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**DATA SHEET**

**PART NO. : PA-ITRLR9908**

**REV : A / 0**

CUSTOMER'S APPROVAL : \_\_\_\_\_

DCC : \_\_\_\_\_

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LD-R/E020



# INFRARED REMOTE CONTROL RECEIVER MODULE

PA-ITRLR9908

REV:A / 0

## Descriptions

The PA-ITRLR9908 consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side onconverging optical axis in a black thermoplastic housing.The phototransistor receives radiation from the IR only .Thisis the normal situation. But when an object is in between , phototr ansistor could not receives the radiation.Foradditional component information , please refer to IR and PT.

## Features

Fast response time

High analytic

Cut-off visible wavelength  $\lambda_p=940\text{nm}$

High sensitivity

Pb free

This product itself will remain within RoHS compliant version.

## Applications

Mouse Copier

Switch Scanner

Floppy disk driver

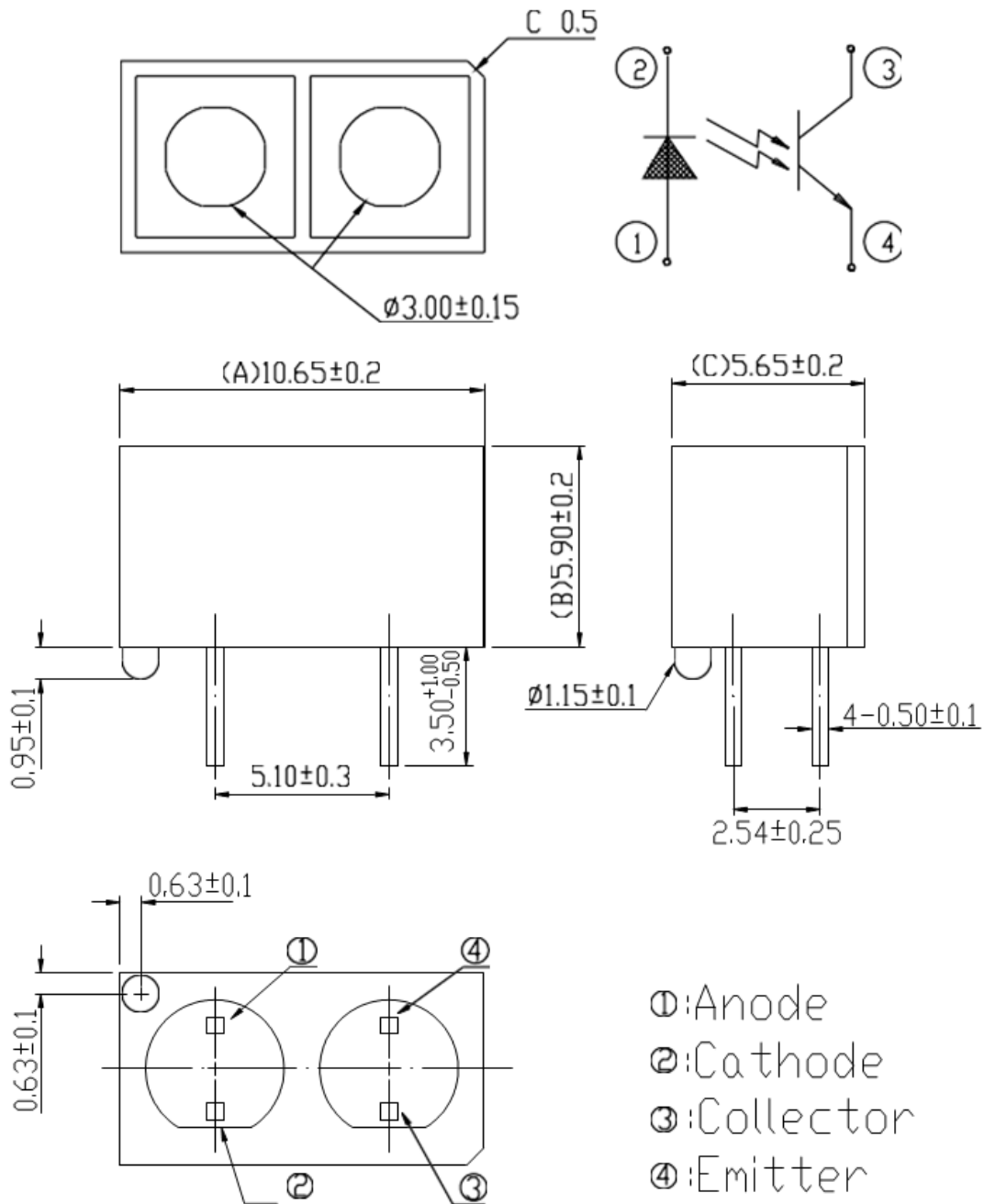
Non-contact Switching

For Direct Board

## Device Selection Guide

Device No.	Chip Material	LENS COLOR
IR	GaAIAs	Blue
PT	Silicon	Black

Package Dimension



Note:

1. All dimensions are in millimeters.
2. Tolerances unless dimensions  $\pm 0.3$ mm.
3. Lead spacing is measured where the lead emerge from the package



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## Absolute Maximum Ratings

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Forward Current	I <sub>F</sub>	50	mA
	Peak Forward Current (*1) Pulse width ≤100μs, Duty cycle=1%	I <sub>FP</sub>	1	A
Output	Collector Power Dissipation	P <sub>C</sub>	75	mW
	Collector Current	I <sub>C</sub>	20	mA
	Collector-Emitter Voltage	B V <sub>CEO</sub>	30	V
	Emitter-Collector Voltage	B V <sub>ECO</sub>	5	V
Operating Temperature		T <sub>opr</sub>	-25~+85	°C
Storage Temperature		T <sub>stg</sub>	-40~+100	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T <sub>sol</sub>	260	°C

(\* 1)  $t_w=100 \mu\text{sec.}$  ,  $T=10 \text{ msec.}$       (\* 2)  $t=5 \text{ Sec}$

## Electro-Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V <sub>F1</sub>	---	1.2	1.5	V	I <sub>F</sub> =20mA
		V <sub>F2</sub>	---	1.4	1.85		I <sub>F</sub> =100mA, tp=100μs, tp/T=0.01
		V <sub>F3</sub>	---	2.6	4.0		I <sub>F</sub> =1A, tp=100μs, tp/T=0.01
	Reverse Current	I <sub>R</sub>	---	---	10	μA	V <sub>R</sub> =5V
	Peak Wavelength	λ <sub>P</sub>	---	940	---	nm	I <sub>F</sub> =20mA
View Angle		2θ1/2	---	35	---	Deg	I <sub>F</sub> =20mA
Output	Dark Current	I <sub>CEO</sub>	---	---	100	nA	V <sub>CE</sub> =20V, E <sub>e</sub> =0mW/cm <sup>2</sup>
	C-E Saturation Voltage	V <sub>CE(sat)</sub>	---	---	0.4	V	I <sub>C</sub> =2mA , E <sub>e</sub> =1mW/cm <sup>2</sup>
Transfer Characteristics	Collect Current	I <sub>C(ON)</sub>	0.5	---	20	mA	V <sub>CE</sub> =3V I <sub>F</sub> =40mA
	Rise time	t <sub>r</sub>	---	15	---	μsec	V <sub>CE</sub> =5V I <sub>C</sub> =1mA R <sub>L</sub> =1KΩ
	Fall time	t <sub>f</sub>	---	15	---	μsec	

### Typical Electrical/Optical/Characteristics Curves for IR

Fig. 1 Forward Current vs. Ambient Temperature

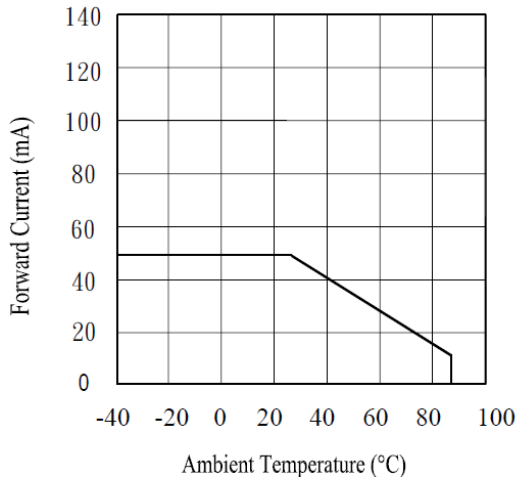


Fig. 2 Spectral Distribution

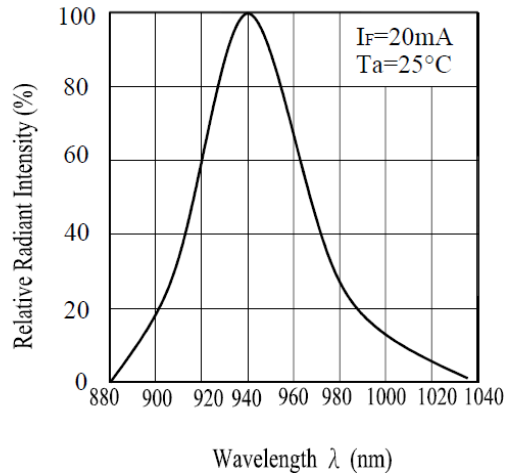


Fig. 3 Relative Intensity vs. Forward Current

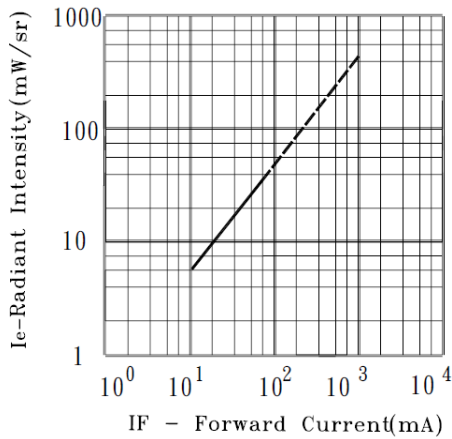


Fig. 4 Relative Radiant Intensity vs. Angular Displacement

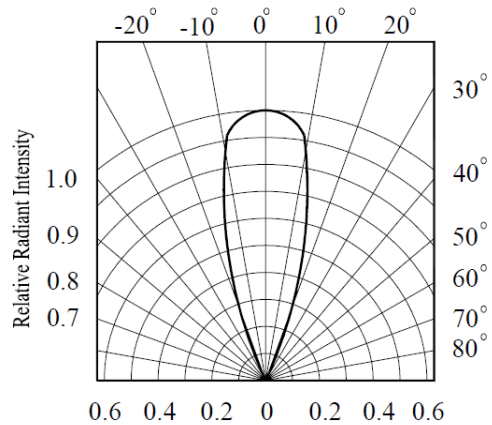


Fig. 5 Relative Intensity vs. Ambient Temperature (I)

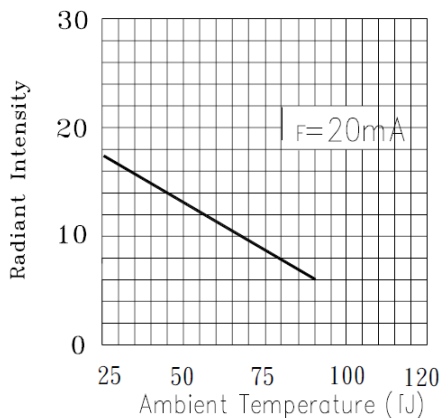
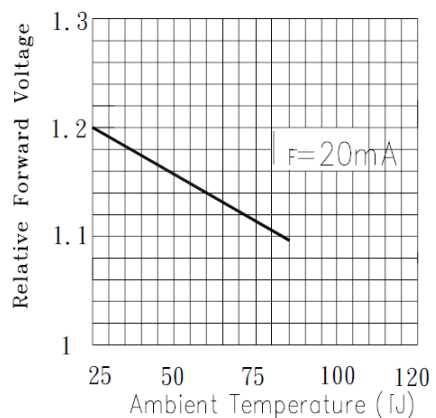


Fig. 6 Forward Voltage vs. Ambient Temperature (I)



### Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

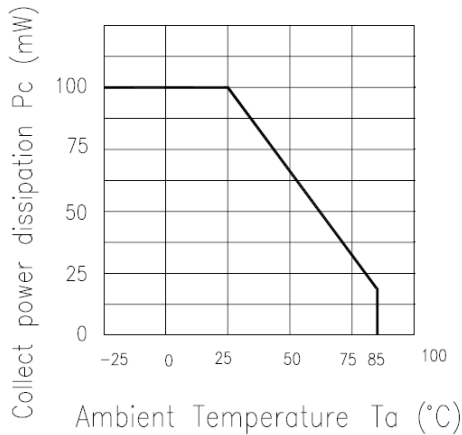


Fig.2 Collector Dark Current vs. Ambient Temperature

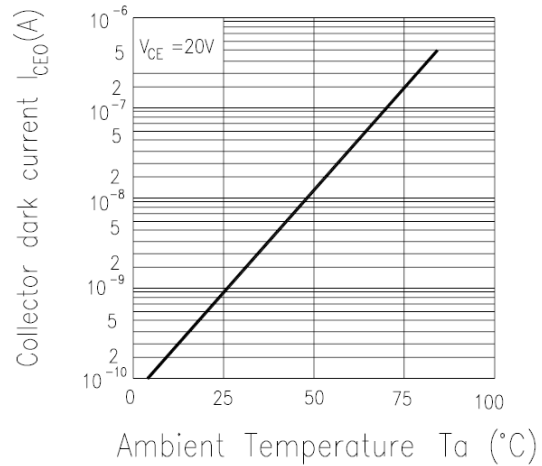


Fig. 3 Relative Collector Current vs. Ambient Temperature

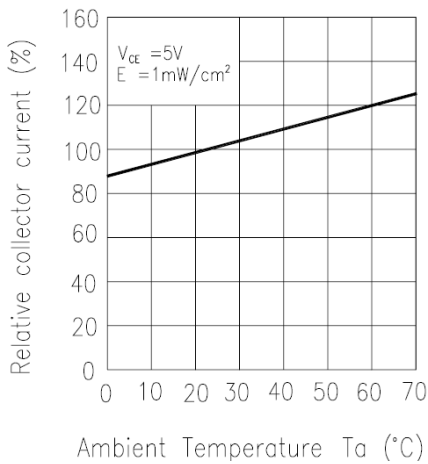


Fig.4 Collector Current vs. Irradiance

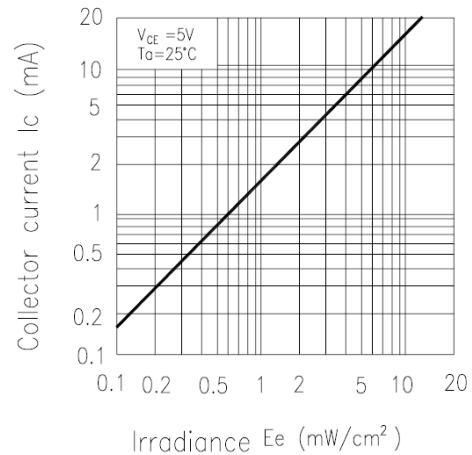


Fig.5 Spectral Sensitivity

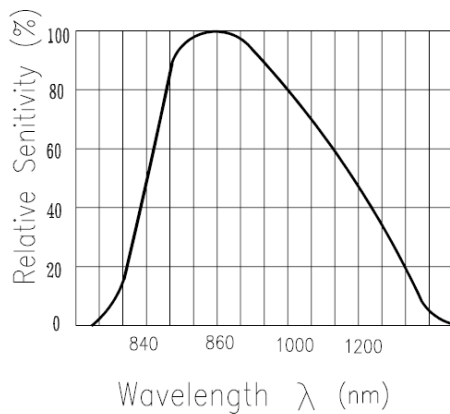
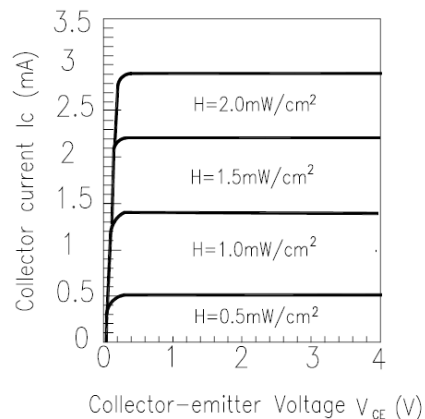


Fig.6 Collector Current vs. Collector-emitter Voltage



● **Reliability Test Item And Condition**

The reliability of products shall be satisfied with items listed below. Confidence level : 90% LTPD : 10%

NO.	Item	Test Condition	Test Hours/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	10 sec	22 PCs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$ U :Upper specification limit L :Lower specification limit	0/1
2	Temperature Cycle	H : +100°C    ↑ 15 mins ↓ 5 min L : -40°C     ↓ 15 min	300 cycle	22 PCs		0/1
3	Thermal Shock	H : +100°C    ↑ 5 min ↓ 10 sec L : -10°C     ↓ 5 min	300 cycle	22 PCs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000 hrs	22 PCs		0/1
5	Low Temperature Storage	TEMP. : -40°C	1000 hrs	22 PCs		0/1
6	DC Operating Life	$V_{CE}=5V$ $I_F=20mA$	1000 hrs	22 PCs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 PCs		0/1



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## Notes

1. Above specification may be changed without notice. WE will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instruction for using outlined in these specification sheets. Para light assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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