

1X9 Single Mode Fiber DUAL Transceiver

2~52Mbps 10~20km

RTR1-3F01-1C**

Product Features

- 1310nm FP Laser Transmitter
- InGaAs PIN-TIA Photodiode Receiver
- Reach 20km Transmission Distance on 9/125μm SMF
- DUAL Single Mode Transceiver 1x9 Footprint
- SC, FC or ST Optical Interface are Optional
- Single +3.3V/5V Power Supply
- TTL Single-terminal Input and Output
- LVPECL/LVTTL Signal Detection Output
- Compliant With RoHS and Lead Free
- Metal Enclosure for Lower EMI
- Operating Case Temperature:
 - Standard: 0 to +70°C
 - Extend: -20 to +75°C
 - Industrial: -40 to +85°C

Product Applications

- ATM/SONET/SDH
- Switch/Router
- Other Optical Transmission Systems

Performance Specifications

➤ Absolute Maximum Ratings

Parameter	Symbol		Min	Max	Unit
Storage Temperature	Tst		-40	+85	°C
Operating Temperature	To	RTR1-3F01-1C**	0	+70	°C
Input Voltage	-		GND	V _{CC}	V
Power Supply Voltage	V _{CC} -V _{EE}		0	+6	V

Note: Stress in excess of maximum absolute ratings can cause permanent damage to the module

➤ Recommended Operating Conditions

Parameter	Symbol		Min	Typ	Max	Unit
Storage Temperature	Tst		-40	-	+85	°C
Operating Case Temperature	Tc	RTR1-3F01-1C**	0	-	+70	°C
Power Supply Voltage	V _{CC}		3.13	3.3	3.47	V
Power Supply Voltage	V _{CC}		4.75	5.0	5.25	V
Power Supply Current	I _{CC}		-	-	300	mA
Data Rate	DR		-	52	-	Mbps

➤ Optical Specification

Transmitter							
Parameter		Symbol	Min	Typ	Max	Unit	Note
Center Wavelength	1310 FP	λ_c	1260	1310	1360	nm	-
Spectral Width	FP	$\Delta\lambda$	-	-	3	nm	-
Average Optical Output Power		P _O	-15	-	-8	dBm	-
Extinction Ratio		ER	11	-	-	dB	-
Optical Rise/Fall Time(20%-80%)		Tr/Tf	-	-	6	ns	-
Receiver							
Parameter		Symbol	Min	Typ	Max	Unit	Note
Operate Wavelength		-	1260	-	1620	nm	-
Receiver Sensitivity		R _{SENS}	-	-	-30	dBm	1
Receiver Saturation		P _{RS}	-6	-	-	dBm	1
SD Assert		-	-35	-	-	dBm	-
SD De-Assert		-	-	-	-30	dBm	
SD Hysteresis		-	0.5	-	5	dBm	-

Electrical Specification

Transmitter						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Power Supply Current	I_{CC}	-	70	180	mA	2
Input Single-terminal Impedance	Z_{IN}	45	50	55	Ω	-
Single-terminal Input Voltage	$V_{IH}-V_{IL}$	300	-	1000	mV	-
Single-terminal Input Voltage-Low	$V_{IL}-V_{CC}$	-	-	0.8	V	TTL/LVTTL
Single-terminal Input Voltage-High	$V_{IH}-V_{CC}$	2.0	-	-	V	
Receiver						
Parameter	Symbol	Min	Typ	Max	Unit	Note
Power Supply Current	I_{CC}	-	70	150	mA	2
Single-terminal Output Voltage-Low	$V_{OL}-V_{CC}$	-	-	0.8	V	TTL/LVTTL
Single-terminal Output Voltage-High	$V_{OH}-V_{CC}$	2.0	-	-	V	
Signal Detect Output Voltage-Low	$V_{SDL}-V_{CC}$	-	-	0.8	V	TTL/LVTTL
Signal Detect Output Voltage-High	$V_{SDH}-V_{CC}$	2.0	-	-	V	

Note: 2. The current excludes the output load current.

3. Terminated with 500hm to $V_{CC}-2V$.

Pin Definitions

PIN Diagram

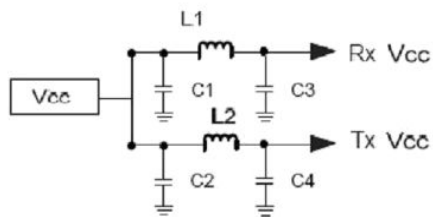
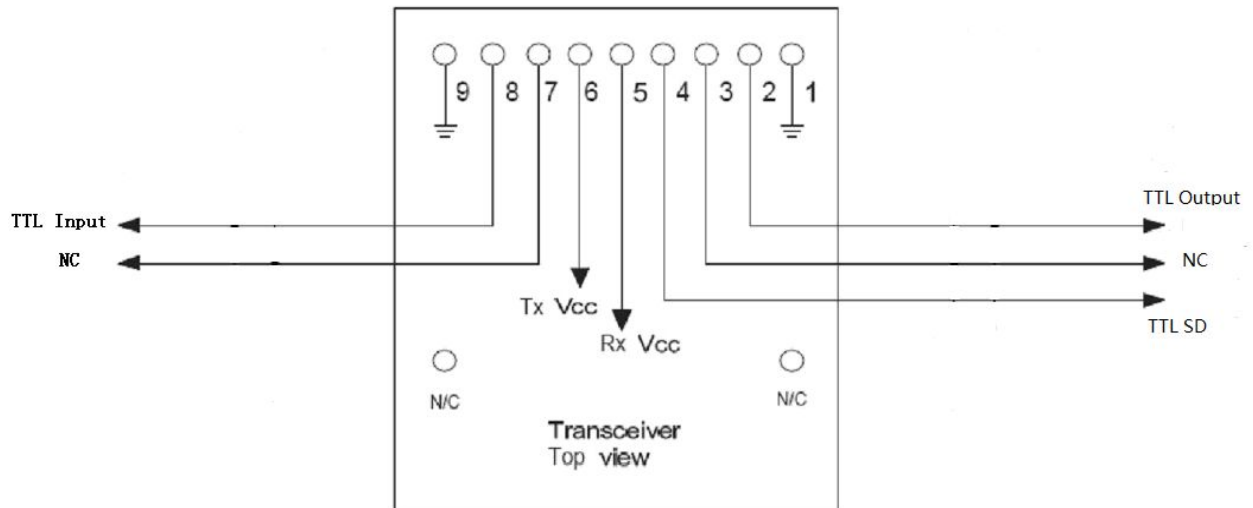


PIN Description

PIN	Symbol	Note
1	GNDR	Directly connect this pin to receiver signal ground plane.
2	RD+	See recommended circuit schematic.
3	RD-	NC
4	SD	Active high on this indicates a receiver optical signal.
5	V_{CCR}	+3.3V/+5.0V DC power for the receiver section.
6	V_{CCT}	+3.3V/+5.0V DC power for the transmitter section.
7	TD-	NC
8	TD+	See recommended circuit schematic.
9	GNDT	Directly connect this pin to transmitter signal ground plane.

Recommended Circuit

▶ TTL Transmitter And TTL Receiver

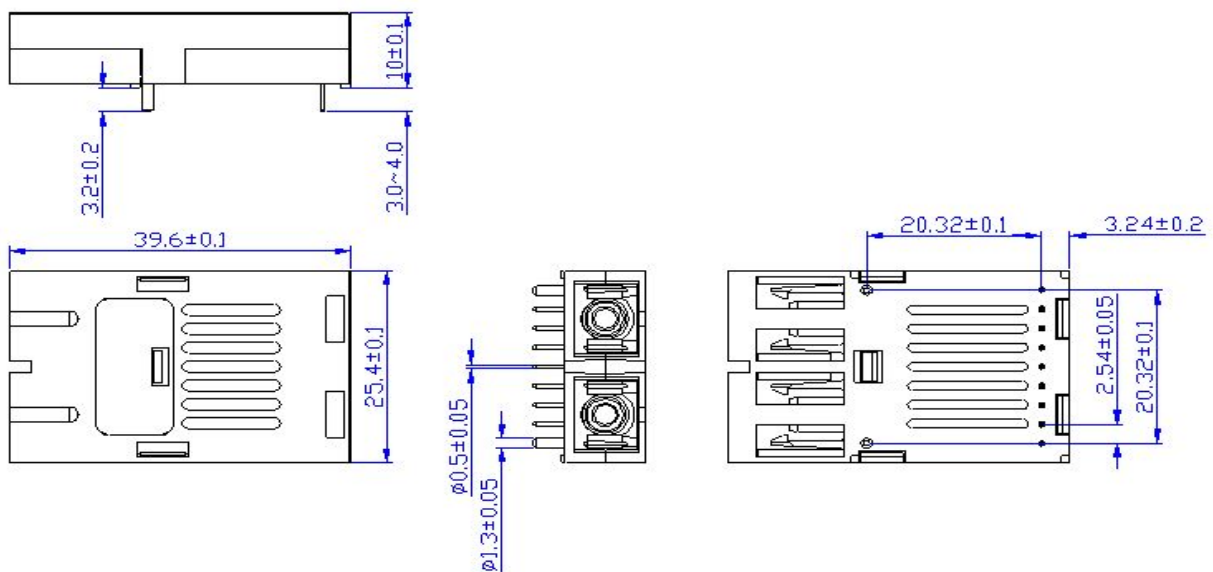


Notes:

- C1=C2=10uF
- C3=C4=C6=0.1uF
- L1=L2=1uH

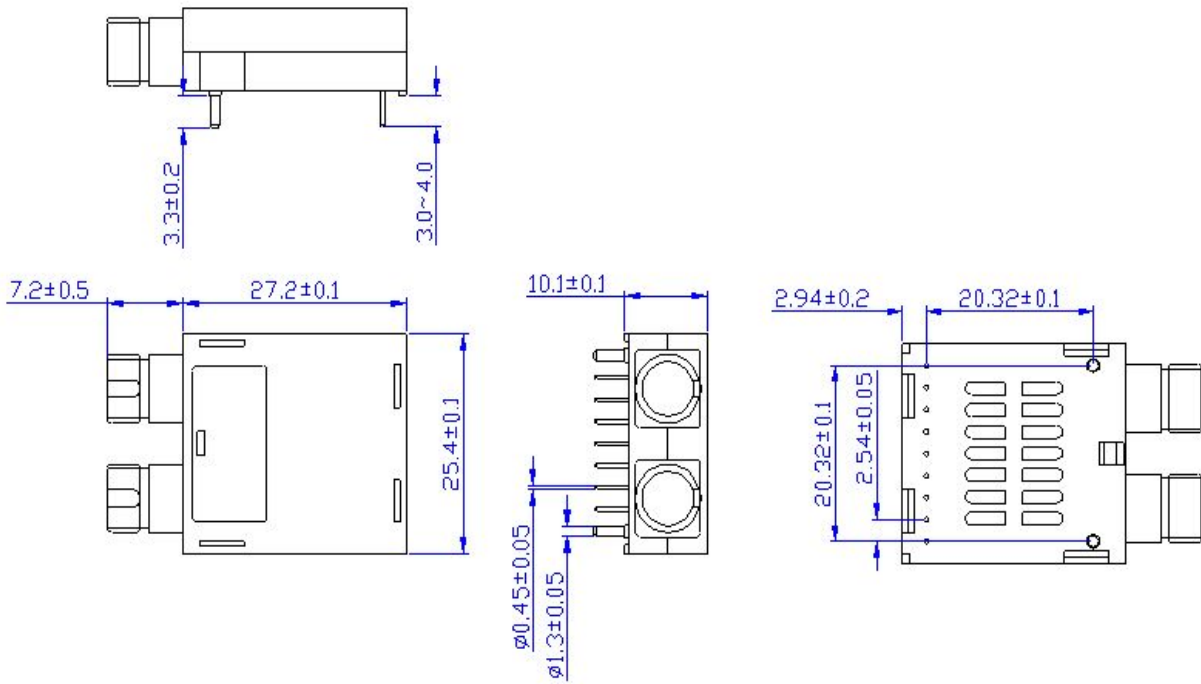
Package Diagram

▶ SC Interface



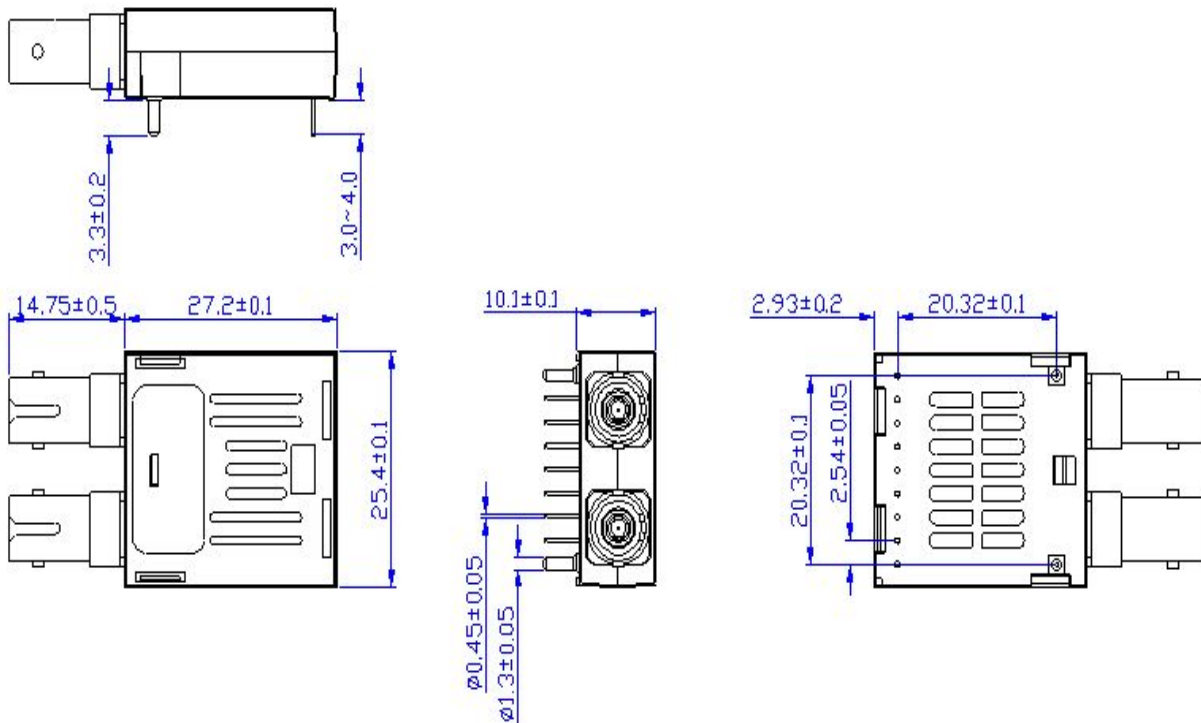
Unit: mm

➤ **FC Interface**



Unit: mm

➤ **ST Interface**



Unit: mm

Order Information

R	TR	1	-	3F	01	-	1	*	*	*	*	
REON	1X9	1=DUAL Fiber Inter- face	-	3F=1310nm FP	01=2~52 Mbps	-	-15~-8 dBm	C	0~+70 °C	2=SC/PC 3=SC/APC 4= FC/PC 5=FC/APC 6=ST/PC 7=ST/APC	3=3.3V TTL signal/TTL alarm 7=5V TTL signal /TTL alarm	Customer Information

P/N	Package	Fiber Type	Data Rate (bps/Hz)	Reach	Tx(nm)	Rx	Temperature (°C)	Connector Type	Voltage
RTR1-3F01-1C23	1x9	SM	2~52M	10~20km	1310 FP	PIN	0~+70	SC	3.3V
RTR1-3F01-1C27	1x9	SM	2~52M	10~20km	1310 FP	PIN	0~+70	SC	5V
RTR1-3F01-1C43	1x9	SM	2~52M	10~20km	1310 FP	PIN	0~+70	FC	3.3V
RTR1-3F01-1C47	1x9	SM	2~52M	10~20km	1310 FP	PIN	0~+70	FC	5V
RTR1-3F01-1C63	1x9	SM	2~52M	10~20km	1310 FP	PIN	0~+70	ST	3.3V
RTR1-3F01-1C67	1x9	SM	2~52M	10~20km	1310 FP	PIN	0~+70	ST	5V

For more information:

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