Specification

1x9 Form Factor

Duplex ST Receptacle

Optical Transceivers

STM-1 / OC-3 / 100BASE

155.52Mbit/s

Ordering Information

TSP—DxAN6—D2T

Voltage/ Temperature

1 : 3.3V / +0 ~+70℃

2 : 3.3V / -40 ~ +85℃

Model Name	Voltage	Device type	Interface	SD/LOS	Temperature	Distance
TSP-D1AN6-D2T	3.3V	LED / PIN	DC / DC Coupling	PECL	+0 ~+70℃	2km
TSP-D2AN6-D2T					-40 ~+85℃	

Features

- For MM Fast Ethernet and OC3 applications
- Compliant with SONET OC-3 / SDH STM-1
- Standard 1X9 footprint
- 3.3 V power supply
- Differential PECL inputs and outputs
- DC/DC signal output coupling
- Estimated 2 km transmission distance
- PECL Signal Detect
- RoHS compliant

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	TS	-40	--	85	℃
Supply Voltage	VCC	0	--	6	V
Lead Soldering Temperature (10sec)	TSOLD	--	--	260	℃

Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	VCC	3.15	3.3	3.45	V
Operating Case temperature (TSP-D1AN6-D2T)	Top	0	--	70	℃
Operating Case temperature (TSP-D2AN6-D2T)		-40	--	85	

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

Parameter	Symbol	Min	Typ	Max	Unit	Note
Optical Characteristics						
Optical Transmit Power	PO	-20	--	-14	dBm	AVG.
Extinction Ratio	ER	8.2	--	--	dB	P1/P0
Wavelength	λ	1260	1310	1360	nm	
Spectral Width (RMS)	σ	--	--	80	nm	
Rise/Fall time (10 ~ 90%)	Tr / Tf	--	--	2	ns	
Output Eye	Compliant with Bell core TR-NWT-000253 and ITU-T G.957/OC-3					
Electrical Characteristics						
Data Input Voltage-Low	VIL-VCC	-1.82	--	-1.48	V	
Data Input Voltage-High	VIH - VCC	-1.16	--	-0.88	V	
Data Input Voltage-Differential	VIH-IL	0.3	--	--	V	
Power Supply Current	ITX	--	140	180	mA	

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

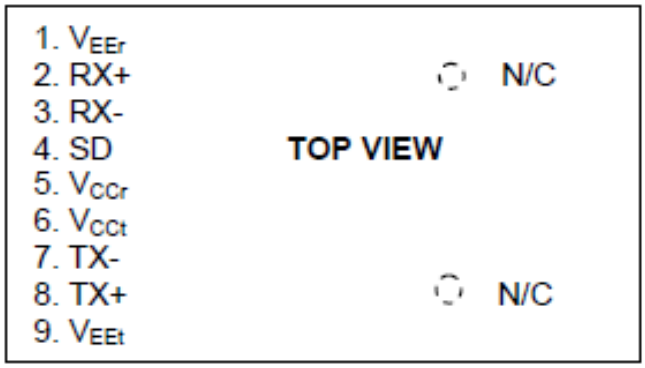
Parameter	Symbol	Min	Typ	Max	Unit	
Optical Characteristics						
Wavelength	λ	1200	--	1600	nm	
Sensitivity	Sens	--	-34	-31	dBm	Note 1
Saturation Input Power	P_{MAX}	-3	--	--	dBm	Note 1
Signal Detect-Asserted	P_{SA}	--	--	-31	dBm	
Signal Detect-Deasserted	P_{SD}	-45	--	--	dBm	
Signal Detect-Hysteresis	P_{SH}	--	--	6	dB	
Electrical Characteristics						
Data Output Voltage-Low	VOL-VCC	-1.82	--	-1.62	V	Note 2
Data Output Voltage-High	VOLS-VCC	-1.16	--	-0.88	V	Note 2

Power Supply Current	IRX	--	120	140	mA	Note 3
Data Output Load	RDL	--	50	--	ohm	

Note:

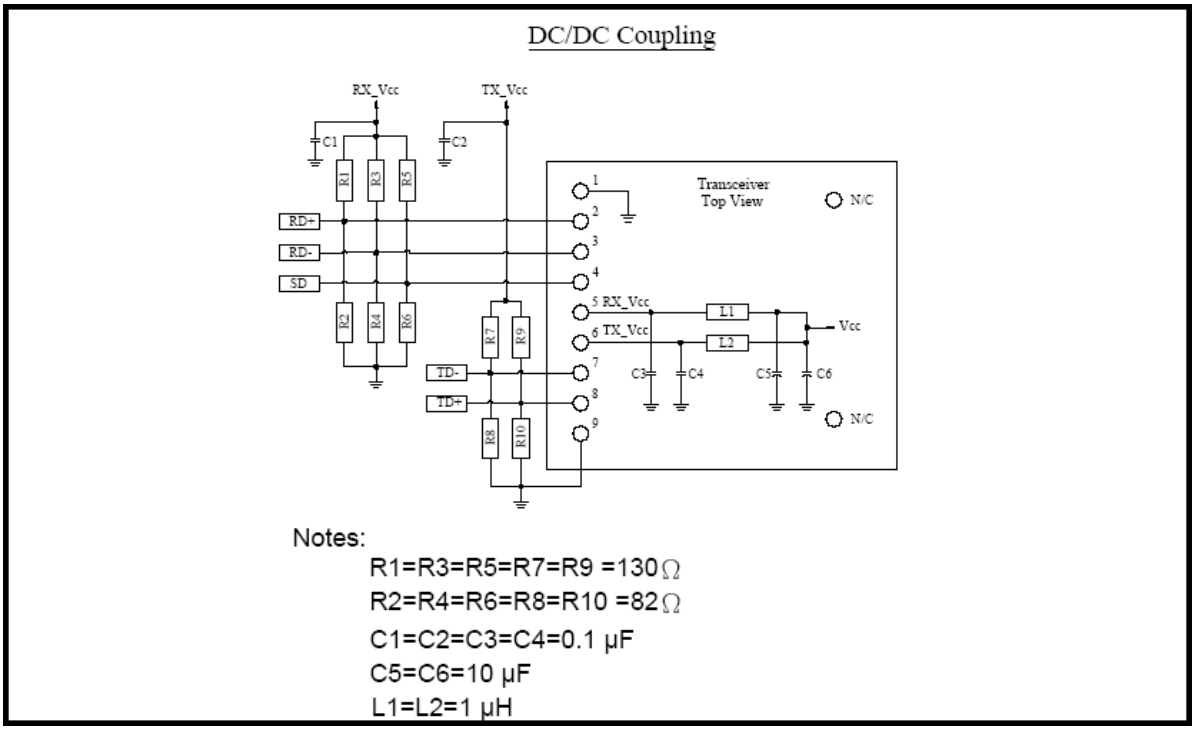
1. **Minimum sensitivity and saturation levels measured at 10^{-10} BER for $2^{23}-1$ PRBS.**
2. **These output are compatible with PECL outputs.**
3. **The output current are not included.**

Pin Definition and Descriptions



Pin	Name	Description
1	V_{EEr}	Receiver Signal Ground
2	RX+	Receiver Data Out
3	RX-	Receiver Data Out Bar
4	SD	Signal Detect
5	V_{CCr}	Receiver Power Supply
6	V_{CCt}	Transmitter Power Supply
7	TX-	Transmitter Data In Bar
8	TX+	Transmitter Data In
9	V_{EEt}	Transmitter Signal Ground

Recommended Circuit Diagram



Notes:

R1=R3=R5=R7=R9 =130Ω

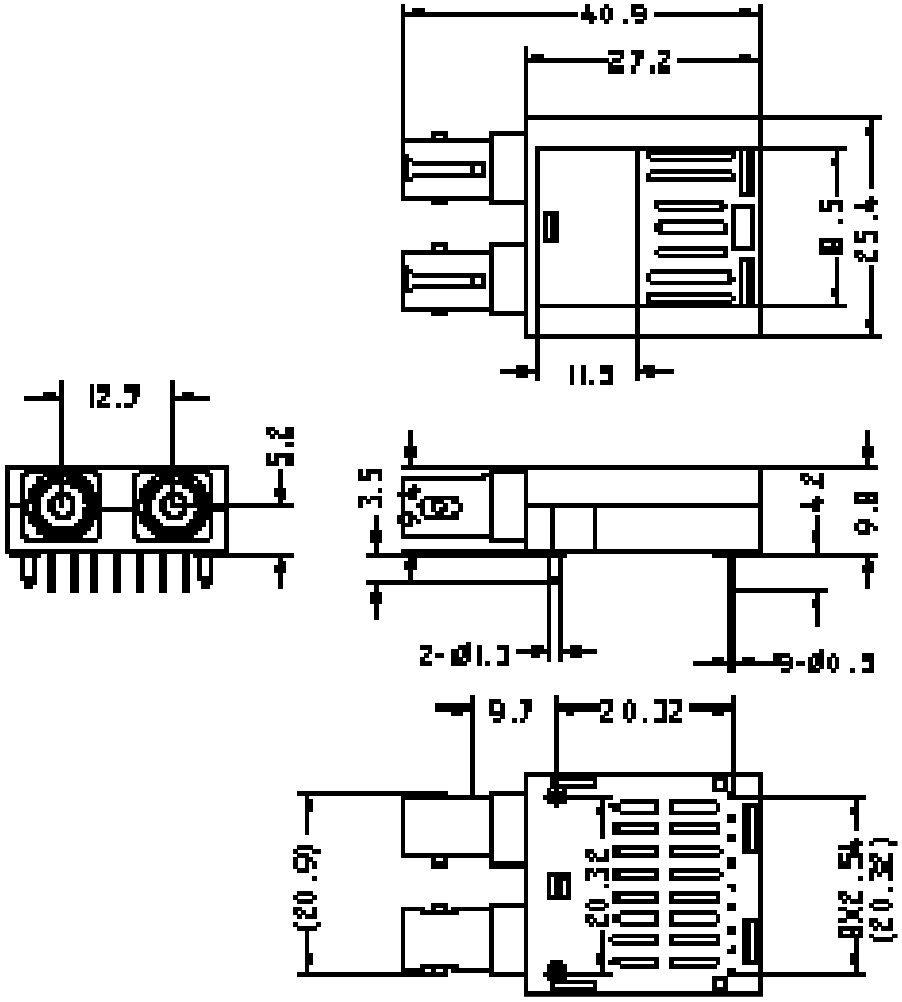
R2=R4=R6=R8=R10 =82Ω

C1=C2=C3=C4=0.1 μF

C5=C6=10 μF

L1=L2=1 μH

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