

Specification

1x9 Form Factor

Duplex ST Receptacle

Optical Transceivers

1000BASE-LX

1250Mbit/s



Ordering Information

TSP - DxCA6 – F2T

Voltage / Temperature

1: 3.3V / +0 ~ +70°C

2: 3.3V / -40 ~ +85°C

3: 5.0V / +0 ~ +70°C

4: 5.0V / -40 ~ +85°C

Model Name	Voltage	Device type	SD/LOS	Temperature	Distance
TSP-D1CA6-F2T	3.3V	FP / PIN	PECL	+0°C ~ +70°C	10Km
TSP-D2CA6-F2T				-40°C ~ +85°C	
TSP-D3CA6-F2T	5.0V			+0°C ~ +70°C	
TSP-D4CA6-F2T	-40°C ~ +85°C				

Features

- SC / FC / ST Duplex Transceiver
- Industry Standard 1x9 Footprint
- Laser wavelength 1310FP
- Single 3.3 / 5V Power Supply
- LVPECL / PECL Signal Detection Output
- Wave Solderable and Aqueous Washable
- Uncooled Laser Diode with MQW structure
- Complies with IEEE802.3z Gigabit Ethernet
- ROHS compliant

APPLICATIONS

- Switch to Switch Interface
- High Speed Interface for File Servers
- Gigabit Ethernet

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	Ts	-40	85	°C	
Power Supply Voltage	Vcc	0	4.5	V	TSP-D1CA6-F2T TSP-D2CA6-F2T
	Vcc	0	6	V	TSP-D3CA6-F2T TSP-D4CA6-F2T
Soldering Temperature (10 seconds on leads only)		--	260	°C	
Input Voltage	Vin	GND	Vcc	V	
Output Current	Iout	0	30	mA	

Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Note
Supply Voltage	VCC	3.15	3.3	3.45	V	TSP-D1CA6-F2T TSP-D2CA6-F2T
		4.75	5.0	5.25		TSP-D3CA6-F2T TSP-D4CA6-F2T
Operating Case temperature (TSP-D1CA6-F2T) (TSP-D3CA6-F2T)	Top	0	--	70	°C	
Operating Case temperature (TSP-D2CA6-F2T) (TSP-D4CA6-F2T)		-40	--	85		
Data Rate		--	155	--	Mbps	
Power Supply Current	Icc	--	150	250	mA	

Transmitter Specifications ($V_{CC}=3.15V\sim 3.45V$ / $V_{CC}=4.75\sim 5.25V$; $T_{op}=0^{\circ}C\sim 70^{\circ}C$ / $T_{op}=-40^{\circ}C\sim 85^{\circ}C$)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Optical Transmit Power	P_o	-9	--	-3	dBm
Optical Center Wavelength	λ	1260	1310	1360	nm
Output Spectrum Width (RMS)	$\sigma\lambda$	--	2	4	nm
Extinction Ratio	ER	8.2	--	--	dB
Optical Rise Time	T_r	--	--	0.26	ns
Optical Fall Time	T_f	--	--	0.26	ns
Relative Intensity Noise	RIN	--	--	-116	dB/Hz
Output Eye	Compliant with IEEE 802.3z				
Electrical Characteristics					
Data Input Current – Low		-350	--	--	μA
Data Input Current – High		--	--	350	μA
Differential Input Voltage	$V_{IH} - V_{IL}$	300	--	2400	mV

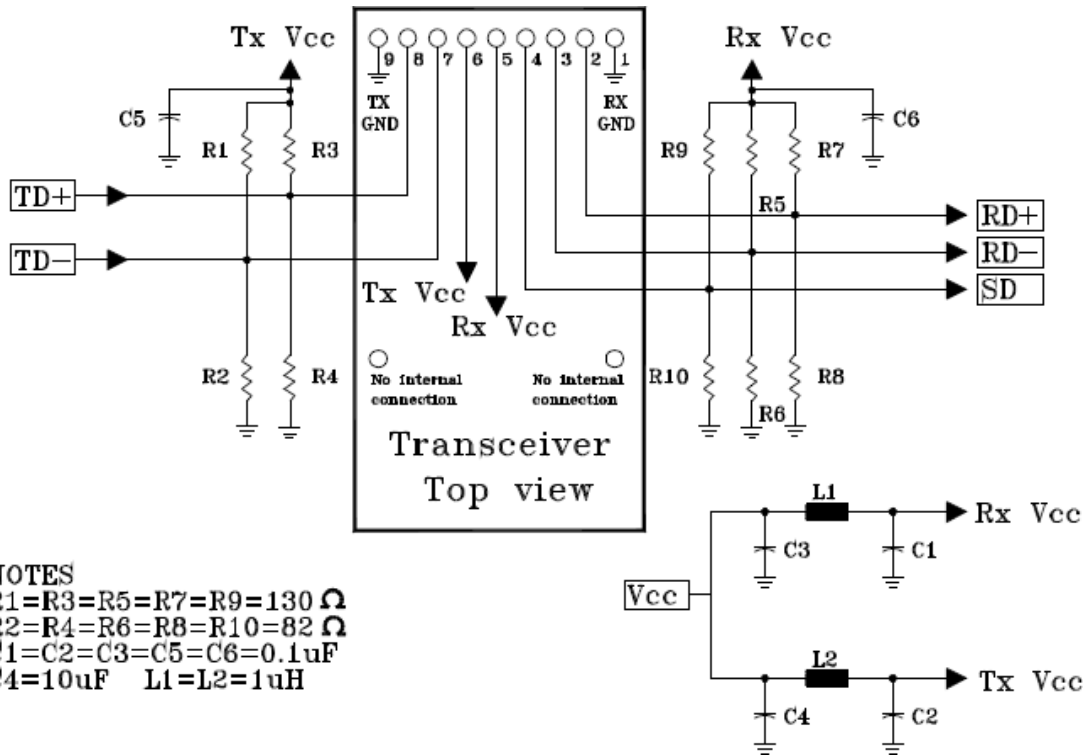
Receiver Specifications ($V_{CC}=3.15V\sim 3.45V$ / $V_{CC}=4.75\sim 5.25V$; $T_{op}=0^{\circ}C\sim 70^{\circ}C$ / $T_{op}=-40^{\circ}C\sim 85^{\circ}C$)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Maximum Input Power (Sensitivity)	Sens	--	--	-21	dBm
Saturation Power (PRBS=2 ⁷ -1 ; BER ≤ 10 ⁻¹²)	Pma	-3	--	--	dBm
Operating Center Wavelength	λ	1100	--	1600	nm
Signal Detect – Asserted	PSA	--	--	-21	dBm
Signal Detect – De-asserted	PSD	-35	--	--	dBm
Signal Detect - Hysteresis	PSH	1	--	5	dB
Electrical Characteristics					
Data Output Voltage – Low	VIL –VCC	-1830	--	-1555	mV
Data Output Voltage – High	VIH –VCC	-1085	--	-880	mV
Signal Detect Output Voltage-- Low	VSDL –VCC	-2.0	--	-1.58	V
Signal Detect Output Voltage-- High	VSDH –VCC	-1.1	--	-0.74	V

Pin Definition and Descriptions

1 Receiver Signal Ground	
2 Receiver Data Out	O N.C.
3 Receiver Data Out Bar	
4 Signal Detect	
5 Receiver Power Supply	Top View
6 Transmitter Power Supply	
7 Transmitter Data In Bar	
8 Transmitter Data In	O N.C.
9 Transmitter Signal Ground	

Recommended Circuit Diagram



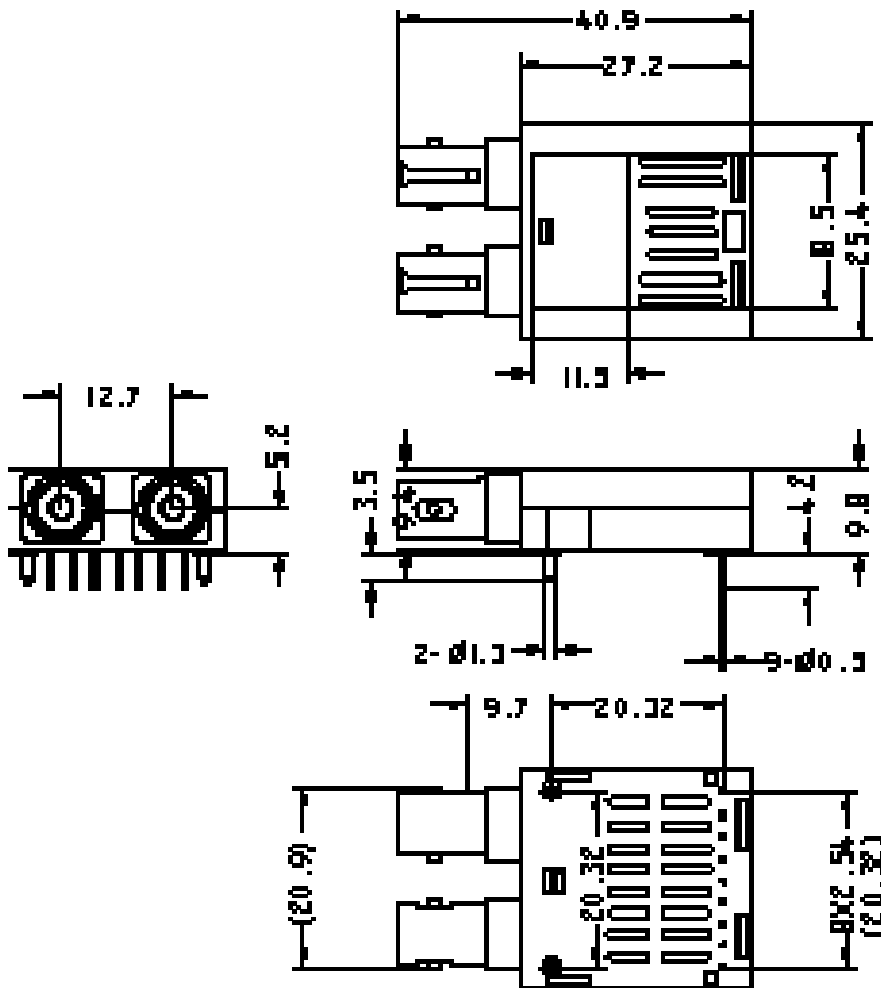
Notes(3.3V)

$R1=R3=R5=R7=R9=130\ \Omega$
 $R2=R4=R6=R8=R10=82\ \Omega$
 $C1=C2=C3=C5=C6=0.1\ \mu F$
 $C4=10\ \mu F$ $L1=L2=1\ \mu H$

Notes(5V)

$R1=R3=R5=R7=R9=82\ \Omega$
 $R2=R4=R6=R8=R10=130\ \Omega$
 $C1=C2=C3=C5=C6=0.1\ \mu F$
 $C4=10\ \mu F$ $L1=L2=1\ \mu H$

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

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