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DATA SHEET

PART NO. : PA-ITRLR20001

REV : A / 0

CUSTOMER'S APPROVAL : _____

DCC : _____

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LD-R/E020

Descriptions

The PA-ITRLR20001 consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing. The phototransistor receives radiation from the IR only . This is the normal situation. But when an reflecting object close to ITR , phototransistor receives the reflecting radiation .For additional 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

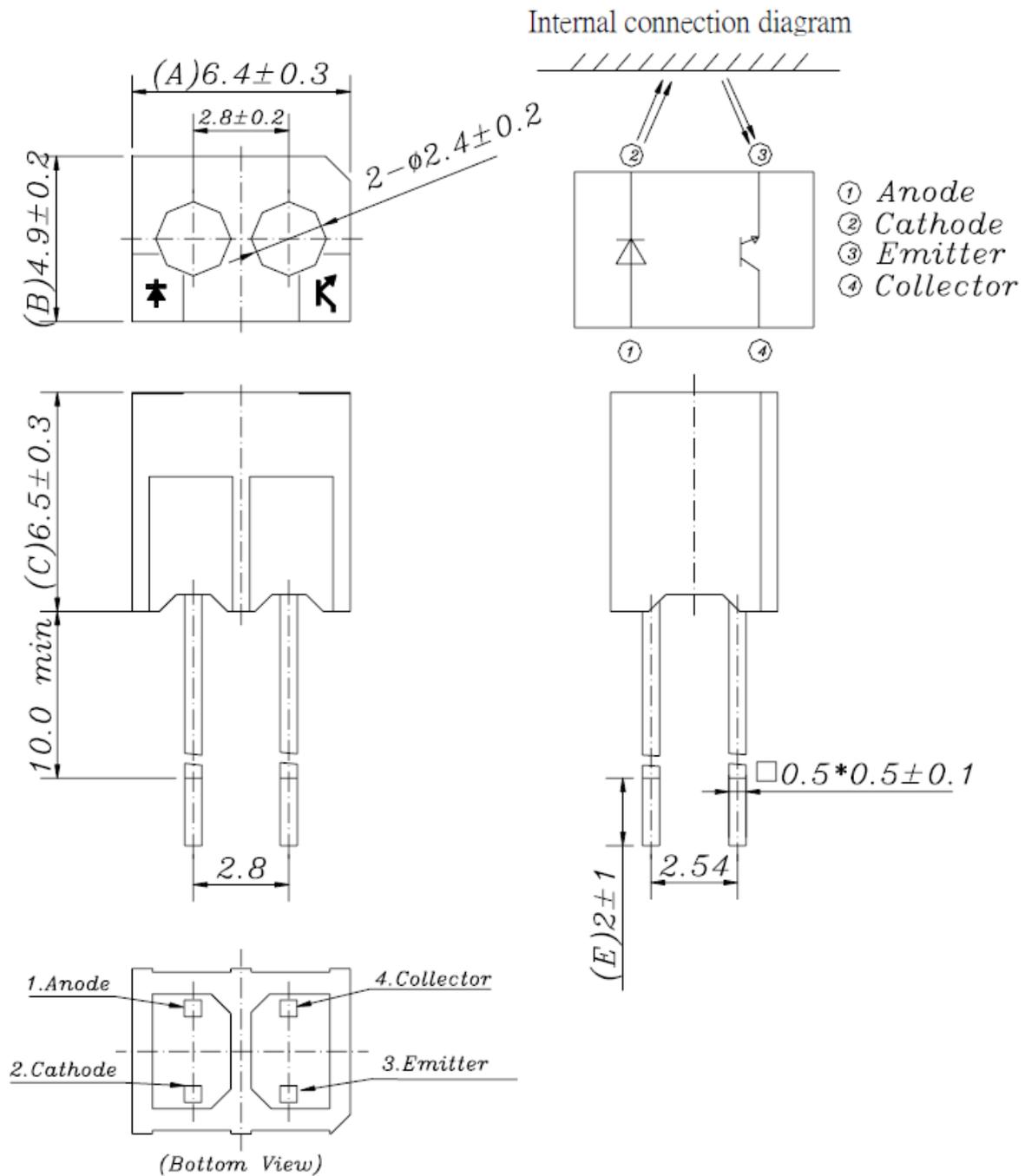
Non-contact Switching

For Direct Board

Device Selection Guide

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

Package Dimension



Note:

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

Absolute Maximum Ratings

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

(* 1)tw=100 μsec. , T=10 msec. (* 2) t=5 Sec

Electro-Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V _{F1}	-	1.2	1.5	V	I _F =20mA
		V _{F2}	-	1.4	1.8		I _F =100mA, tp=100 μs, tp/T=0.01
		V _{F3}	-	2.6	4.0		I _F =1A, tp=100 μs, tp/T=0.01
	Reverse Current	I _R	-	-	10	μA	V _R =5V
	Peak Wavelength	λ _P	-	940	-	nm	I _F =20mA
View Angle		2θ 1/2	-	35	-	Deg	I _F =20mA
Output	Dark Current	I _{CEO}	-	-	100	nA	V _{CE} =5V, Ee=0mW/cm ²
	C-E Saturation Voltage	V _{CE(sat)}	-	-	0.4	V	I _C =0.04mA, I _F =40mA
Collector Current(* 3)		I _{C(ON)}	200	-	-	μA	V _{CE} =5V, I _F =20mA
		I _{C(OFF)}	-	-	2	μA	
Response Time	Rise Time	t _R	-	25	-	μs	V _{CE} =5V, I _C =100 μA , R _L =100Ω
	Fall Time	t _F	-	25	-	μs	

I_{C(on)} at the testing condition—-with reflector in 5mm away,

I_{C(off)} at the testing condition—-without reflector and external light less than 10 Lux at the module surface.

Typical Electrical/Optical/Characteristics Curves for IR

Fig. 1 Forward Current vs. Ambient Temperature

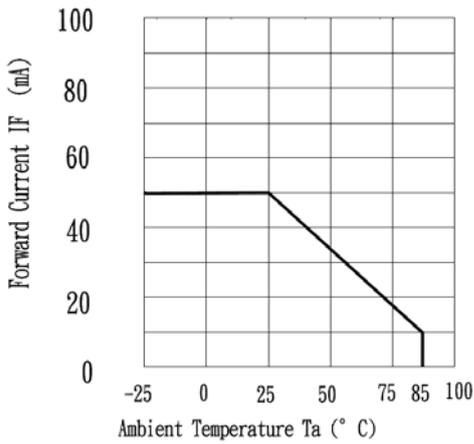


Fig. 2 Spectral Distribution

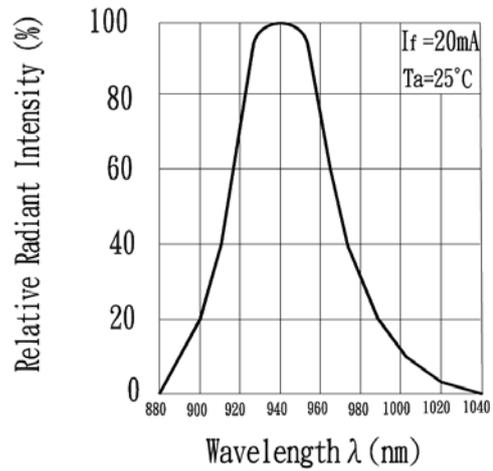


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

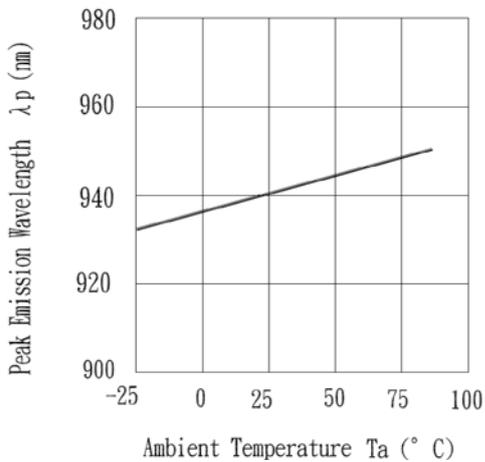


Fig. 4 Forward Current vs. Forward Voltage

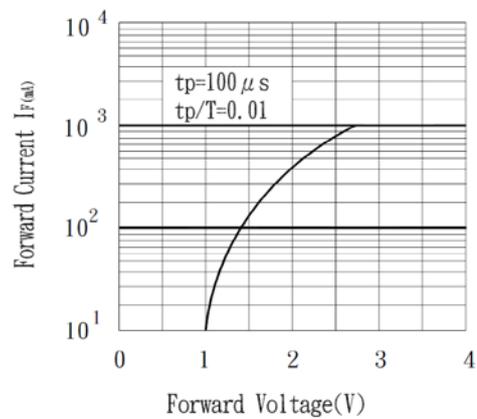


Fig. 5 Relative Intensity vs. Forward Current

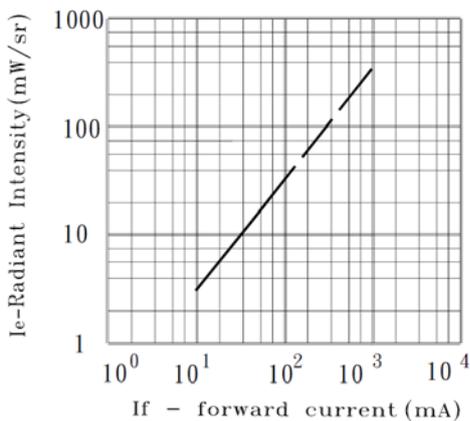
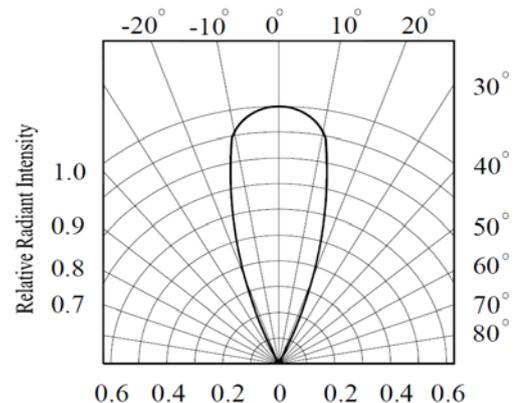
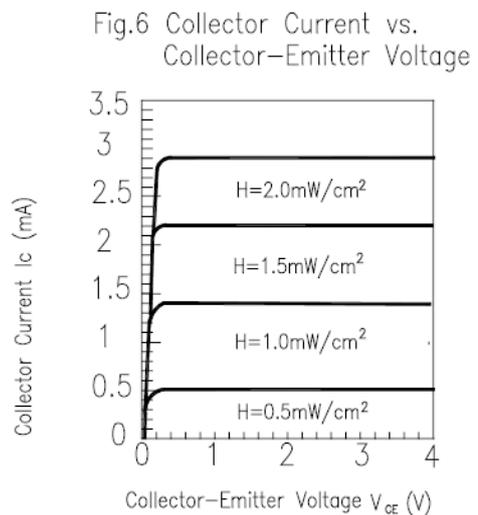
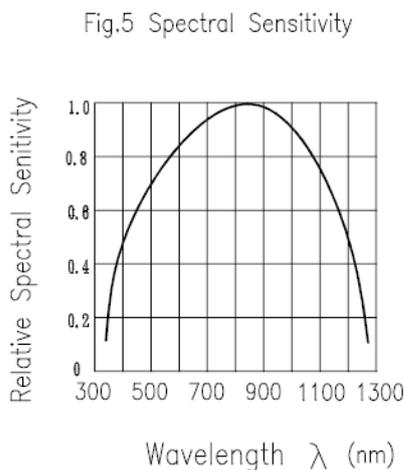
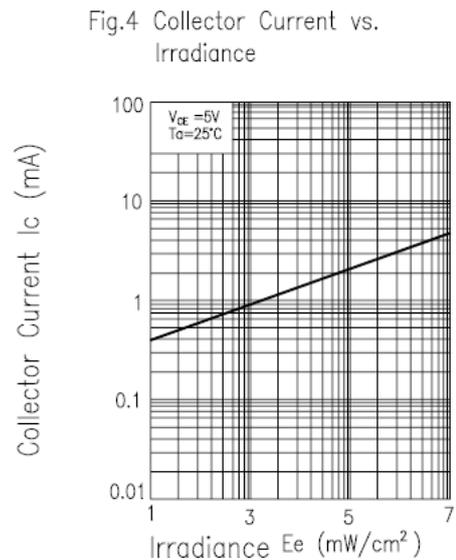
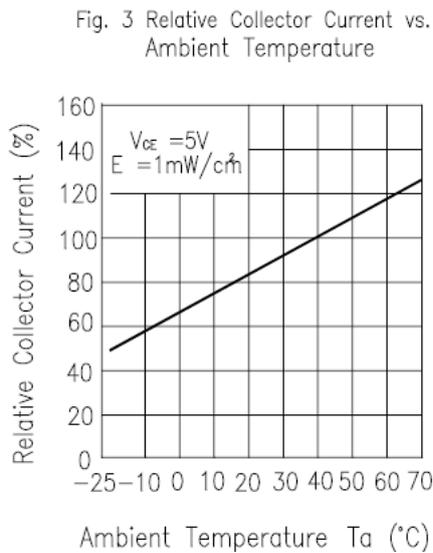
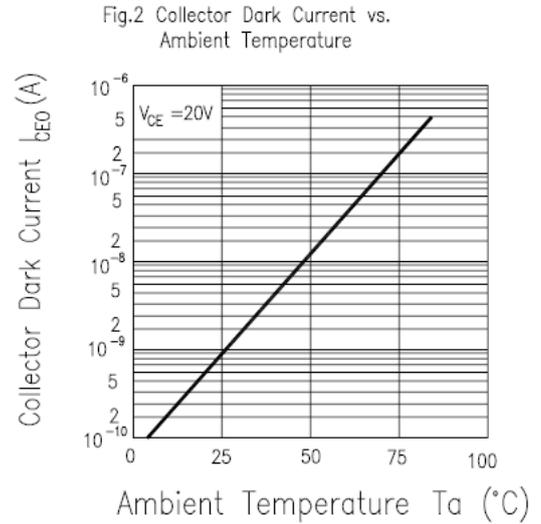
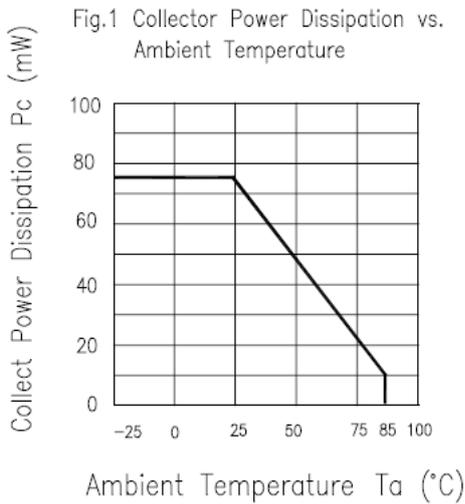


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



Typical Electrical/Optical/Characteristics Curves for PT

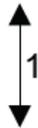


● Reliability Test Item And Condition

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	$I_c(on) \leq L \times 0.8$ 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

Packing Quantity Specification

200 pcs/1bag, 6 bags/1box, 10 boxes/1carton



INFRARED REMOTE CONTROL RECEIVER MODULE

PA-ITRLR20001

REV:A / 0

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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