

### Specification

1x9 Form Factor

Duplex ST Receptacle

Optical Transceivers

1000BASE

1250Mbit/s



### Ordering Information

**TSP—D<sub>x</sub>CK6—Q2T**



Voltage / Temperature

1 : 3.3V / +0 ~ +70°C

2 : 3.3V / -40 ~ +85°C

Model Name	Voltage	Device type	Interface	SD/LOS	Temperature	Distance
TSP-D1CK6-Q2T	3.3V	DFB / PIN	DC / DC Coupling	PECL	+0 ~ +70°C	80km
TSP-D2CK6-Q2T					-40 ~ +85°C	

## Features

- Differential LVPECL Inputs & Outputs
- Single 3.3V Power Supply
- LVPECL Signal Detection Output
- Industry Standard 1x9 Package

## Applications

- Switch to Switch Interface
- Gigabit Ethernet
- 1X Fiber Channel

## Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	Ts	-40		85	°C
Power Supply Voltage	Vcc	0		6	V
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
Supply Voltage	VCC	3.15	3.3	3.45	V
Operating Case temperature ( TSP-D1CK6-Q2T )	Top	0	--	70	°C
Operating Case temperature ( TSP-D2CK6-Q2T )		-40	--	85	
Data Rate		--	1250	--	Mbps
Power Supply Current	Icc	--	--	250	mA

## Transmitter Specifications ( V<sub>CC</sub> = 3.15 ~ 3.45V ; Top = 0 ~ 70°C / Top = -40 ~ 85°C )

Parameter	Symbol	Min	Typ	Max	Unit
<b>Optical Characteristics</b>					
Optical Transmit Power	P <sub>o</sub>	-2	--	3	dBm
Optical Center Wavelength	λ	1500	1550	1600	nm
Output Spectrum Width (-20dB)	σλ	--	--	1	nm
Extinction Ratio	ER	8.2	--	--	dB
Optical Rise Time	T <sub>r</sub>	--	--	0.26	ns
Optical Fall Time	T <sub>f</sub>	--	--	0.26	ns
Relative Intensity Noise	RIN	--	--	-116	dB/Hz
Output Eye	Compliant with IEEE 802.3z				
<b>Electrical Characteristics</b>					
Data Input Current – Low		-350	--	--	μA
Data Input Current – High		--	--	350	μA
Differential Input Voltage	V <sub>IH</sub> -V <sub>IL</sub>	300	--	2400	mV

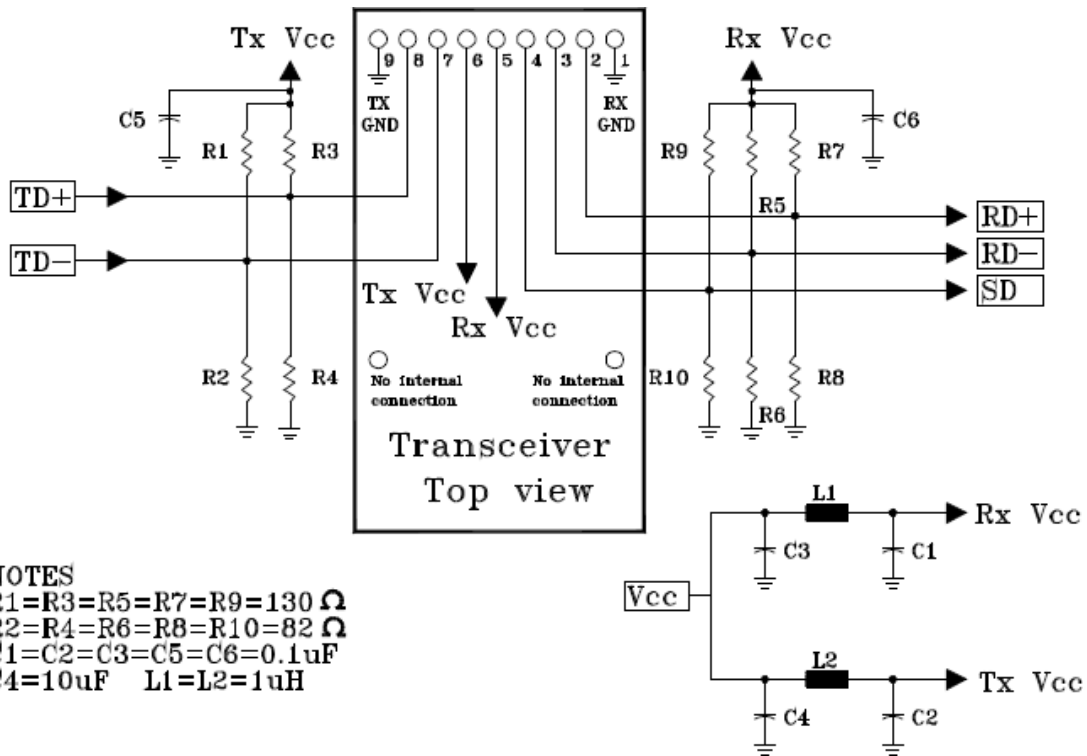
**Receiver Specifications** (  $V_{CC} = 3.15 \sim 3.45V$  ;  $T_{op} = 0 \sim 70^{\circ}C$  /  $T_{op} = -40 \sim 85^{\circ}C$  )

Parameter	Symbol	Min	Typ	Max	Unit
<b>Optical Characteristics</b>					
Sensitivity	Sens	--	--	-24	dBm
Saturation Power() ( PRBS=2 <sup>7</sup> -1 ; BER ≤ 10 <sup>-12</sup> )	P <sub>MAX</sub>	-3	--	--	dBm
Operating Center Wavelength	λ	1100	--	1600	nm
Signal Detect – Asserted	P <sub>SA</sub>	--	--	-24	dBm
Signal Detect – De-asserted	P <sub>SD</sub>	-35	--	--	dBm
Signal Detect - Hysteresis	P <sub>SH</sub>	1	--	5	dB
<b>Electrical Characteristics</b>					
Data Output Voltage – Low	V <sub>IL</sub> –V <sub>CC</sub>	-1830	--	-1555	mV
Data Output Voltage – High	V <sub>IH</sub> –V <sub>CC</sub>	-1085	--	-880	mV
Signal Detect Output Voltage-- Low	V <sub>SDL</sub> –V <sub>CC</sub>	-2.0	--	-1.58	V
Signal Detect Output Voltage-- High	V <sub>SDH</sub> –V <sub>CC</sub>	-1.1	--	-0.74	V

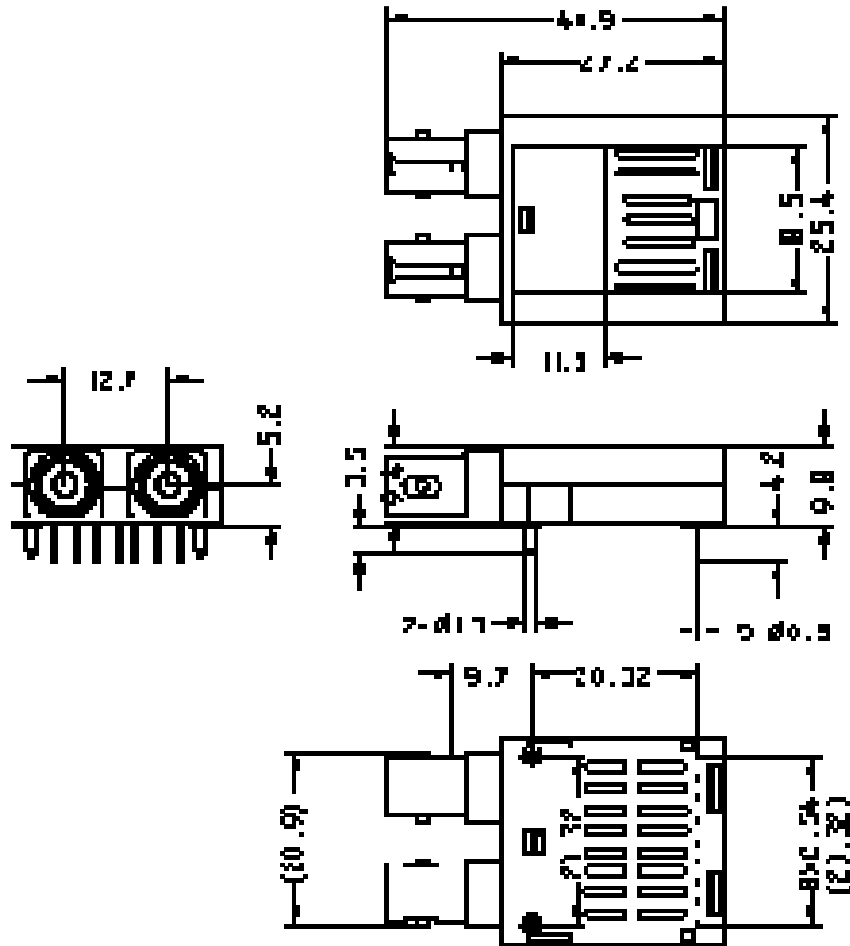
Pin Definition and Descriptions

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



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.



1x9 1550nm SM 1.25Gbps Transceiver

PRODUCT NUMBER: TSP-DxCK6-Q2T

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## Contact Information

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