



Jiangsu TX Plastic Optical Fibers Co.,Ltd

650nm Optic Fiber
DC-5MBd High Performance Optoelectronic
Transceiver Devices

Specifications

TX-IFA521S/521R

2021.10

www.txpof.com



一、Product Overview

- 1、Product Name: Horizontal Universal Link Package/Connector
- 2、Product Code: TX-IFA521S/521R
- 3、Selection Instructions

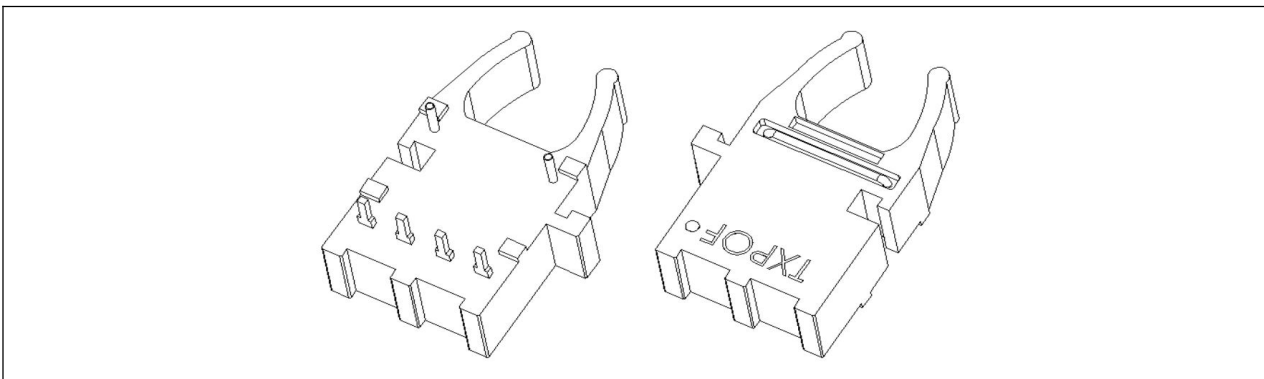
Rate	Distance(m)	Distance(m)	Transmitter	Receiver	Note
5Mbd	100@25°C	60@-40°C~+95°C	TX-IFA521S	TX-IFA521R	Remark 1

Remark 1: Unless otherwise specified, The operating temperature range is: -40°C~+95°C

4、Product Features

- ▲ Compliant with RoHS standards
- ▲ Low cost fiber optic components
- ▲ Data transmission rate: DC-5 MBd
- ▲ High noise resistance
- ▲ Non flammable
- ▲ Transmit with 650 nm Red LED, Easy to view
- ▲ Compatible with standard TTL circuits
- ▲ 3D models can be provided upon request
- ▲ The working temperature range is: -40°C~+95°C
- ▲ Power supply voltage support: 3.3V and 5V

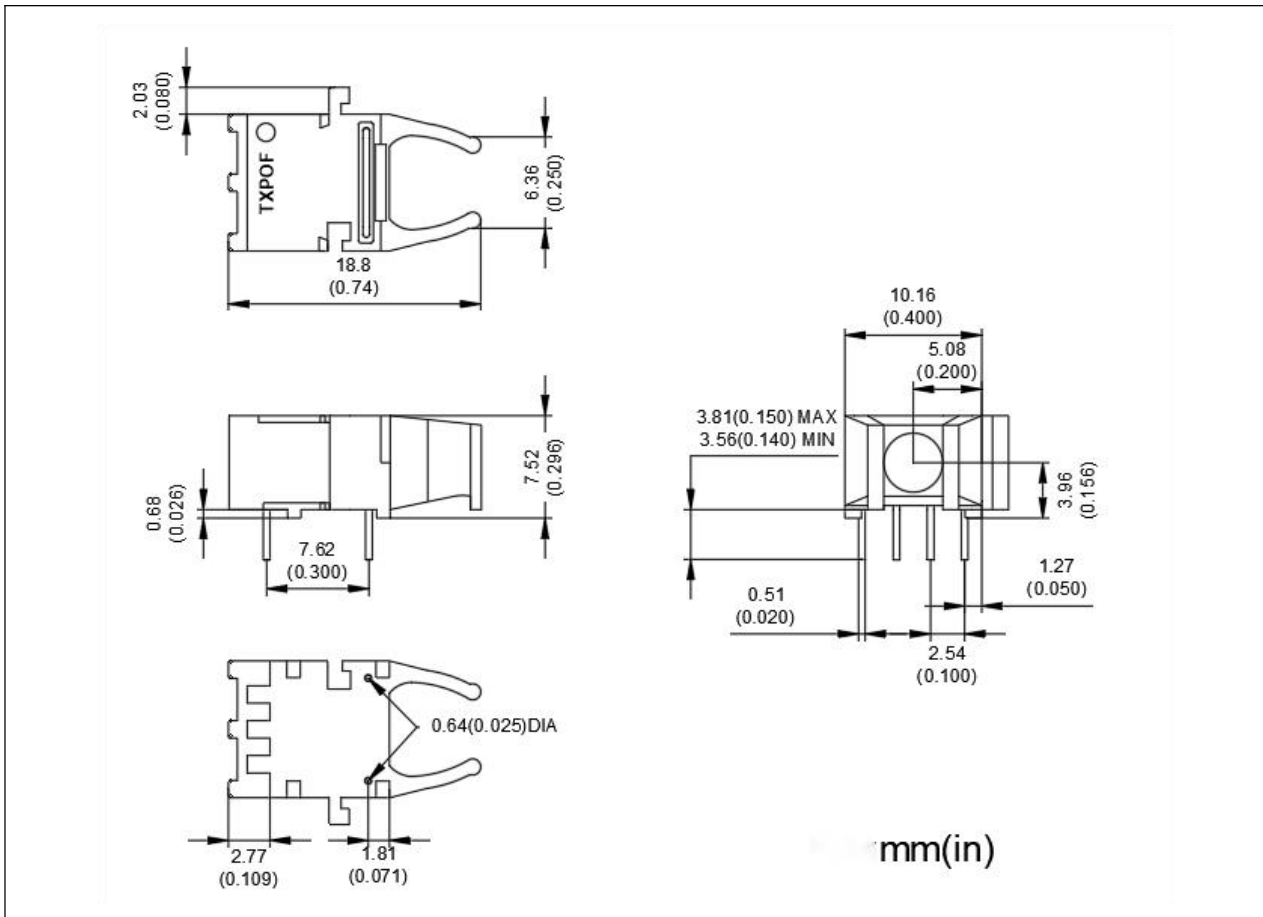
5、Product Diagram



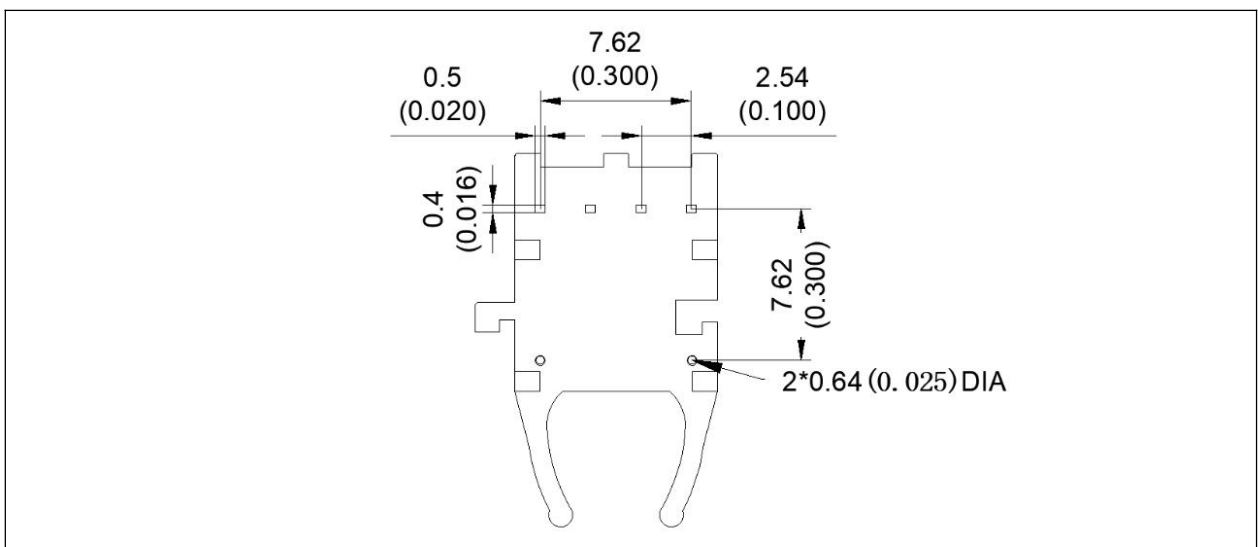


二、Product Parameters

1、Mechanical Dimensions



2、PCB Dimensions - Horizontal Packages



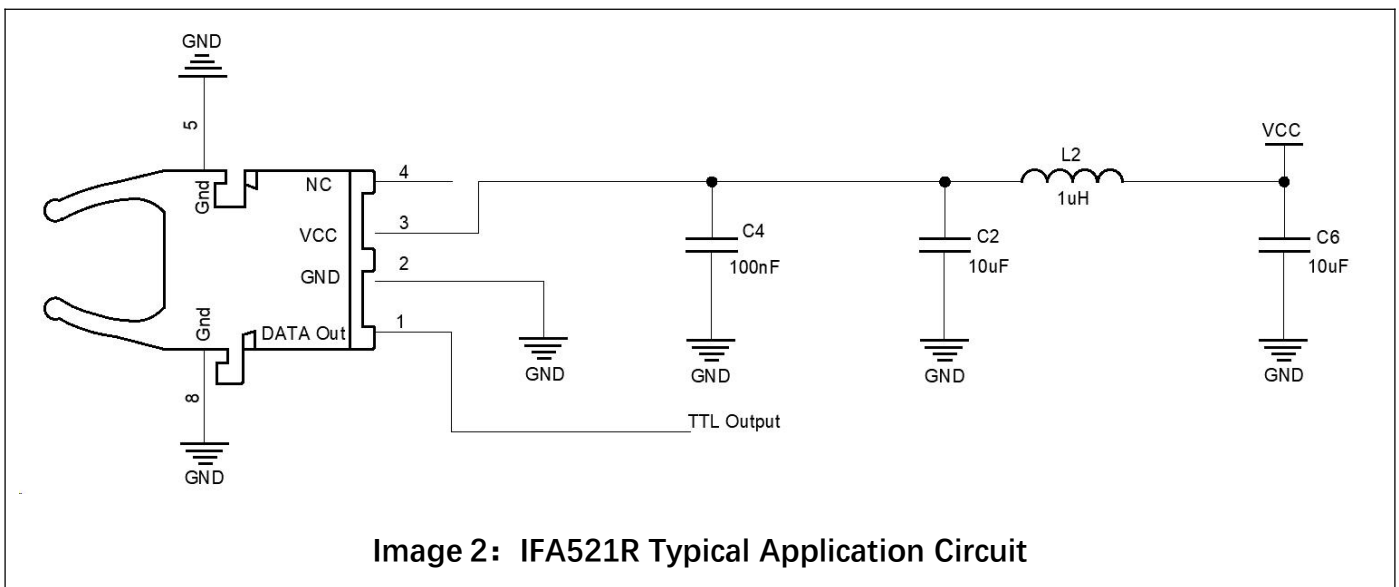
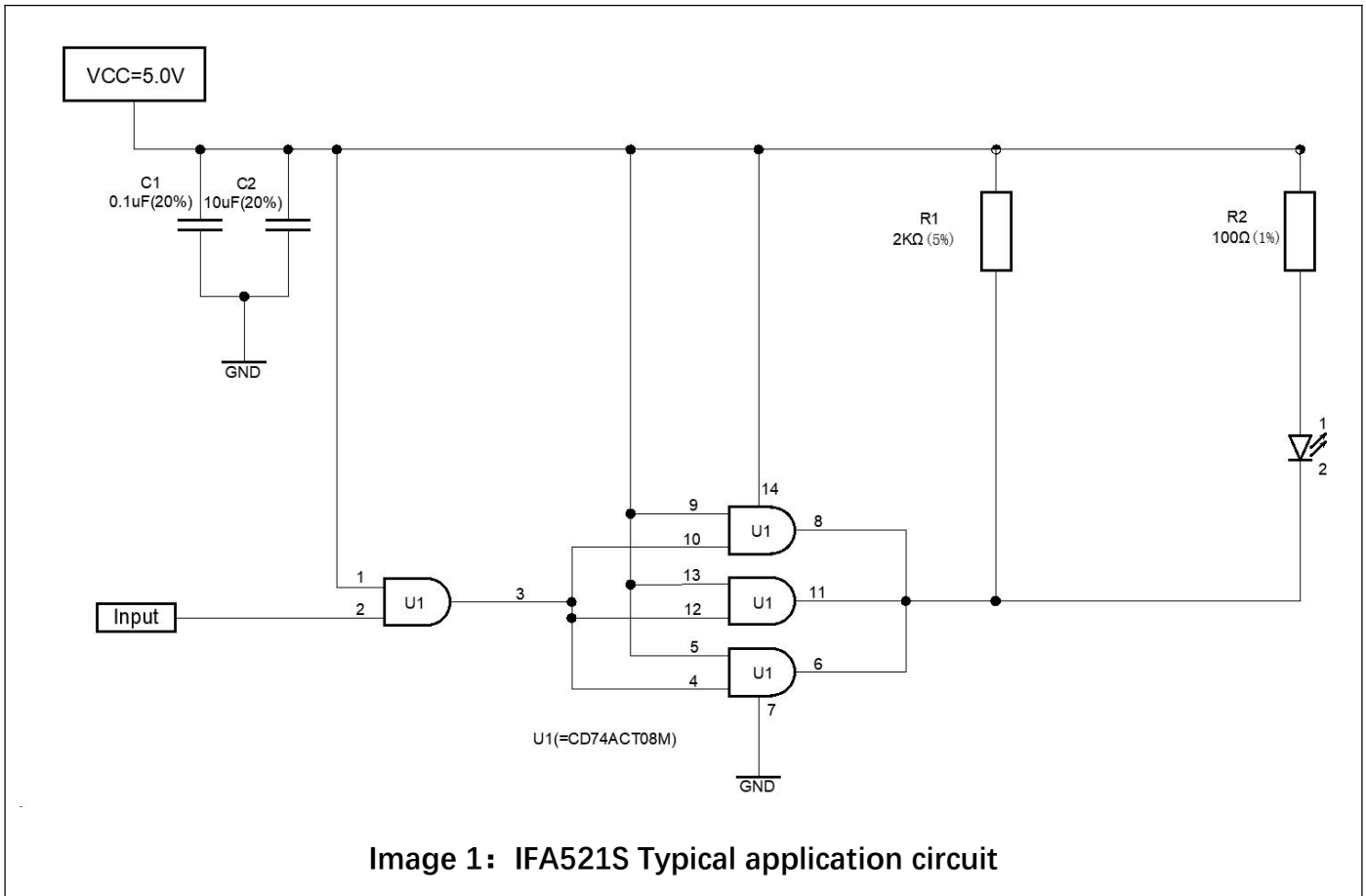


3、Optoelectronic Characteristic Indicators of Transmission and Reception Links

Parameter	Symbol	Minimum Value	Typical Value	Maximum Value	Unit	Conditions	Note
Signal Rate		DC	5		MBd	$BER \leq 10^{-9}$, PRBS:2 ⁷ -1	Remark3
Link Distance	d	60	100		m	$I_{Fdc}=30mA$	Remark3
Transmission Delay (from low to high)	t_{PLH}		30		ns	Length of POF Cable=0.1m	Remark1、 2、 3
Transmission Delay (from high to low)	t_{PHL}		33		ns	Length of POF Cable=0.1m	Remark1、 2、 3
Pulse Width Distortion	t_p		3		ns	Length of POF Cable=0.1m	Remark2、 3

Remark

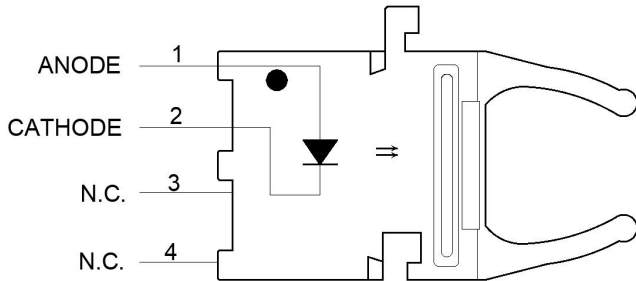
- 1、 The transmission delay of a 1-meter optical cable is usually 5ns;
- 2、 Transmission delay test conditions: $P_R=-2dBm$;
- 3、 Optical link performance can be guaranteed only when TX-IFA521S and TX-IFA521R are used together





三、Transmitter TX-IFA521S Parameter

1、Pin Definition



Pin	Description
1	LED Anode
2	LED Cathode
3	N.C
4	N.C

2、Absolute Maximum Rated Value

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	T_S	-40	+95	°C	
Operating Temperature	T_A	-40	+95	°C	
Cycle Lead Soldering	Temperature		260	°C	Remark1
Temperature	Time		10	S	
Average Forward Input Current	$I_{F, AVG}$		50	mA	
Reverse Input Voltage	V_R		10	V	T=25°C
ESD		3000		V	HBM

Remark

- 1、 1.6 mm below the seating plane



3、Electrical and Optical Characteristics (Temperature -40°C-95°C, Voltage 4.75v<Vcc<5.25v)

Parameter	Symbol	Minimum value	Typical value	Maximum value	Unit	Conditions	Note
Output Optical Power	P_T	-7	-0.5	1.0	dBm	$I_{Fdc}=30mA$	Remark1、 2
		-6	-0.5	1.5	dBm	$I_{Fdc}=30mA, 25^{\circ}C$	Remark1、 2
Output Optical Power Temperature Coefficient	$\Delta P_T / \Delta T$		-0.3		%/°C		
Peak Emission Wavelength	λ_{PK}		650		nm		
Forward Voltage	V_F	1.8	1.95	2.2	V	$I_{Fdc}=30mA$	
Effective Diameter of Optical Fiber	D		1		mm		
Rise Time	t_r		14	30	ns	$I_F=30mA$	
Fall Time	t_f		14	30	ns	$I_F=30mA$	

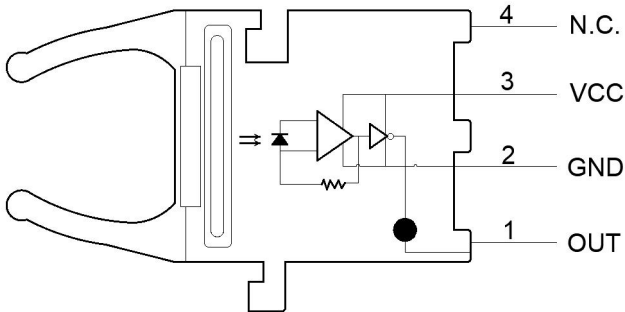
Remark

- 1、 Measured at the end of a 0.1m POF (1 mm, 0.5 NA) with a large area optical detector.;
- 2、 Optical power: $P(dBm)=10 \text{ Log } [P(\mu W)/1000 \mu W]$ 。



四、Receiver TX-IFA521R Parameter

1、Pin Definition



Pin	Description
1	Vout
2	GND
3	Vcc
4	NC

2、Absolute maximum rated value

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	T_s	-40	+95	°C	
Operating Temperature	T_A	-40	+95	°C	
Cycle Lead Soldering Temperature			260	°C	Remark1
Temperature Time			10	S	
Supply Voltage	V_{CC}	-0.5	6	V	
ESD		3000		V	HBM

Remark

- 1.6 mm below the seating plane



3、Electrical and Optical Characteristics (Temperature -40 °C -95 °C , Voltage 3.15V<Vcc<3.46V OR 4.75V<Vcc<5.25V)

Parameter	Symb ol	minimu m value	Typical value	Maximum value	Unit	Conditions	Note
Input Power When Outputting "0"	$P_{R(L)}$	-24		1	dBm		Remark1、 2
Input Power When Outputting "1"	$P_{R(H)}$			-40	dBm	$V_O=5V$	Remark1
Data Output Voltage – High	V_{OH}	2.5		$V_{CC}+0.3$	V	$P_R=0$	
Data Output Voltage – Low	V_{OL}	-0.3		0.4	V	$P_R=P_{RLMIN}$	
Power Supply Current	I_{CC}		6	10	mA	$V_{CC}=5V$	
Rise Time	T_R			10	ns	$R_L=5K\Omega, C_L=20pF$	
Fall Time	T_F			10	ns	$R_L=5K\Omega, C_L=20pF$	
Vcc Level to Deactivate POR	V_{ON}		2.8		V		
Vcc Level to Activate POR	V_{OFF}		2.6		V		
POR Deactivate Delay Time	T_{PORD}		100		μs		
Effective Diameter of Optical Fiber	D		1		mm		

Remark

- 1、Optical power: $P(dBm)=10 \text{ Log } [P(\mu W)/1000 \mu W]$;
- 2、Measured at the end of a 0.1m POF (1 mm, 0.5 NA) with a large area optical detector.