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DATA SHEET

PART NO. : PA-ITRLT1150

REV : A / 0

CUSTOMER'S APPROVAL : _____

DCC : _____

DRAWING NO. : DS-81P-22-0025

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LD-R/E020



INFRARED REMOTE CONTROL RECEIVER MODULE

PA-ITRLT1150

REV:A / 0

Descriptions

The PA-ITRLT1150 (Slot Optical Switch) is a gallium arsenide infrared emitting diode which is coupled with a silicon photo transistor in a plastic housing. The packaging system is designed to optimize the mechanical resolution, coupling efficiency, and insulates ambient light. The slot in the housing provides a means of interrupting the signal with printer, scanner, copier, or other opaque material, switching the output from an "ON" to "OFF" state.

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

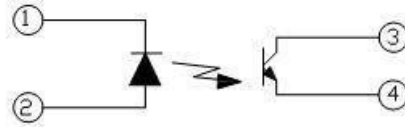
Non-contact Switching

For Direct Board

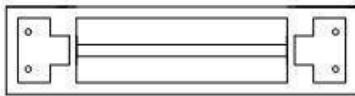
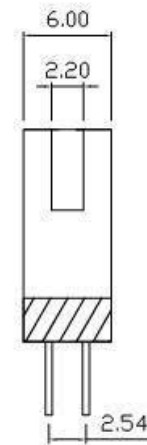
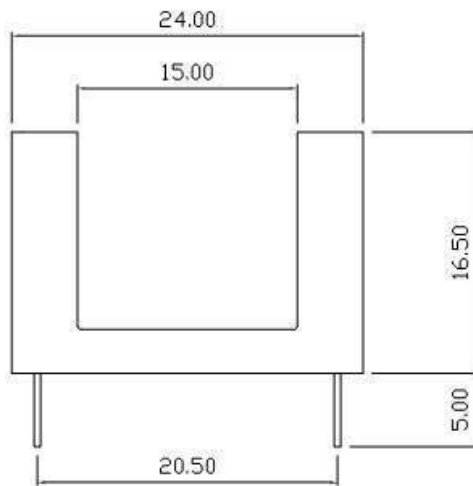
Device Selection Guide

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

Package Dimension



①: Cathode	③: Collector
②: Anode	④: Emitter



Note:

- 1.All dimensions are in millimeters.
- 2.Tolerances unless dimensions $\pm 0.3\text{mm}$.
- 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 _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1) Pulse width ≤100μs, Duty cycle=1%	IFP	1	A
Output	Collector Power Dissipation	P _C	75	mW
	Collector Current	I _c	20	mA
	Collector-Emitter Voltage	V _{CEO}	30	V
	Emitter-Collector Voltage	V _{ECO}	5	V
Operating Temperature		Topr	-25~+85	°C
Storage Temperature		Tstg	-40~+85	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		Tsol	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 _F	----	1.2	1.5	V	I _F =20mA
	Reverse Current	I _R	----	----	10	μA	V _R =5V
	Peak Wavelength	λ _P	----	940	----	nm	I _F =20mA
Output	Collector Dark Current	I _{CEO}	----	----	100	nA	V _{CE} =10V, Ee=0mW/cm ²
	C-E Saturation Voltage	V _{CE(sat)}	----	----	0.4	V	I _c =0.5mA, Ee=1mW/cm ²
	Collect Current	I _{c(ON)}	0.5	3.6	----	mA	V _{CE} =5V, I _F =20mA
Transfer Characteristics	Rise time	t _r	----	15	----	μsec	V _{CE} =5V I _c =1mA R _L =1KΩ
	Fall time	t _f	----	15	----	μsec	

Typical Electrical/Optical/Characteristics Curves for IR

Fig.1 Forward Current vs. Ambient Temperature

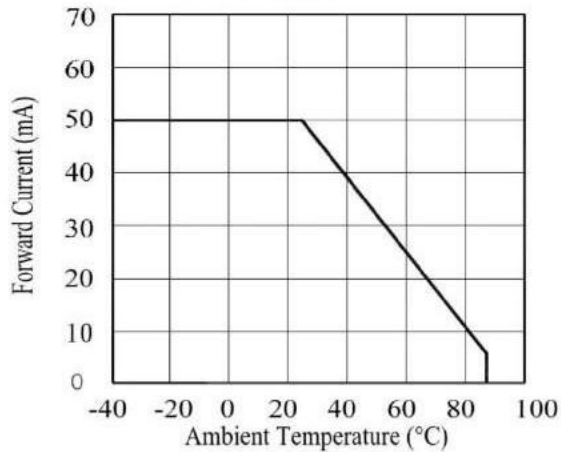


Fig.2 Spectral Distribution

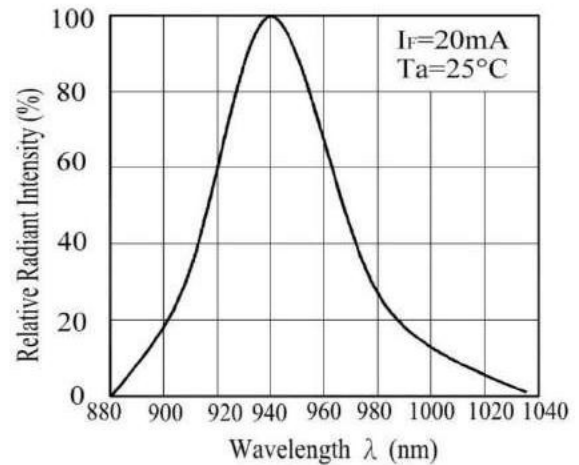


Fig.3 Forward Current vs. Forward Voltage

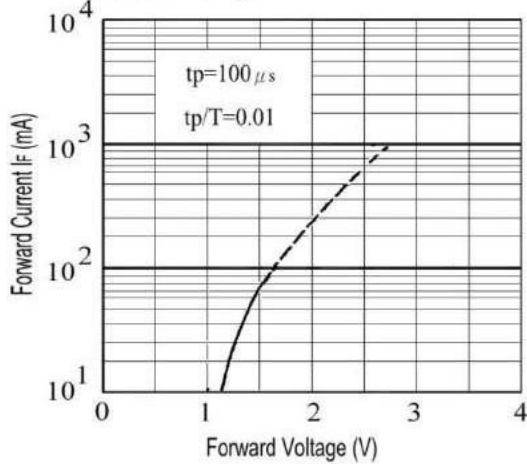
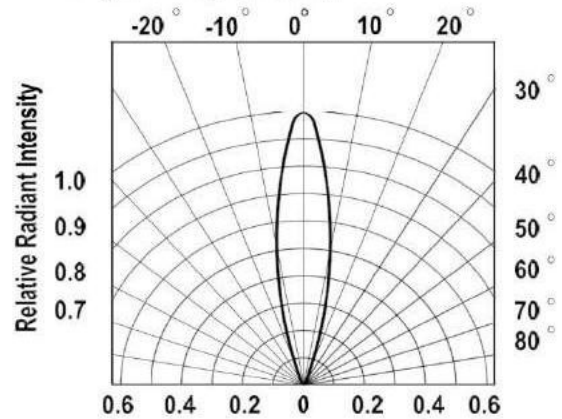


Fig.4 Relative Radiant Intensity vs. Angular Displacement



Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Spectral Sensitivity

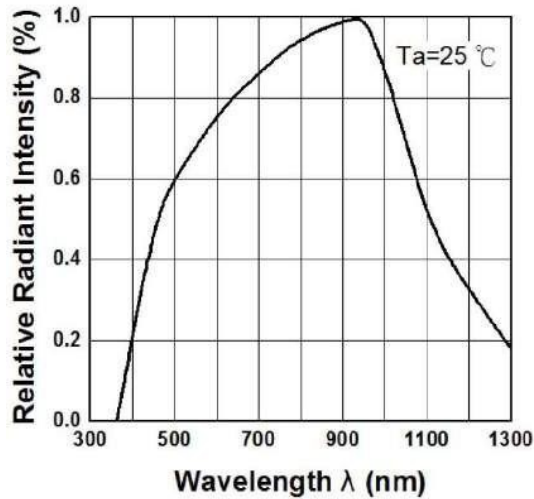


Fig.2 Collector Current vs. Irradiance

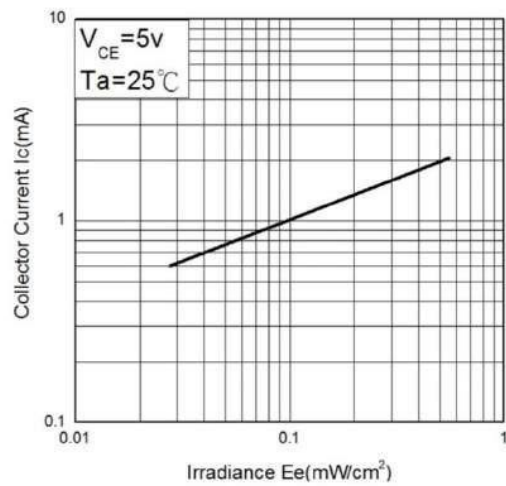
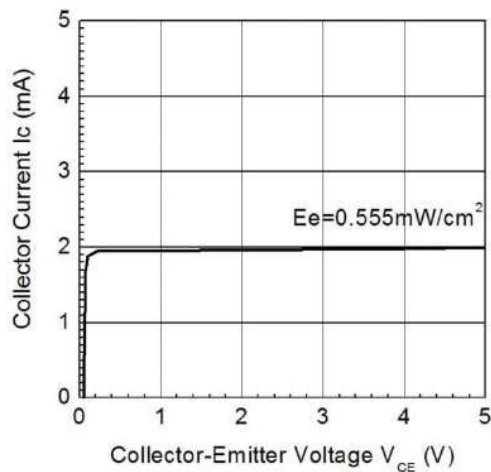


Fig.3 Collector Current vs. Collector-Emitter Voltage



Packing Quantity Specification

150 pcs/1bag

Reliability Test Item And Condition

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

Parameter	Purpose & Condition	Failure Judgement Criteria	Samples(n) Defective(c)
Temperature Cycle	Evaluates product's ability to withstand exposure to high temperature, low temperature, and temperature variation between two limit temperature. Standard test Condition: 85°C~25°C~-55°C~25°C 30min 5min 30min 5min 50 cycle	$IR \geq U \times 2$ $IC(on) \leq L \times 0.8$ $VF \geq U \times 1.2$ U: Upper specification Limit L: Lower specification limit	n =22,c=0
Thermal Shock	Evaluates product's ability to withstand rapid temperature change Standard test Condition: 85°C ~ -55°C 5 min 5 min 50cycle		n =22,c=0
High Temperature Storage	Evaluates product's ability to withstand prolonged storage at high temperature Standard test Condition: Temperature : 100 °C Time : 1000hrs		n =22,c=0
Low Temperature Storage	Evaluates product's ability to Storage withstand prolonged storage at low temperature Standard test Condition: Temperature : -55 °C Time : 1000hr		n =22,c=0
Operating Life Test	Evaluates product's endurance to prolonged electrical or temperature stresses. Standard test Condition: VCE =5V IF =20mA Time : 1000hrs		n =22,c=0
High Temperature High Humidity	Evaluates product's ability to withstand prolonged storage at high temperature and high humidity. Standard test Condition: Temperature: 85 °C Relative humidity:85% Time : 1000hrs		n =22,c=0
Soldering Heat	Evaluates product's ability to withstand soldering heat Standard test conditions Solder temperature : 260±5°C Solder time : 10 seconds		n =22,c=0