

**1 Features**

- a. WDM single mode fibers with SC/FC/ST connector
- b. Single +5V or +3.3V Power Supply
- c. Up to 155Mbps with PECL/LVPECL signal for control
- d. Up to 120km with SM fiber

**2 Applications**

- Video monitor system
- Telephone system
- Data transmission system



**3 Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T <sub>s</sub>	-40	+85	°C
Operating Temperature	T <sub>OP</sub>	-20	+70	°C
Supply Voltage	V <sub>CC</sub>	+3	+6	V
Voltage on Any Pin	V <sub>IN</sub>	0	V <sub>CC</sub>	V
Soldering Temperature ,Time	-		260°C, 10 S	°C,S

**4 Recommended Operating Conditions**

Parameter	Symbol	Min.	Typ	Max.	Unit
Ambient Temperature	T <sub>AMB</sub>	-20	-	70	°C
Power Supply Voltage	V <sub>CC</sub> -V <sub>EE</sub>	5V	4.75	5	V
		3.3V	3	3.3	

**5 Operating Conditions**

**5.1 Transmitter (T=25°C, V<sub>CC</sub>=4.75~5.25V (+5V))**

Parameter	Symbol	Min.	Typ	Max.	Unit	
Center Wavelength	$\lambda_c$	1520	1550	1580	nm	
		1280	1310	1340		
		1470	1490	1510		
Spectral width	$\Delta\lambda$	FP@RMS	-	2	nm	
		DFB@-20dB FWHM	-	-		1
Output Power	ZD for special user	TX1310nmFP	-19	-	-13	dBm
		TX1550nmFP	-19	-	-13	
	20km	TX1310nmFP	-15	-	-8	
		TX1550nmFP	-15	-	-8	
	40km	TX1310nmFP	-9	-	-3	
		TX1550nmFP	-9	-	-3	
	60km	TX1310nmFP	-5	-	0	
		TX1550nmDFB	-8	-	-3	
80~120km	TX1550nmDFB	-3	-	2		
	TX1490nmDFB	-3	-	2		

Extinction Ratio	ER	10		-	dB
Supply Current	I <sub>CC</sub>	-		150	mA
Data Input Voltage - Low	V <sub>IL-VCC</sub>	-1.81	-	-1.48	V
Data Input Voltage - High	V <sub>IH-VCC</sub>	-1.16	-	-0.85	V
Rise/Fall Time (20%---80%)	tr/tf			2	ns
Total	Jitter			1	ns
Input Differential Impedance	Z <sub>in</sub>	90	100	110	Ω
Eye Diagram	ITU-T G.957 Compliant				

**5.2 Receiver (T=25°C, V<sub>CC</sub>=4.75~5.25V (+5V))**

Parameter		Symbol	Min.	Typ	Max.	Unit
Wavelength Range		λ <sub>c</sub>	1100	1550	1610	nm
Sensitivity	20km	P <sub>MIN</sub>	-	-	-32	dBm
	40/60/80km		-	-	-34	
	100				-36	
	120				-38	
MAX. Input Power (Saturation)		P <sub>MAX</sub>	-3	-	-	
Signal Detect Assert		P <sub>A</sub>	-	-	-32	
Signal Detect De-assert		P <sub>D</sub>	-45	-	-	
Signal Detect Hysteresis		P <sub>PHYS</sub>	1	-2	4	dB
Supply Current		I <sub>CCR</sub>	-	-	120	mA
Data output Voltage - High		V <sub>OH</sub>	-1.16	-	-0.85	V
Data output Voltage - Low		V <sub>OL</sub>	-1.81	-	-1.48	
Signal Detect Voltage – High		V <sub>SDHC</sub> (IF TTL)	2	-	-	
Signal Detect Voltage – Low		V <sub>SDL</sub> (IF TTL)	0	-	0.8	
Signal Detect Voltage – High		V <sub>SDHC</sub> (IF PECL)	-1.1	-	-0.74	
Signal Detect Voltage – Low		V <sub>SDL</sub> (IF PECL)	-2.0	-	-1.58	

Notes:

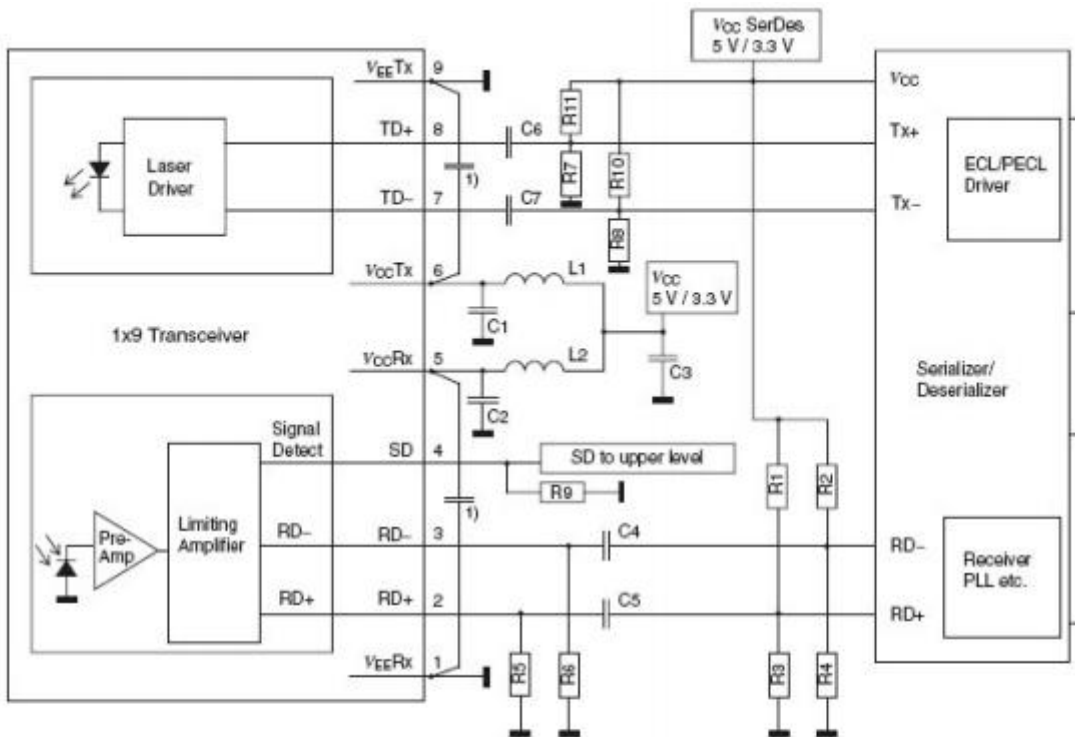
switch from a high state to a low state.

- 1) Value of output power and sensitivity can be customized according to the demand
- 2) An increase in optical power of data signal above the specified level will cause the Signal Detect to switch from a low state to a high state.
- 3) A decrease in optical power of data signal below the specified level will cause the Signal Detect to switch from a high state to a low state.

**6 Pin Assignment**

Pin	Descriptions	Pin	Descriptions
1	Rx VEER :Receiver GND	6	Tx VCCT : Transmitter VCC
2	Rx Data + : Receiver Data Out +	7	Tx Data- :Transmitter Data Input
3	Rx Data- : Receiver Data Out -	8	Tx Data+ :Transmitter Data Input
4	SD :Signal Detect Status Flag	9	Tx VEET : Transmitter GND
5	Rx VCCR: Receiver VCC		

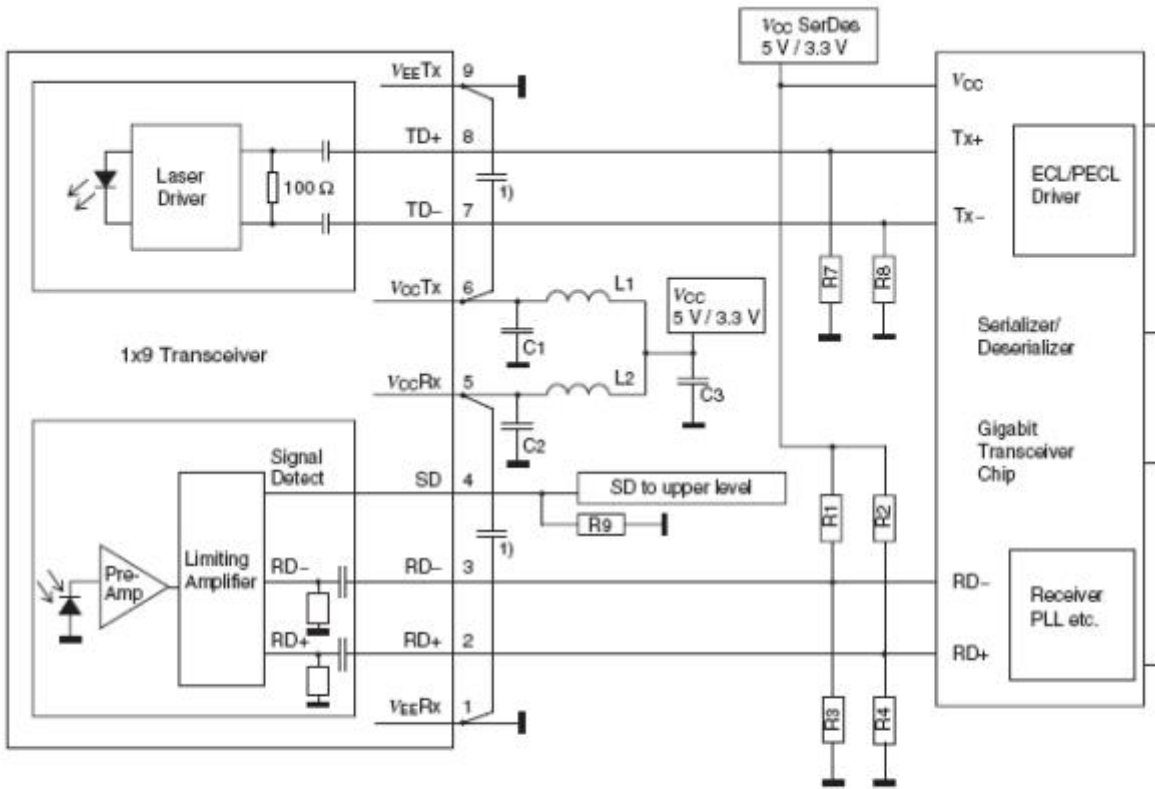
**7 Recommend Circuit**



- C1/2/3 = 4.7  $\mu$ F
- C4/5/6/7 = 100 nF
- L1/2 = 1  $\mu$ H
- R5/6 = 270  $\Omega$  (5 V)
- = 150  $\Omega$  (3.3 V)
- R7/8 = 127  $\Omega$  (5 V)
- = 82  $\Omega$  (3.3 V)
- (depends on SerDes chip used)
- R9 = 510  $\Omega$  (5 V)
- = 270  $\Omega$  (3.3 V)

- R10/11 = 82  $\Omega$  (5 V)
- = 127  $\Omega$  (3.3 V)
- (depends on SerDes chip used)
- Place R1/2/3/4 close to SerDes chip, depends on SerDes chip used.
- Place R5/6/7/8/10/11 close to 1x9 transceiver.

**DC Coupling inside**



- C1/2/3 = 4.7  $\mu$ F
- L1/2 = 1  $\mu$ H
- R1/2/3/4 = Depends on SerDes chip used
- R7/8 = Biasing (depends on SerDes chip)
- R9 = open (5 V/3.3 V TTL)
- = 510  $\Omega$  (5 V PECL)
- = 270  $\Omega$  (3.3 V PECL)

Place R1/2/3/4/7/8 close to SerDes chip.  
Place R5/6 close to 1x9 transceiver.

**AC Coupling inside**

**8 Ordering Information**

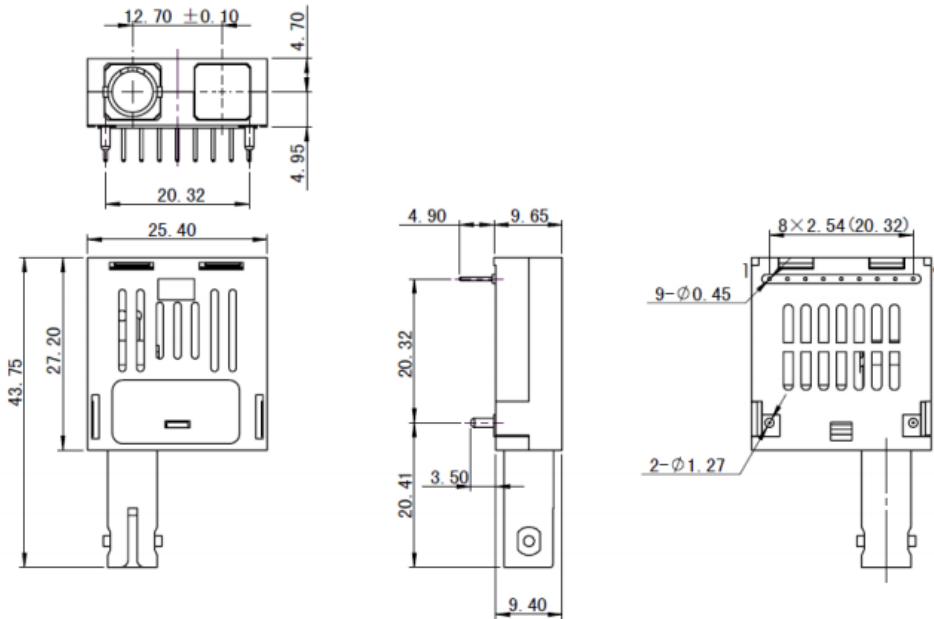
**8.1 Example**

**DTR 3 5 03 -F 1 4 SC-20**

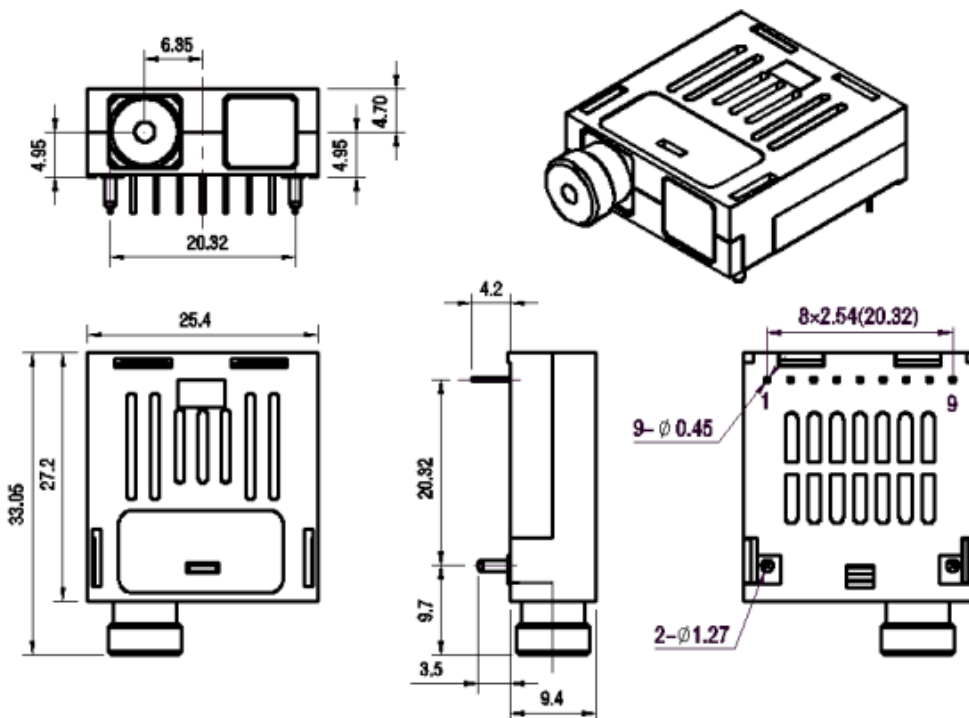
Sign	Mean	Description					
STR	Module type	STR= Single fiber transceiver receptacle			STP= Single fiber transceiver pigtail		
3	Center wave TX	3=1310nm		4=1490nm	5=1550nm		
5	Center wave RX	3=1310nm	5=1550nm	X=1100~1610nm			
03	Transmitter Rate	01=52M	02=84m	03=155M	24=1.25G	48=2.5G	
F	Laser type	F=FP		D=DFB		C=CWDM	V=VCSEL
1	Operating T	1=0~+70°C		2=-40~+85°C			
4	Voltage	3=3.3V DC		4=3.3V&5V		5=5V DC	
SC	Connector	SC=SC/UPC	SA=SC/APC	FC=FC	ST=ST		
20	Distance	022=220M		055=550M		5=5KM	10=10KM
		20=20KM		40=40KM		80=80KM	100=100KM

Part No.	Wavelength	Connector	Temp.	TX Power (dBm)	RX Sens (Max.) (dBm)	Distance
STR3503-F*- <b>ZD</b>	Tx1310FP/Rx xx	SC/FC/ST	-20 to 70	-19 to-13	-30	15km for special user
STR3503-F*-20	Tx1310FP/Rx xx	SC/FC/ST	-20 to 70	-15 to-3	-32	20km
STR5303-F*-20	Tx1550FP/Rx xx	SC/FC/ST	-20 to 70	-15 to-3	-32	20km
STR3503-F*-60	Tx1310FP/Rx xx	SC/FC/ST	-20 to 70	-5 to0	-34	60km
STR5303-D*-60	Tx1550DFB/Rx xx	SC/FC/ST	-20 to 70	-5 to-0	-34	60km

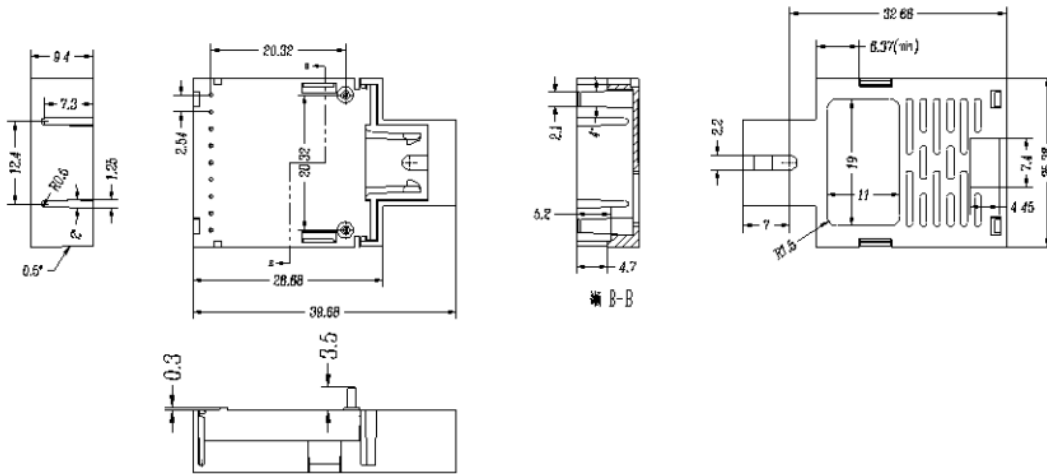
8.2.1 ST receptacle



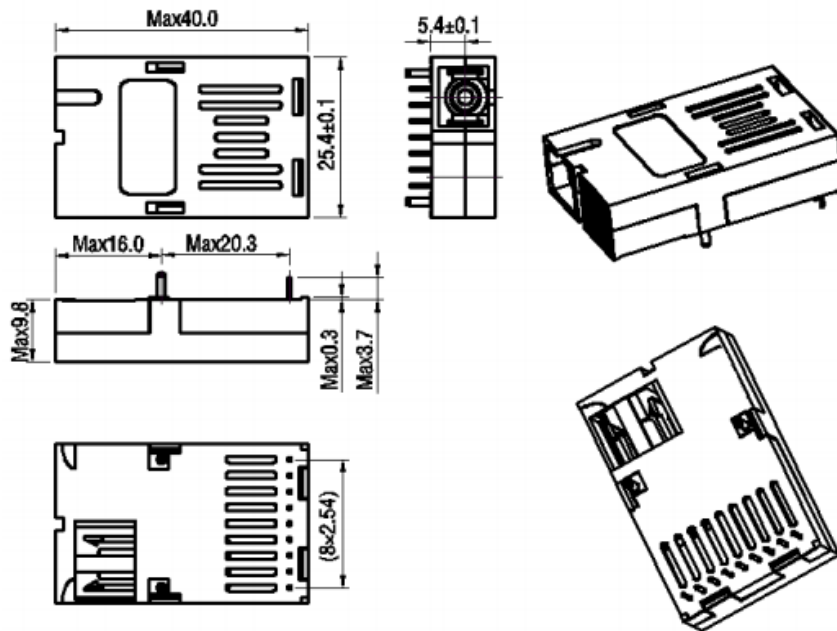
8.2.2 FC receptacle



8.2.3 .1 SC middle receptacle



8.2.3 .2SC side receptacle



REV:	A
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