

Specification

1x9 Form Factor

Duplex ST Receptacle

Optical Transceivers

1000BASE-SX / 1250Mbit/s



Ordering Information

TSP — D_xCH6 — C2T



- 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	Interface	SD/LOS	Temperature	Distance
TSP-D1CH6-C2T	3.3V	FP / PIN	DC / DC Coupling	PECL	+0 ~+70°C	550m
TSP-D2CH6-C2T					-40 ~+85°C	
TSP-D3CH6-C2T	5.0V				+0 ~+70°C	
TSP-D4CH6-C2T					-40 ~+85°C	

Features

- ST Duplex Transceiver
- Industry Standard 1x9 Fot footprint
- Laser wavelength 850nm VCSEL
- Single 3.3 / 5.0V power supply
- LVPECL / PECL Signal Detection Output
- Wave Solderable and Aqueous Washable
- Complies with IEEE802.3z Gigabit Ethernet
- RoHs Compliant

Features

- 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-D1CH6-C2T TSP-D2CH6-C2T
	Vcc	0	6	V	TSP-D3CH6-C2T TSP-D4CH6-C2T
Soldering Temperature (10 seconds on leads only)	Tsold	--	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-D1CH6-C2T TSP-D2CH6-C2T
		4.75	5.0	5.25		TSP-D3CH6-C2T TSP-D4CH6-C2T
Operating Case temperature (TSP-D1CH6-C2T) (TSP-D3CA6-C2T)	Top	0	--	70	°C	
Operating Case temperature (TSP-D2CH6-C2T) (TSP-D4CH6-C2T)		-40	--	85		
Data Rate		--	155	--	Mbps	
Power Supply Current	Icc	--	150	250	mA	

Transmitter Specifications (VCC = 3.15 ~ 3.45V / VCC = 4.75 ~ 5.25V ; Top = 0 ~ 70°C / Top = -40 ~ 85°C)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Optical Transmit Power	Po	-9	--	-3	dBm
Optical Center Wavelength	λ	830	850	860	nm
Output Spectrum Width	$\sigma\lambda$	--	--	0.85	nm
Extinction Ratio	ER	8.2	--	--	dB
Optical Rise Time	Tr	--	--	0.26	ns
Optical Fall Time	Tf	--	--	0.26	ns
Relative Intensity Noise	RIN	--	--	-116	dB/Hz
Output Eye	Compliant with IEEE 802.3z				
Electrical Characteristics					
Data Input Current – Low		-350	--	--	μ A
Data Input Current – High		--	--	350	μ A
Differential Input Voltage	V _{IH} -V _{IL}	300	--	2400	mV

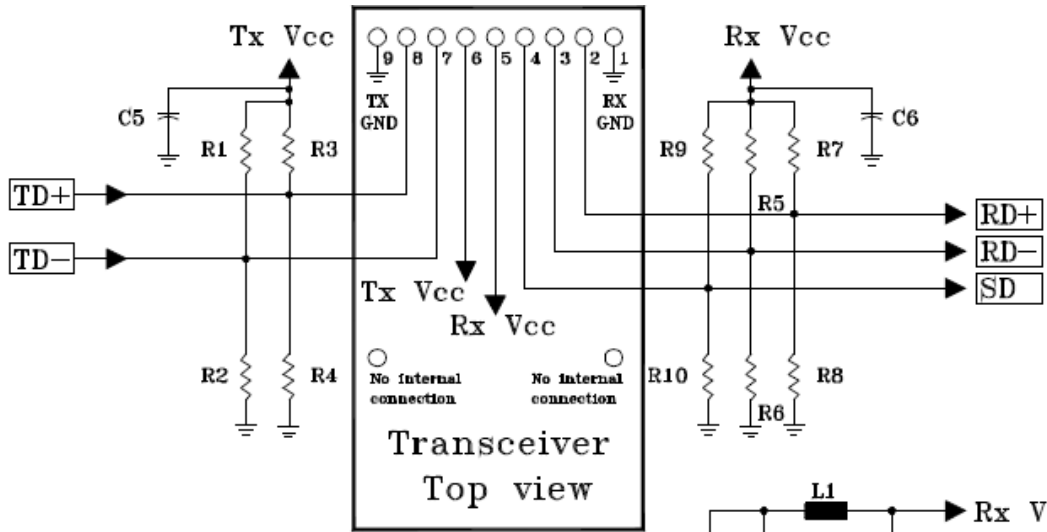
Receiver Specifications (VCC = 3.15 ~ 3.45V / VCC = 4.75 ~ 5.25V ; Top = 0 ~ 70°C / Top = -40 ~ 85°C)

Parameter	Symbol	Min	Typ	Max	Unit
Optical Characteristics					
Sensitivity	Sens	--	--	-20	dBm
Saturation Power (PRBS=2 ⁷ -1 ; BER ≤ 10 ⁻¹²)	P _{MAX}	0	--	--	dBm
Operating Center Wavelength	λ	770	--	860	nm
Signal Detect – Asserted	PSA	--	--	-20	dBm
Signal Detect – De-asserted	PSD	-35	--	--	dBm
Signal Detect - Hysteresis	PSH	1	--	5	dB
Electrical Characteristics					
Data Output Voltage – Low	V _{IL} –VCC	-1830	--	-1555	mV
Data Output Voltage – High	V _{IH} –VCC	-1085	--	-880	mV
Signal Detect Output Voltage-- Low	V _{S_{DL}} –VCC	-2.0	--	-1.58	V
Signal Detect Output Voltage-- High	V _{S_{DH}} –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

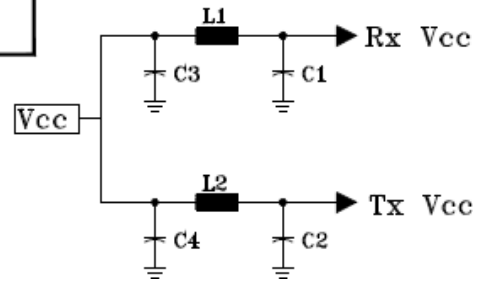


Notes(3.3V)

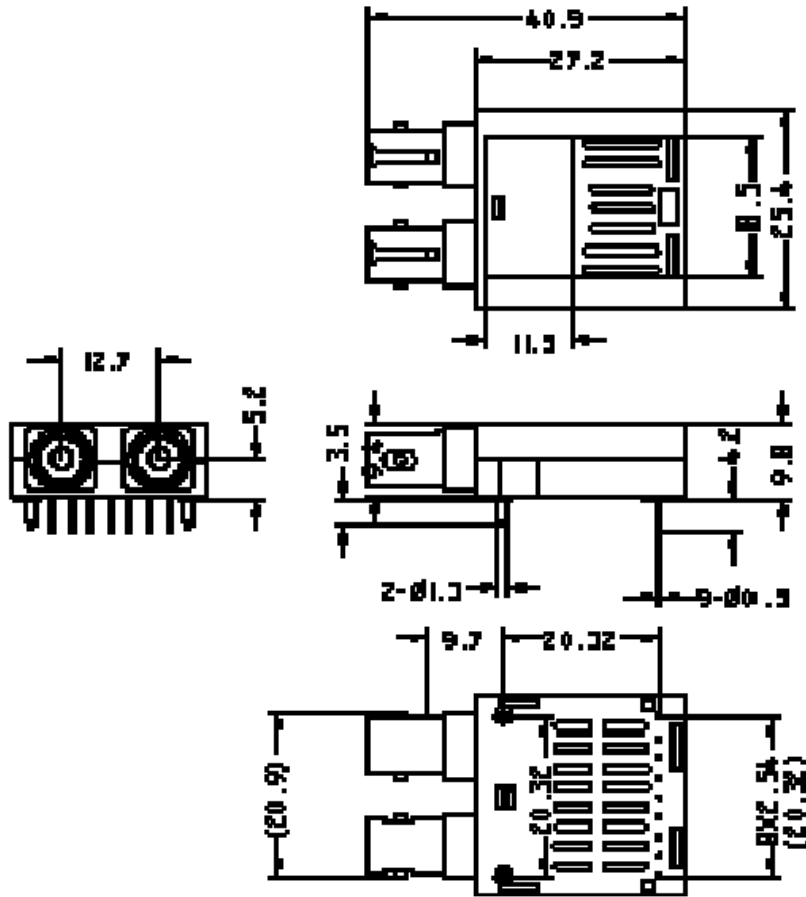
- R1=R3=R5=R7=R9=130 Ω
- R2=R4=R6=R8=R10=82 Ω
- C1=C2=C3=C5=C6=0.1uF
- C4=10uF L1=L2=1uH

Notes(5V)

- R1=R3=R5=R7=R9=82 Ω
- R2=R4=R6=R8=R10=130 Ω
- C1=C2=C3=C5=C6=0.1uF
- C4=10uF L1=L2=1uH



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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