

## FEATURES

- SC/FC/ST Duplex Transceiver
- Industry Standard 1x9 Footprint
- Laser wavelength 850VCSEL
- Single 3.3/5V Power Supply
- LVPECL/PECL Signal Detection Output
- Wave Solderable and Aqueous Washable
- SONET OC-12 SDH STM-4 Compliant
- ROHS Compliant



## APPLICATIONS

- ATM 622M Links
- SONET/SDH Equipment Interconnect

Absolute Maximum Ratings					
Parameter	Symbol	Min.	Max.	Units	Note
Storage Temperature	Ts	-40	85	°C	
Power Supply Voltage	Vcc	0	4.5	V	F1x-22S88-3xP
		0	6	V	F1x-22S88-5xP
Soldering Temperature			260	°C	10 seconds on leads only
Input Voltage	Vin	GND	Vcc	V	
Output Current	Iout	0	30	mA	

Recommended Operating Conditions						
Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Power Supply Voltage	Vcc	3.15	3.3	3.45	V	F1x-22S88-3xP
		4.75	5	5.25	V	F1x-22S88-5xP
Operating Temperature	Top	0		70	°C	F1x-22S88-xCP
		-40		85	°C	F1x-22S88-xTP
Data Rate			622		Mbps	
Power Supply Current	Icc		150	250	mA	

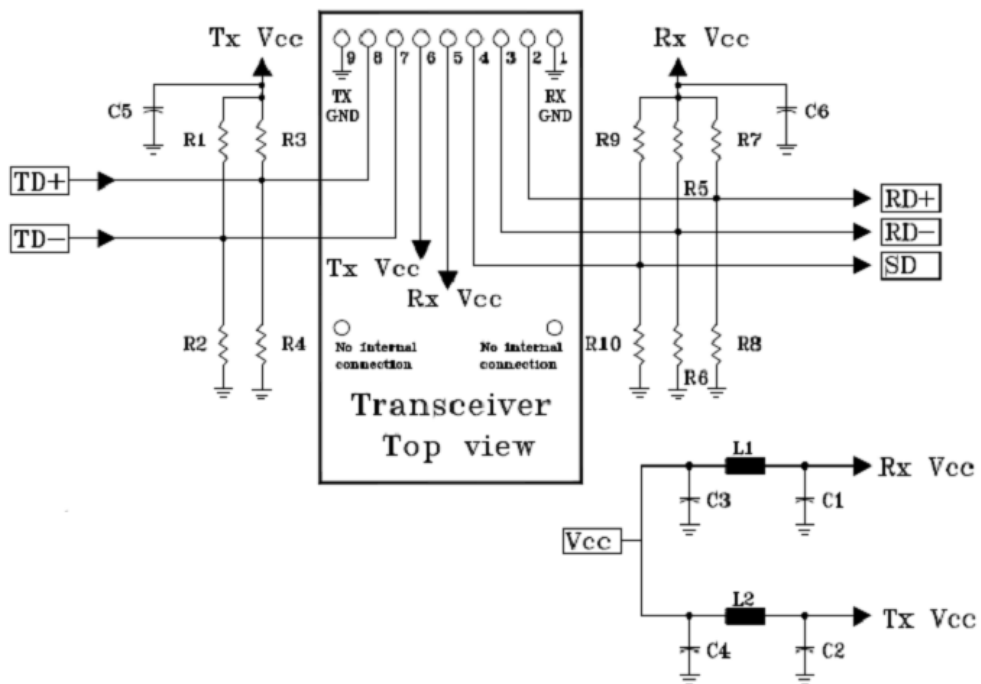
<b>Transmitter Specifications</b>					
<b>Parameter</b>	<b>Symbol</b>	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	<b>Units</b>
<b>Optical</b>					
Optical Transmit Power	Po	-10		-4	dBm
Optical Center Wavelength	$\lambda_C$	830	850	860	nm
Output Spectrum Width	$\Delta\lambda$			0.85	nm
Extinction Ratio	ER	8.2	-	-	dB
Output Eye	Compliance with ITU-T G.957				
Optical Rise Time	tr			1.2	ns
Optical Fall Time	tf			1.2	ns
Relative Intensity Noise	RIN			-116	dB/Hz
<b>Electrical</b>					
Data Input Current – Low		-350			uA
Data Input Current – High				350	uA
Differential Input Voltage	VIH -VIL	300		2400	mV

<b>Receiver Specifications</b>					
<b>Parameter</b>	<b>Symbol</b>	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	<b>Units</b>
<b>Optical</b>					
Sensitivity	Sen			-26	dBm
Maximum Input Power(Saturation)	P <sub>MAX</sub>	-3			dBm
Signal Detect -- Asserted	Pa			-26	dBm
Signal Detect -- Deasserted	Pd	-42			dBm
Signal Detect -- Hysteresis	Phys	1		5	dB
Wavelength of Operation	$\lambda$	770		860	nm
<b>Electrical</b>					
Data Output Voltage – Low	VOL –VCC	-1830		-1555	mV
Data Output Voltage – High	VOH –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 ASSIGNMENT

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



### Notes(3.3V)

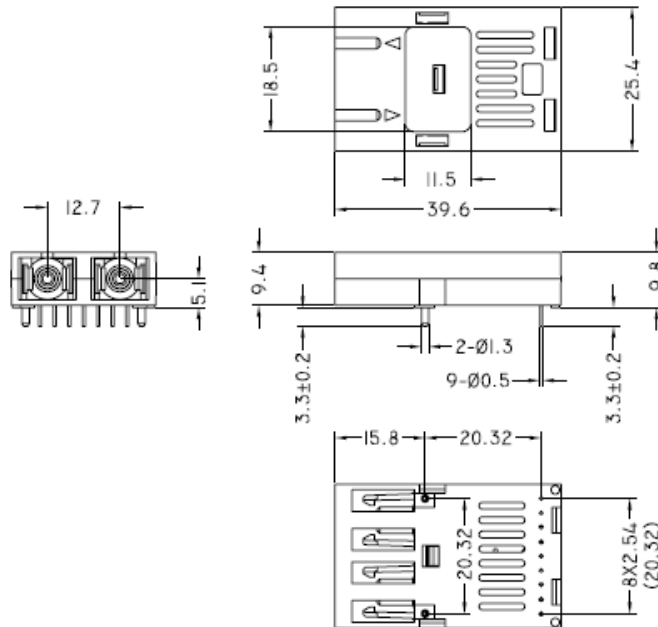
$R1=R3=R5=R7=R9=130\ \Omega$   
 $R2=R4=R6=R8=R10=82\ \Omega$   
 $C1=C2=C3=C5=C6=0.1\ \mu F$   
 $C4=10\ \mu F$     $L1=L2=1\ \mu H$

### Notes(5V)

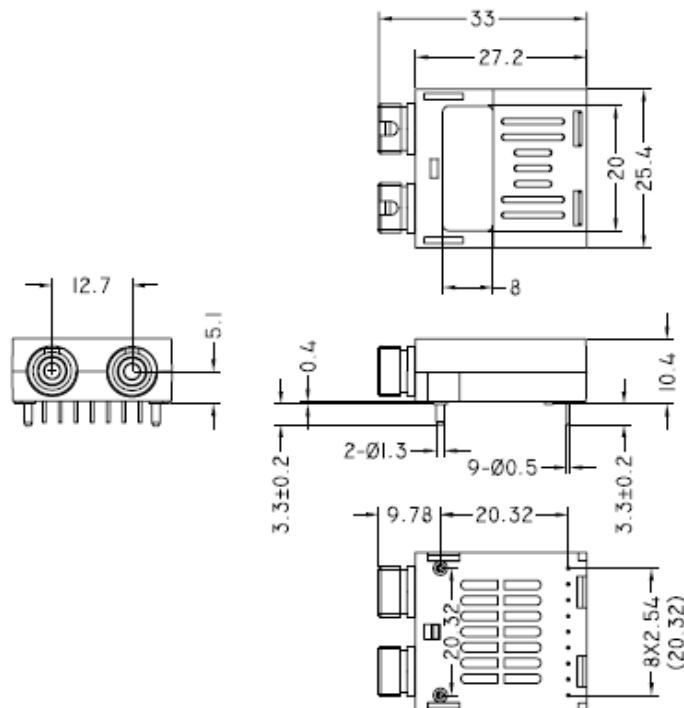
$R1=R3=R5=R7=R9=82\ \Omega$   
 $R2=R4=R6=R8=R10=130\ \Omega$   
 $C1=C2=C3=C5=C6=0.1\ \mu F$   
 $C4=10\ \mu F$     $L1=L2=1\ \mu H$

**PACKAGE DIAGRAM (Units in mm)**

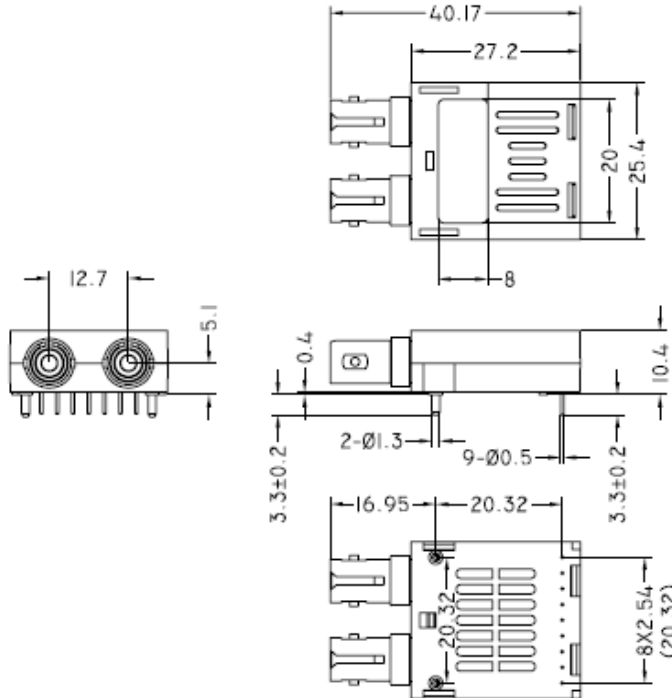
**1) SC Type**



**2) FC Type**



3) ST Type  
F1x-11S



=0~70°C, T=-40~85°C  
}. 3V, 5=5V

## ORDER INFORMATION

F1x-22S88-xxP

Operating Temperature:C=0~70°C, T=-40~85°C

Power Supply Voltage:3=3.3V, 5=5V

Connector:S=SC, F=FC, T=ST