

## 155M BiDi 1x9 transceiver 20Km

### Features

- 3.3V DC power supply
- 155Mbps, 20km
- PECL Signal Detection Output
- Standard SC connector
- Standard industrial 1X9 Package
- ROHS compliant
- Compliant with class one laser product
- EN0825-1

### Application

- SONET OC-3 / SDH STM-1 Equipment
- Fast Ethernet 155Mb/s Links
- Optical access network

### Ordering Information

Part Number	Bit Rate (Mbps)	Distance (km)	Wavelength (nm)	Voltage	Package	TX Power (dBm)	RX Sensitivity (dBm)	Signal detect
SPT-NB5303-S20	155	20	1550/1310	3.3V	SC	-14 ~ -3	-32	PECL
SPT-NB3503-S20	155	20	1310/1550	3.3V	SC	-14 ~ -3	-32	PECL
SPT-NB5303-F20	155	20	1550/1310	3.3V	FC	-14 ~ -3	-32	PECL
SPT-NB3503-F20	155	20	1310/1550	3.3V	FC	-14 ~ -3	-32	PECL

### Description

1550T/1310R and 1310T/1550R BiDi 1X9 pair is high performance, cost effective transceiver. It is designed to perform point to point FTTX applications at data rate up to 155Mbps for 20km distance transmission. The specifications data is listed as following table.

#### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units	Note
Storage Temperature	Ts	-40	85	°C	
Power Supply Voltage	Vcc	0	4	V	
Soldering Temperature			260	°C	10 seconds on leads only
Input Voltage	Vin	GND	Vcc	V	

Output Current	I <sub>out</sub>	0	30	mA	
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### Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	V <sub>cc</sub>	3.14	3.3	3.47	V
Operating Temperature	T <sub>op</sub>	0		70	°C
Data Rate			155		Mbps
Power Supply Current	I <sub>cc</sub>			250	mA

### Transmitter Specifications (0°C < T<sub>op</sub> < 70°C, 3.14V < V<sub>cc</sub> < 3.47V)

Parameter	Symbol	Min.	Typ.	Max.	Units
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#### Optical

Optical Transmitter Power	P <sub>o</sub> (1310TX/1550RX)	-14		-3	dBm
	P <sub>o</sub> (1550TX/1310RX)	-14		-3	
Optical Center Wavelength	λ <sub>c</sub> (1550TX/1310RX)	1500	1550	1600	nm
	λ <sub>c</sub> (1310TX/1550RX)	1260	1310	1360	
Output Spectrum Width	Δλ(1550TX/1310RX)		2	4	nm(RMS)
	Δλ(1310TX/1550RX)		2	4	nm(RMS)
Extinction Ratio	E <sub>R</sub>	12	-	20	dB
Output Eye	Compliance with ITU-T G.957				
Optical Rise Time	t <sub>r</sub>		1	2	ns
Optical Fall Time	t <sub>f</sub>		1	2	ns
Relative Intensity Noise	RIN			-116	dB/Hz

**Electrical**
**Receiver Specifications (0°C < Top < 70°C, 3.14 V < Vcc < 3.47V)**

Parameter	Symbol	Min.	Typ.	Max.	Unit
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**Optical**

Sensitivity	$S_e$			-32	dBm
Maximum Input Power(Saturation)	$P_{MAX}$	-3			dBm
Signal Detect -- Asserted	$P_a$			-32	dBm
Signal Detect -- Deasserted	$P_d$	-47			dBm
Signal Detect -- Hysteresis	$P_{hys}$	1		5	dB
Wavelength of Operation	$\lambda(1310TX/1550RX)$	1500	1550	1600	nm
	$\lambda(1550TX/1310RX)$	1260	1310	1360	

**Electrical**

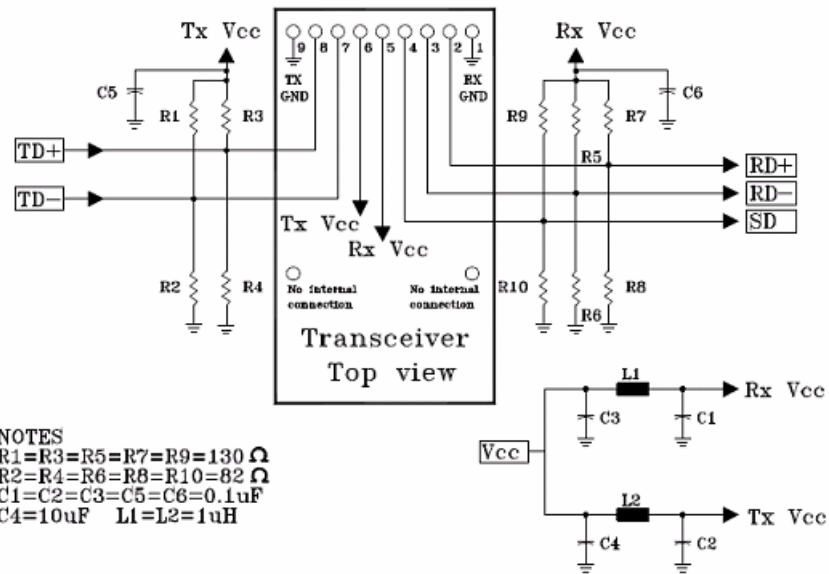
Data Output Voltage – Low	$V_{IL}-V_{CC}$	-1830		-1555	mV
Data Output Voltage – High	$V_{IH}-V_{CC}$	-1085		-880	mV
Signal Detect Output Voltage -- Low	$V_{SIL}-V_{CC}$	-2.0	-	-1.58	mV
Signal Detect Output Voltage -- High	$V_{SIL}-V_{CC}$	-1.1	-	-0.74	mV

**PIN ASSIGNMENT**

Data Input Current – Low		-350			A
Data Input Current – High				350	A
Differential Input Voltage	$V_{IH}-V_{IL}$	300		2400	mV

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 Application Circuits



### PACKAGE DIAGRAM (Units in mm)

#### SC Type

