Specification

1x9 Form Factor

Duplex ST Receptacle

Optical Transceivers

STM-1 / OC-3 / 100BASE
155Mbit/s

Ordering Information

TSP – DxAA6 – H2T

Voltage/Temperature
1:3.3V/+0℃~ +70℃
2:3.3V/-40℃~ +85℃

Model Name	Voltage	Device type	Interface	SD/LOS	Temperature	Distance
TSP-D1AA6-H2T	3.3V	FP / PIN	DC / DC Coupling	PECL	+0~ +70℃	30km
TSP-D2AA6-H2T					-40 ~ +85℃	

Features

- **ROHS Compliant**
- **Standard 1x9 Form Factor**
- **SONET/SDH Standard Compliant**
- **Fast Ethernet Standard Compliant**
- **Laser Class 1 Product –IEC / EN 60825-1 Compliant**
- **Standard Duplex ST Receptacle Optical Interface**
- **Single + 3.3 V Power Supply**
- **Differential PECL Data Input and Output**
- **PECL Signal Detect**
- **Low Power Consumption**

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Storage temperature	T_S	-40		85	℃
Supply voltage	V_{CC}	0		6	V
Operating Relative Humidity	RH	5		95	%
Input voltage	V_{IN}	GND		V_{CC}	V

Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	3.15	3.3	3.45	V
Operating Case temperature (TSP-D1AA6-H2T)	Top	0		70	℃
Operating Case temperature (TSP-D2AA6-H2T)		-40		85	
Data Rate		--	155	--	Mbps
Power Supply Current	Icc	--	--	250	mA

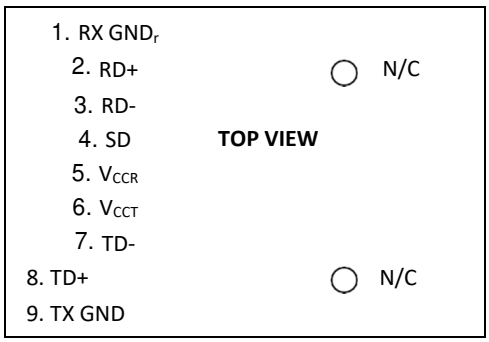
Transmitter Specifications (V_{CC} = 3.15 ~ 3.45V ； Top = 0 ~70℃ / Top = -40 ~ 85℃)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Power Supply Current	Icc	--	--	150	mA
Output Optical Power	P_O	-14	--	-7	dBm
Extinction Ratio	ER	8.2	--	--	dB
Center Wavelength	λ	1260	1310	1360	nm
Spectral Width (RMS)	σλ	--	2	4	nm
Rise/Fall time (10-90%)	Tr/ Tf	--	--	260	ps
Relative Intensity Noise	RIN	--	--	-120	dB/Hz
Output Eye	Compliant with ITU-T G.957				
Electrical Characteristics					
Data Input Voltage-High	V_{IH}-V_{CC}	-1.1	--	-0.7	V
Data Input Voltage-Low	V_{IL}-V_{CC}	-2.0	--	-1.6	V

Receiver Specifications (V_{CC} = 3.15 ~ 3.45V ； Top = 0 ~ 70℃ / Top = -40 ~ 85℃)

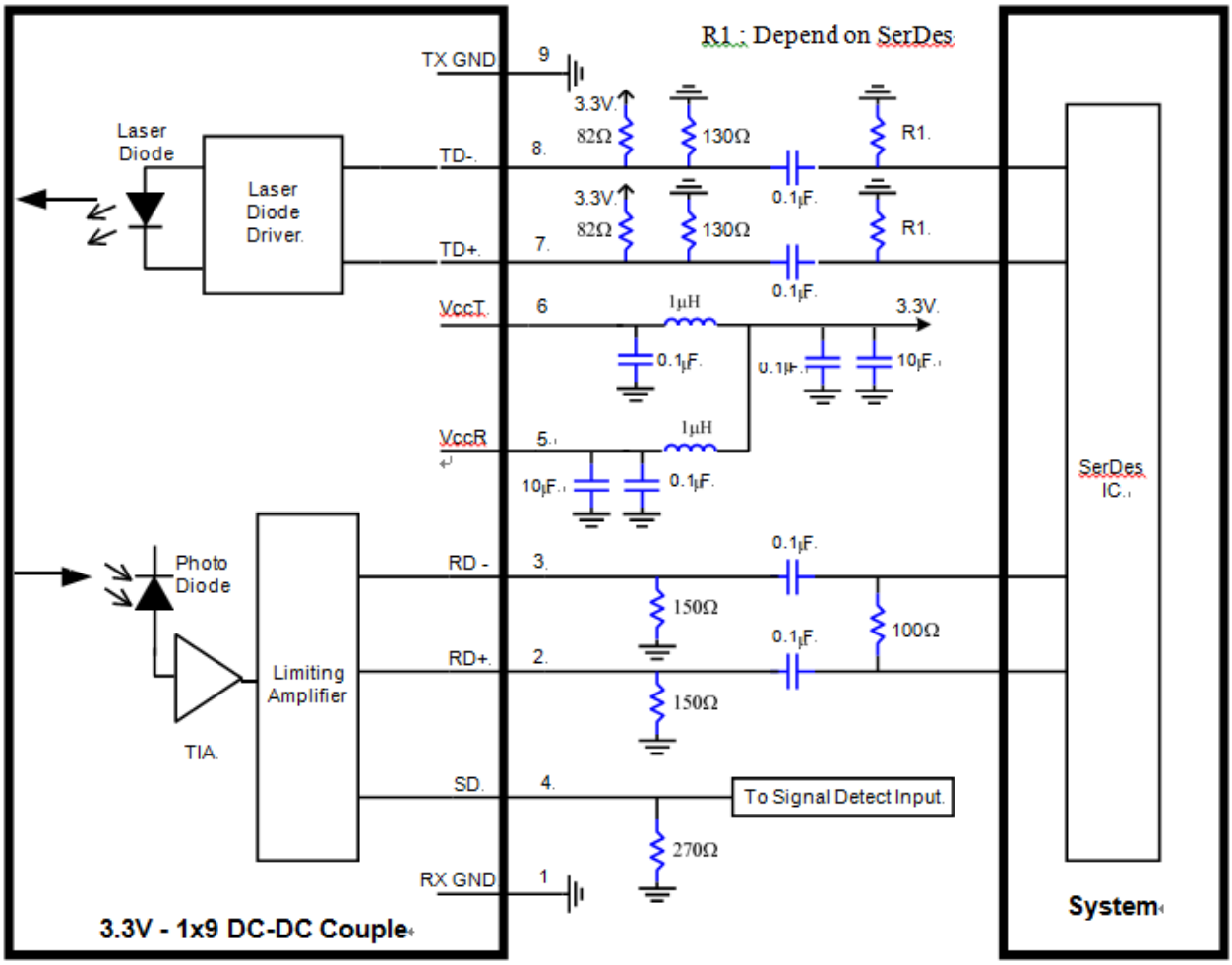
Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Power Supply Current	Icc	--	--	100	mA
Optical Input Power-maximum	Pmax	-3	--	--	dBm
Receiver Sensitivity (PRBS=2^{23}-1 ； BER≦10^{-10})	Sens	--	--	-34	dBm
Operating Center Wavelength	λ	1100	--	1600	nm
Signal Detect – Asserted	PSA	--	--	-34	dBm
Signal Detect – De-asserted	PSD	-45	--	--	dBm
Signal Detect - Hysteresis	PLH	1	--	5	dB
Electrical Characteristics					
Differential Output Voltage	VDIFF	0.4	--	2.0	V
Signal Detect Output Voltage-High	VOH-VCC	-1.1	--	-0.74	V
Signal Detect Output Voltage-Low	VOL-VCC	-2.0	--	-1.58	V

Pin Definition and Descriptions

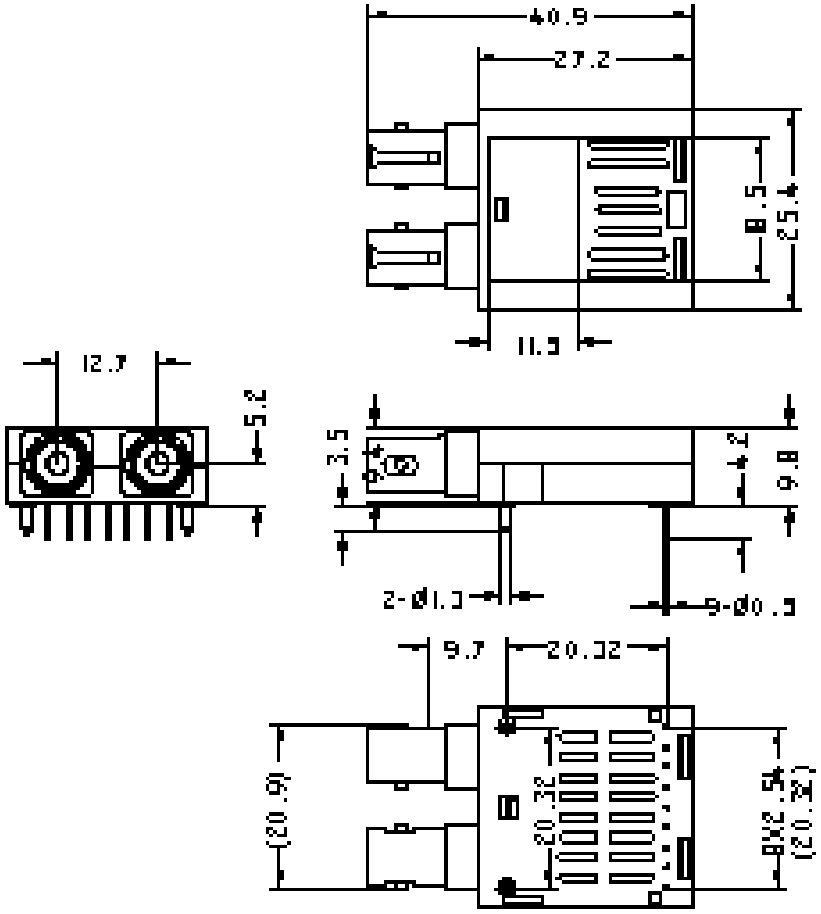


Pin	Name	Description
1	RX GND	Receiver Signal Ground
2	RD+	Receiver Data Out
3	RD-	Receiver Data Out Bar
4	SD	Signal Detect
5	VCCR	Receiver Power Supply
6	VCCT	Transmitter Power Supply
7	TD-	Transmitter Data In Bar
8	TD+	Transmitter Data In
9	TX GND	Transmitter Signal Ground

Recommended Circuit Diagram



Mechanical Outlines (Unit : 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