Specification

Small Form Factor Pluggable

Duplex LC Receptacle – SFP

Optical Transceivers

STM-1 / OC-3 / 100BASE

155Mbit/s



Ordering Information

T S P – S x A A 1 – M A V

Temperature

1. 0 ~70 ℃
2. -40 ~85 ℃

Model Name	Voltage	Device type	LOS	Temperature	Distance	Latch Color
TSP-S1AA1-MAV	3.3V	FP / PIN	LVTTL	0 ~+70℃	60km	Blue
TSP-S2AA1-MAV				-40 ~+85℃		

Features

- 310nm uncooled FP LD
- 60Km link distance (indicative only)
- Hot pluggable
- Metal enclosure, low EMI
- Single +3.3V Power Supply
- Low Power Dissipation

APPLICATIONS

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- Metro Access Rings
- Point-to-Point networking
- Suitable for Fast Ethernet and OC-3

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	Ts	-40	85	℃
Power Supply Voltage	Vcc	0	4.5	V
Relative Humidity	RH	0	85	%

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case temperature (TSP-S1AA1-MAV)	Top	0		70	℃
Operating Case temperature (TSP-S2AA1-MAV)	Top	-40		85	℃
Supply Voltage	Vcc	3.14	3.3	3.47	V
Supply Current	Icc		200	300	mA

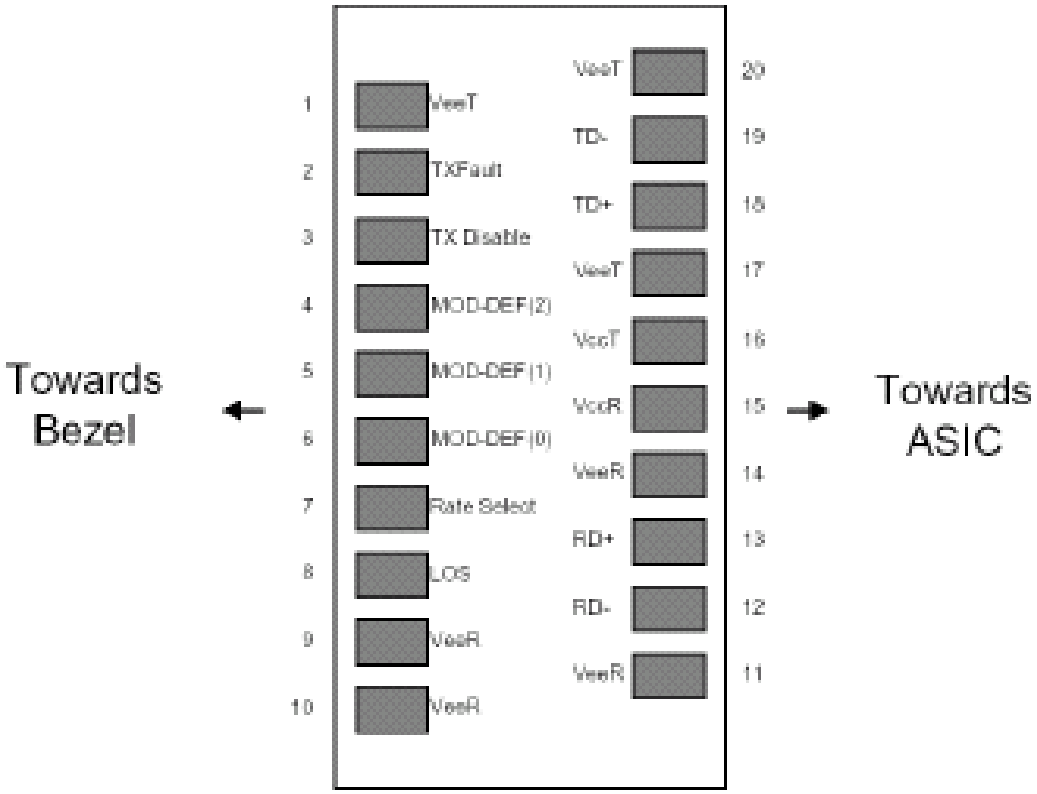
Transmitter Specifications (VCC = 3.1V ~ 3.5V ; Top= 0 ~ 70℃ / Top= -40 ~ 85℃)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Differential Input Voltage	TD +/-	400		2000	mVp-p
Optical Output Power	PO	-5		0	dBm
Optical Extinction Ratio	ER	10			dB
Center Wavelength	λ	1280	1310	1355	nm
Spectral Width	σλ			4	nm
Optical Rise/Fall Time	Tr / Tf			3	ns
Electrical Characteristics					
TX Fault - High	TFault H	2.0		VCC	V
TX Fault - Low	TFault L	Vee		Vee +0.5	V
TX Disable - High	Disable H	2.0		VCC	V
TX Disable - Low	Disable L	Vee		Vee +0.8	V

Receiver Specifications (VCC = 3.1V ~ 3.5V ; Top= 0 ~ 70℃ / Top= -40 ~ 85℃)

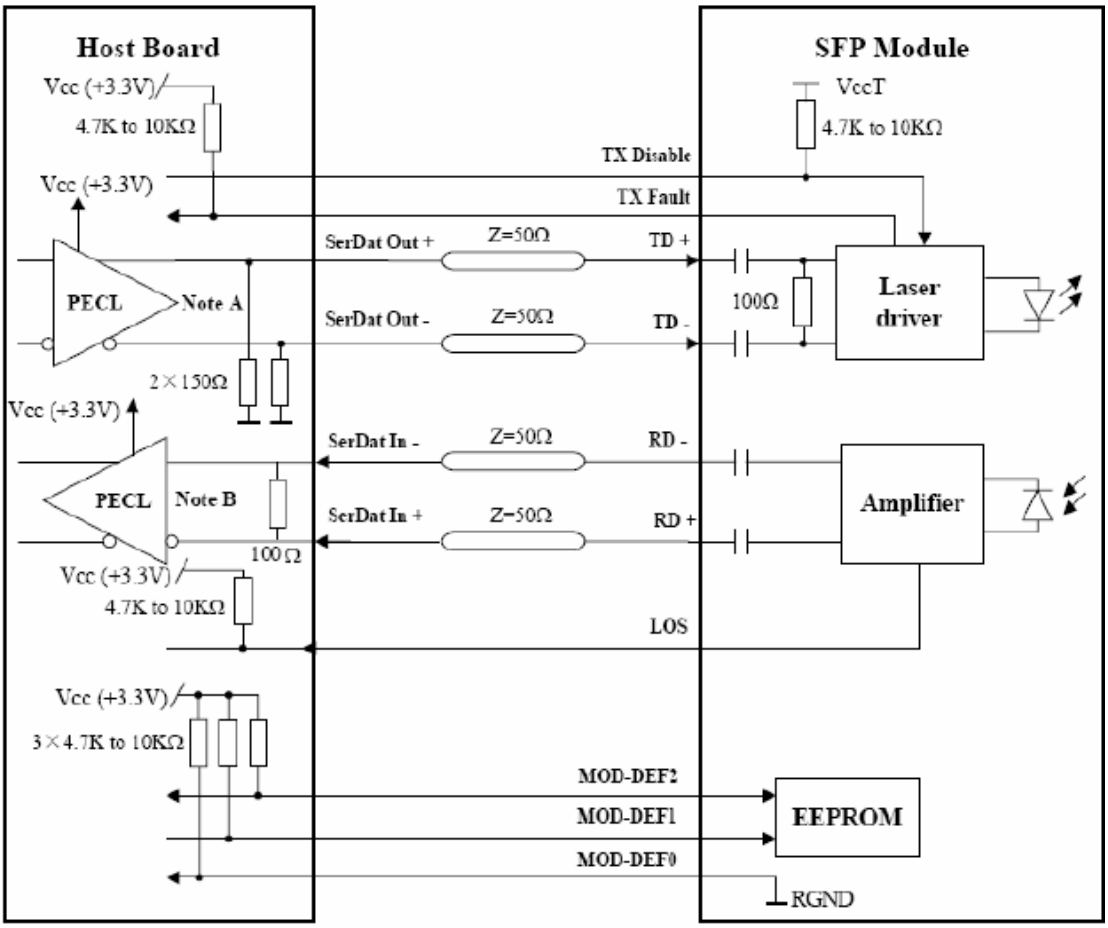
Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Receiver Differential Output Voltage	RD +/-	600	800		mVP-P
Receiver Overload	PMAX	-3			dBm
Receiver Sensitivity	Sens			-34	dBm
Operating Center Wavelength	λ	1270		1620	nm
Electrical Characteristics					
Receiver Loss Assert Level	LOSA	-45			dBm
Receiver Loss Deassert Level	LOSD			-34.5	dBm
Receiver Loss of Signal Hysteresis		0.5	2		dB

Pin Definition and Descriptions

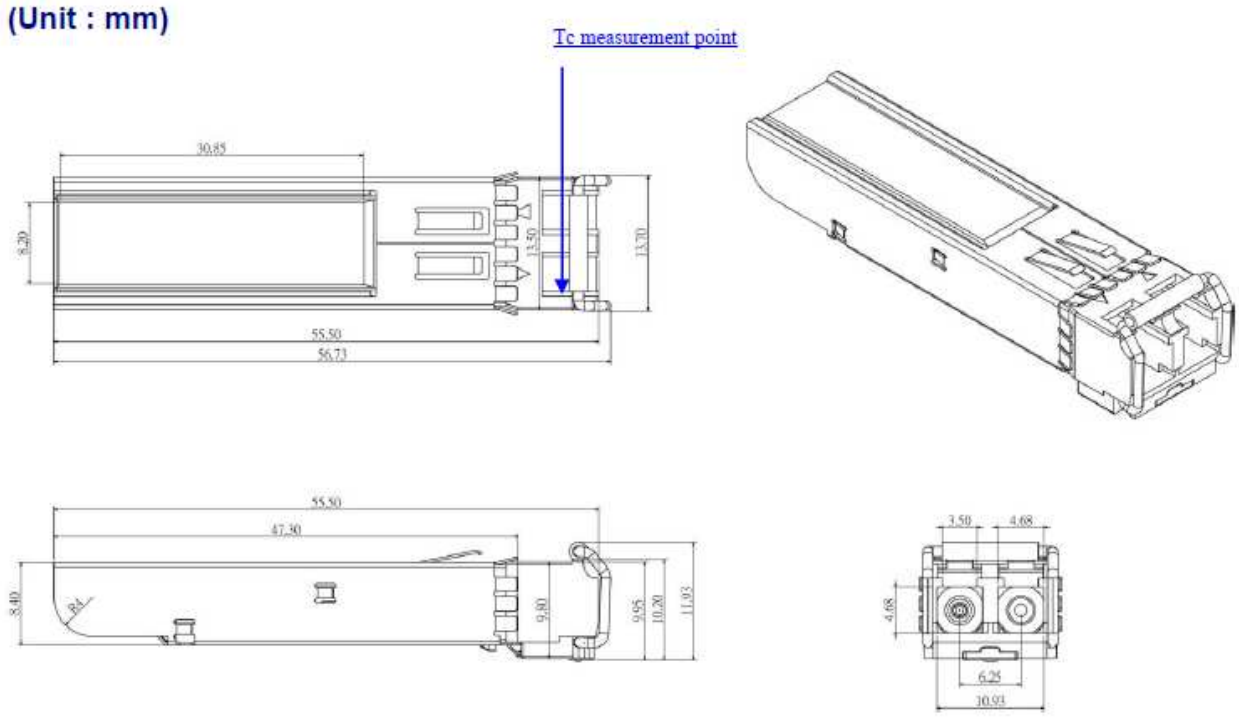


Pin	Name	Input / Output Level	Description
1	VeeT	Input	Transmitter ground
2	TXFault	Output/LVTTL	Laser failure indication. High level indicates “laser failure”. Externally pulled up
3	TXDisable	Input/LVTTL	Transmitter disable, High signal/open disables TX laser output. Low level enables TX output, internally pulled up.
4	MOD-DEF(2)	Input/output	Module definition 2, SDA, Data line for I2C bus. Externally pulled up
5	MOD-DEF(1)	Input	Module definition 1, SCL, Clock for I2C bus. Externally pulled up
6	MOD-DEF(0)	Output	Module definition 0, Module present. Ground inside module.
7	Rate Select	-	No connection.
8	LOS	Output/LVTTL	Receiver loss of signal indication. Low signal indicates optical signal is present at RX input. Should be Externally pulled up.
9	VeeR	Input	Receiver ground
10	VeeR	Input	Receiver ground
11	VeeR	Input	Receiver ground
12	RD -	Output/LVPECL	Inverted receiver data output (AC coupled)
13	RD +	Output/LVTTL	Non-inverted receiver data output (AC coupled)
14	VeeR	Input	Receiver ground
15	VccR	Input	Receiver power supply
16	VccT	Input	Transmitter power supply
17	VeeT	Input	Transmitter ground
18	TD +	Input/LVPECL	non-inverted transmitter data input (AC coupled)
19	TD -	Input/LVPECL	Inverted transmitter data input (AC coupled)
20	VeeT	Input	Transmitter ground

RECOMMENDED CIRCUIT



PACKAGE DIAGRAM (Units in mm)



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

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