85°C
- Maximum link distance of 100m on OM3 MMF and 150m on OM4 MMF
- One end is SFP+ housing (enhanced EMI shielding) and the other end is LC connector
- 2-wire interface for management specifications compliant with MSA SFF 8472 standard

■ Applications

- Applicable to 10G Ethernet
- Immersion cooling environment
- Data center and in-rack connection
- High-capacity IO with SFP+ interface

■ Compliance

- RoHS compliance
- SFF-8418/ SFF-8419 SFP+ Electrical MSA
- SFF-8432 SFP+ Mechanical MSA

Absolute Maximum Rating

Parameter	Symbol	Min	Typ.	Max	Unit
Storage Temperature	Ts	-40		85	°C
Relative Humidity (Non - condensing)	RH	5		95	%
Power Supply Voltage	Vcc	0		3.6	V

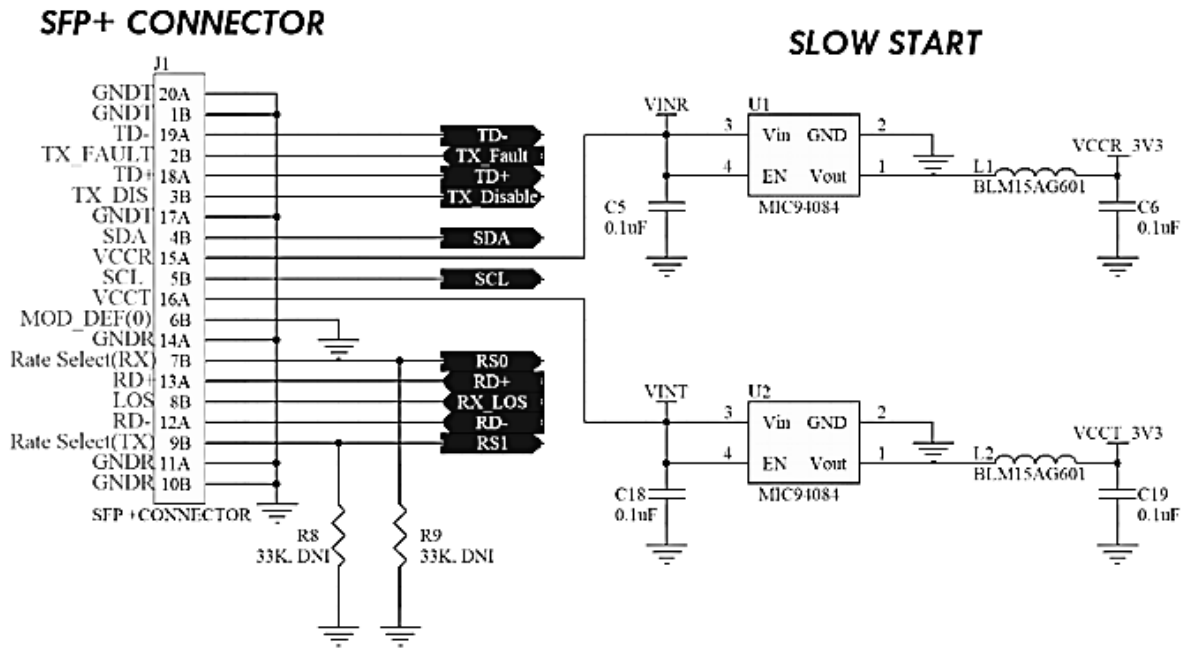
Recommended Operating Conditions

Parameter	Symbol	Min	Typ.	Max	Unit
Operating Case Temperature	TAS-A1NH5-P1M##	Top	0	70	°C
	TAS-AJNH5-P1M##		0	85	
Power Supply Voltage	Vcc	3.135	3.300	3.465	V
Data Rate			10.3125		Gb/s
Data Rate Accuracy		-100		100	ppm
Power Supply Current (TX + RX)	Icc	173		230	mA
Liquid immersion depth				10	M
Reach distance	OM3 MMF			100	M
	OM4 MMF			150	M

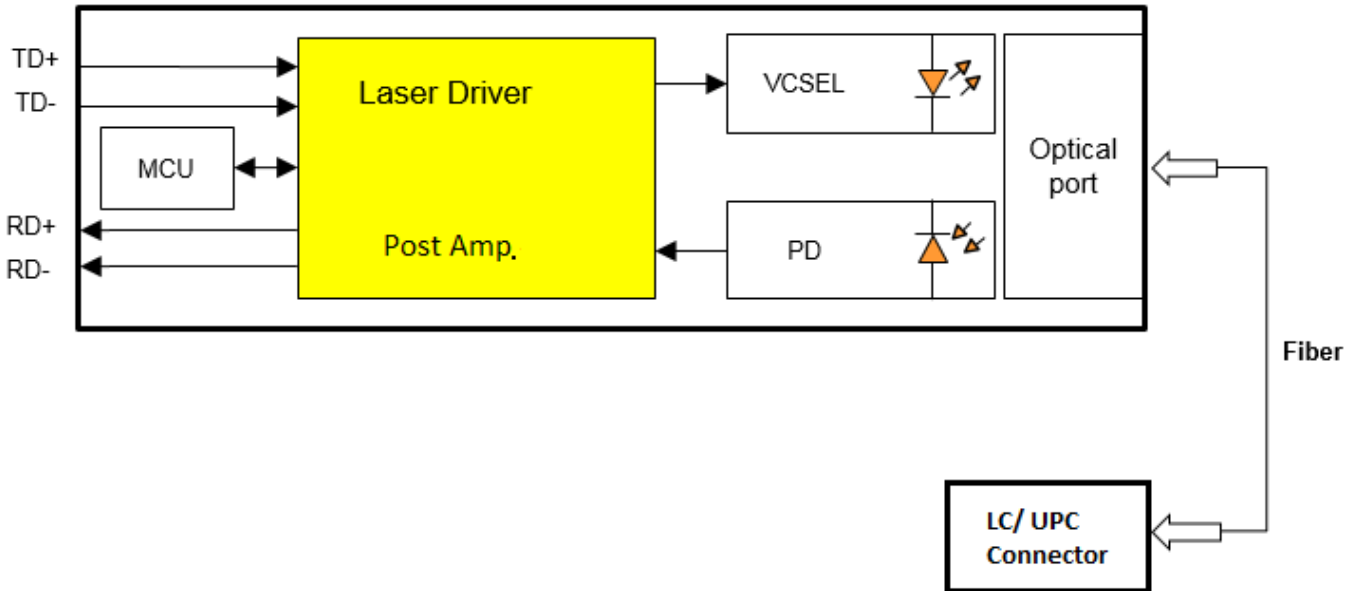
Specification

Parameter	Symbol	Min	Typ.	Max	Unit	Note
Transmitter						
Power Consumption	P_dis			0.8	W	
Input Differential Impedance	Zin_d		100		Ω	
Receiver						
Differential Output Impedance	R _{OUT}		100		Ω	

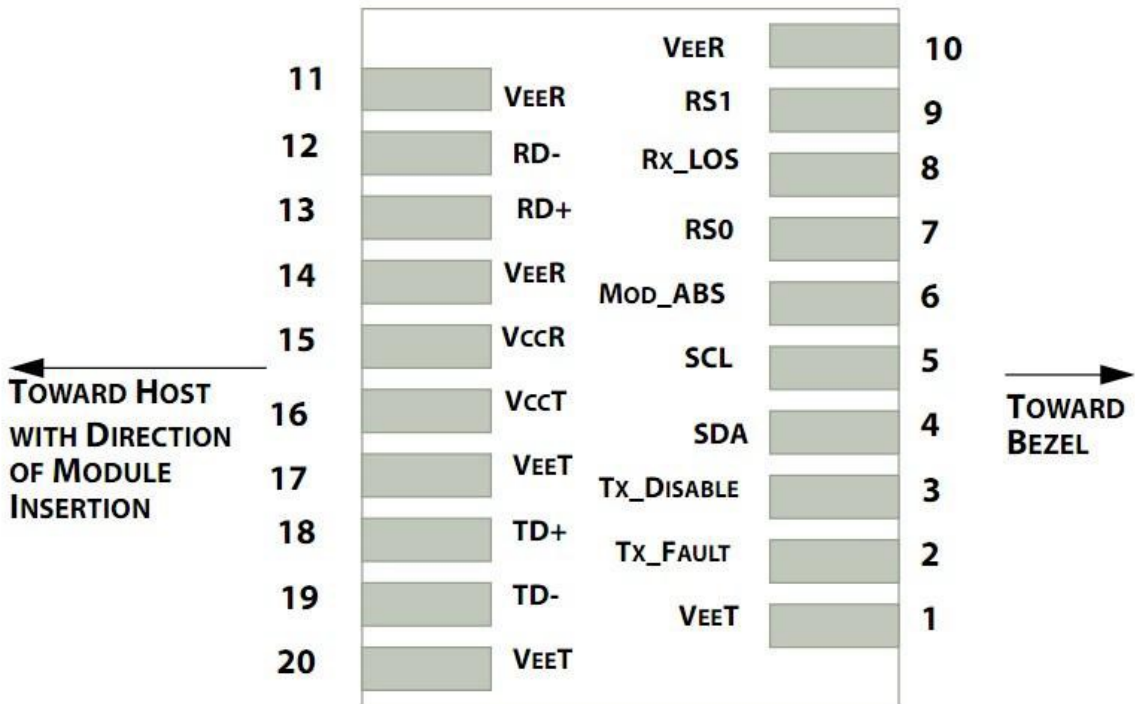
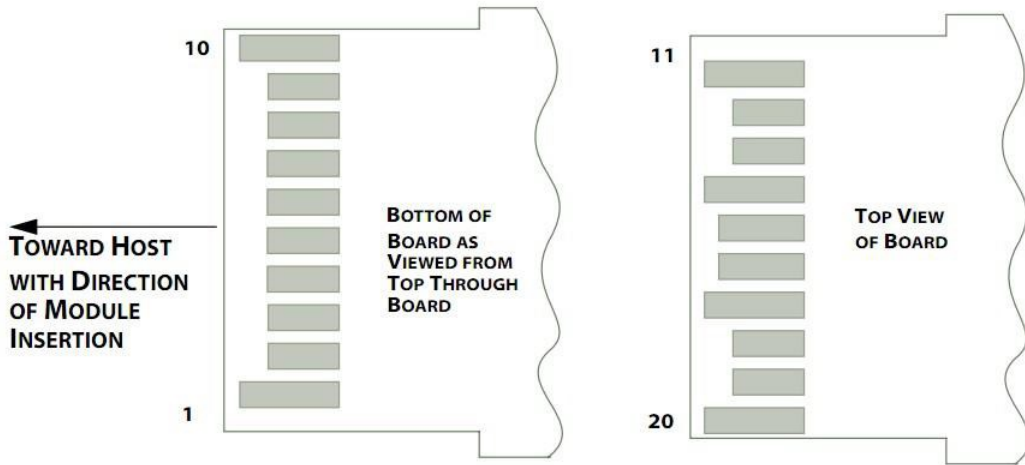
■ Proposed Application Schematics



■ SFP+ Pigtail Block Diagram



Pin Description



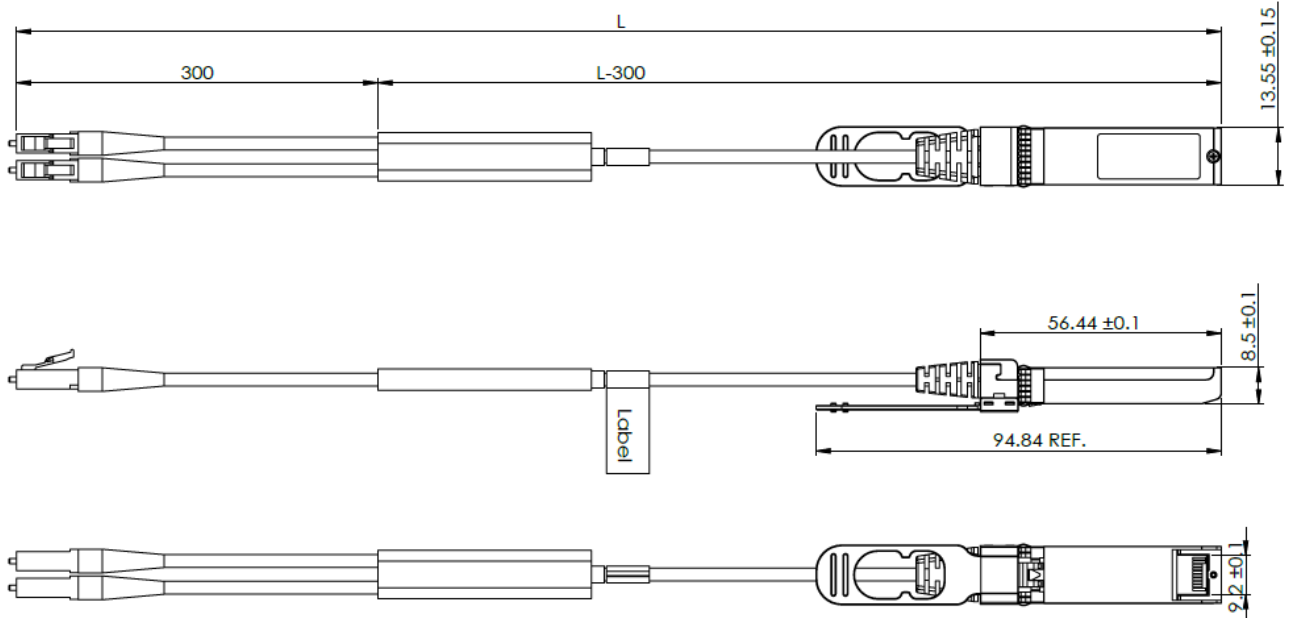
PIN	Logic	Symbol	Name / Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTTL-O	TX_Fault	Module Transmitter Fault	2
3	LVTTTL-I	TX_Disable	Transmitter Disable; Turns off transmitter laser output	3
4	LVTTTL-I/O	SDA	2-Wire Serial Interface Data Line	4
5	LVTTTL-I	SCL	2-Wire Serial Interface Clock	4
6		MOD_ABS	Module Absent	4
7	LVTTTL-I	RS0	No connection requirement	
8	LVTTTL-O	RX_LOS	Receiver Loss of Signal Indication Active LOW	5
9	LVTTTL-I	RS1	No connection requirement	
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 non-inverted 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	CML-I	TD+	Transmitter non-inverted Data Input	
19	CML-I	TD-	Transmitter inverted Data Input	
20		VeeT	Module Transmitter Ground	1

Note:

1. Module circuit ground pins are isolated from the module chassis ground.
2. Pullup to VccHost with 4.7k – 10k Ω
3. No connection required.
4. Power supply filtering circuit required.

■ **Module Outline**

Unit: mm



Tolerance of total length:

L	Tolerance
~30M	+40CM
31M~50M	+60CM
50M~	+80CM

■ **ESD**

Normal ESD precautions are required during the handling of this module. This optical 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/EN60825-1:2014 (Third Edition). This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 56, MAY 8, 2019.

Caution:

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Attention: L'utilisation de commandes ou de réglages ou l'exécution de procédures autres que celles spécifiées dans le document peut entraîner une exposition à des radiations dangereuses.



■ **Contact Information**

Formerica OptoElectronics Inc.

5F-11, No.38, Taiyuan St., Zhubei City,
Hsinchu County 30265, Taiwan

Tel: +886-3-5600286

Fax: +886-3-5600239

San Diego, CA

Tel: 1-949-466-8069

inquiry@formericaoe.com

www.formericaoe.com

■ **Revision History**

Date	Version	Description
11/11/2022	1.0	Initial release