

Features

Fast response time

High analytic

Peak wavelength $\lambda_p=940\text{nm}$

High sensitivity

Pb free

This product itself will remain within RoHS compliant version.

Application

Mouse Copier

Switch Scanner

Floppy disk driver

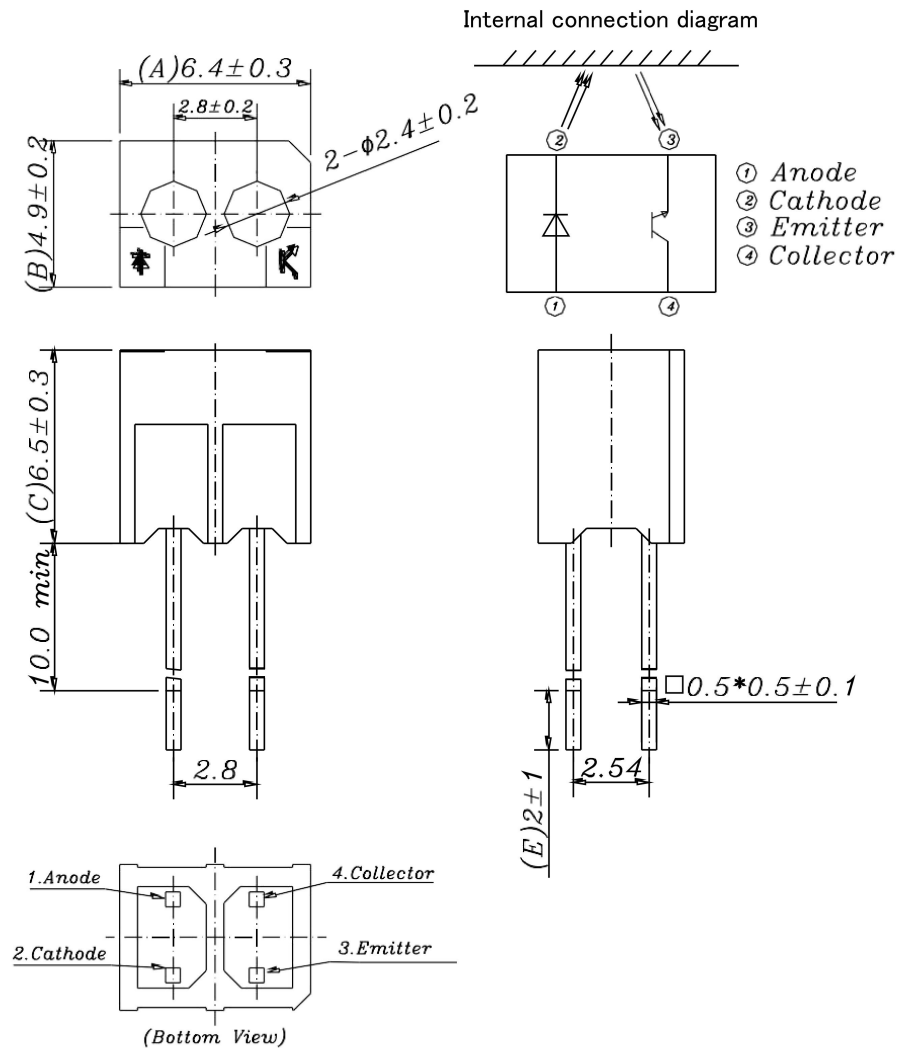
Non-contact Switching

For Direct Board

Description

The LA201 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 does not receive radiation from IR LED in normal situation, but when an object comes closer, the radiation is reflected by the object and phototransistor receives the more radiation as closer the object comes.

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ (.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.

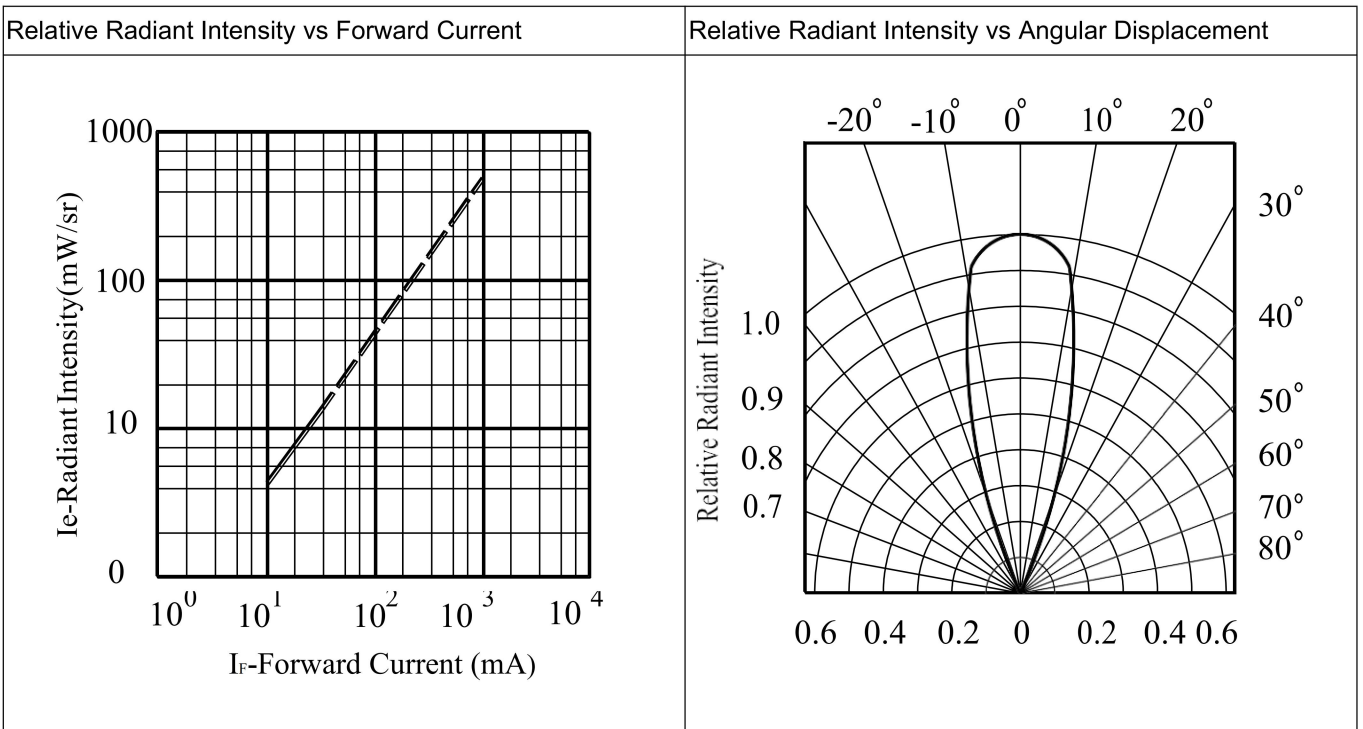
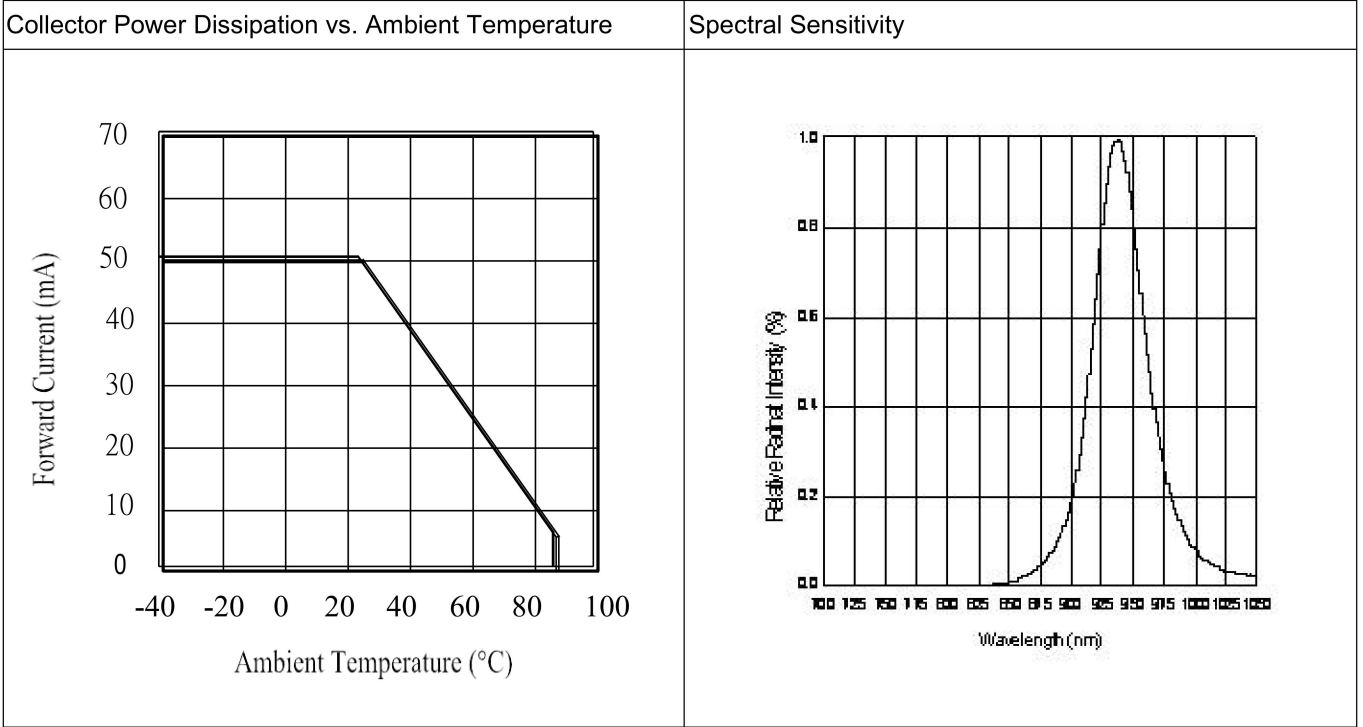
ABSOLUTE MAXIMUM RATINGS AT TA =25°C

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%	I _{FP}	1	A
Output	Collector Power Dissipation	Pd	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

ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25°C

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_F	---	1.2	1.5	V	$I_F=20\text{mA}$
			---	1.4	1.8		$I_F=100\text{mA}, t_p=100\mu\text{s}, t_p/T=0.01$
			---	2.6	4.0		$I_F=1\text{A}, t_p=100\mu\text{s}, t_p/T=0.01$
	Reverse Current	I_R	---	---	10	μA	$V_R=5\text{V}$
Peak Wavelength	λ_P	---	940	---	nm	$I_F=20\text{mA}$	
Output	Dark Current	I_{CEO}	---	---	100	nA	$V_{CE}=5\text{V}, E_e=0\text{mW/cm}^2$
	C-E Saturation Voltage	$V_{CE}(\text{sat})$	---	---	0.4	V	$I_C=2\text{mA}$ $E_e=1\text{mW/cm}^2$
Transfer Characteristics	Collect Current	$I_C(\text{ON})$	600	---	---	μA	$V_{CE}=2\text{V}$ $I_F=10\text{mA}$
	Rise time	t_r	---	25	---	μsec	$V_{CE}=5\text{V}, I_C=100\mu\text{A}$ $R_L=100\Omega$
	Fall time	t_f	---	25	---	μsec	

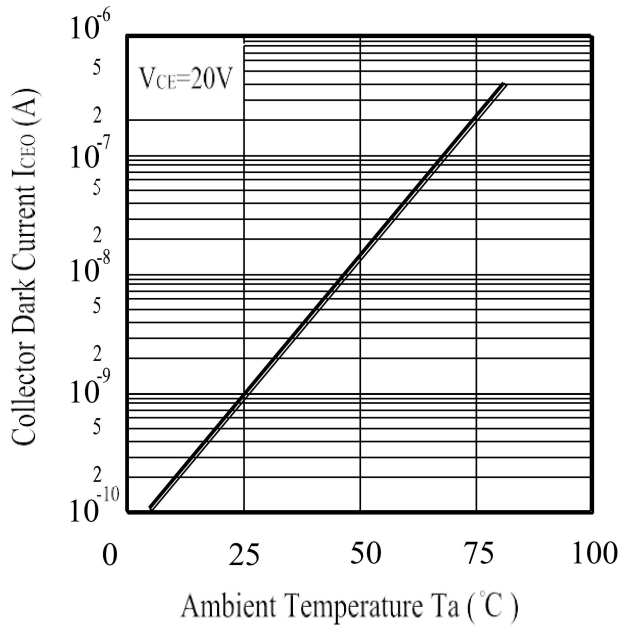
Typical Electrical/Optical/Characteristics Curves for IR



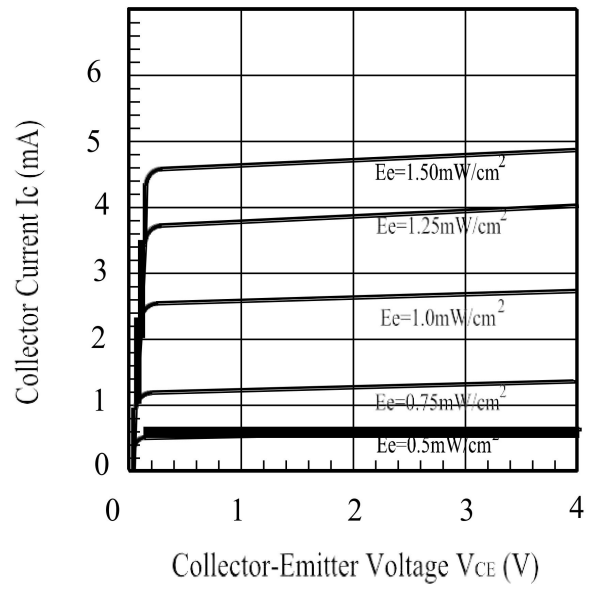
Typical Electrical/Optical/Characteristics Curves for PT

<p>Collector Power Dissipation vs. Ambient Temperature</p>	<p>Spectral Sensitivity</p>
<p>Collector Power Dissipation Pd (mW)</p> <p>Ambient Temperature Ta (°C)</p>	<p>Relative Spectral Sensitivity</p> <p>Wavelength λ (nm)</p> <p>Ta=25°C</p>
<p>Relative Collector Current vs. Ambient Temperature</p>	<p>Collector Current vs. Irradiance</p>
<p>Relative Collector Current(%)</p> <p>Ambient Temperature Ta (°C)</p> <p>V_{CE}=5V E_e=1mW/cm²</p>	<p>Collector Current Ic (mA)</p> <p>Irradiance E_e (mW/cm²)</p> <p>V_{CE}=5V Ta=25°C</p>

Collector Dark Current vs. Ambient Temperature



Collector Current vs. Collector-Emitter Voltage



Packing Quantity Specification

1. 200Pcs/1Bag,10 Bag/1Box
2. 4Boxes/1Carton

Label Form Specification

製品名 PRODUCT	
コードNo. CODE No.	
数量 QTY	
ロットNo. LOT No.	
備考 REMARKS	
	

- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

Notes

Lead Forming

1. During lead frame bending, the lead frame should be bent at a distance more than 3mm from bottom of the epoxy.

Note: Must fix lead frame and do not touch epoxy before bending to avoid Photo Interrupter broken.

2. Lead forming should be done before soldering.

3. Avoid stressing the Photo Interrupter package during leads forming. The stress to the base may damage the characteristics of Photo Interrupter, or it may break the Photo Interrupter.

4. Cut the Photo Interrupter lead frame at room temperature. Cutting the lead frame at high temperatures may cause failure of the Photo Interrupter.

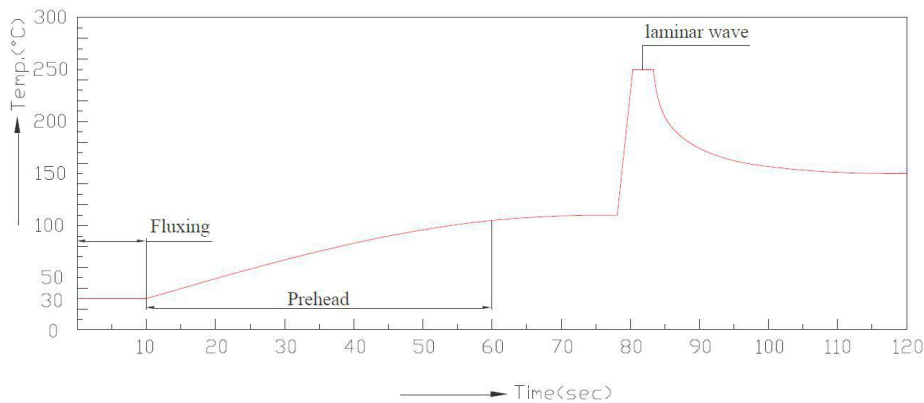
5. When mounting the Photo Interrupter onto a PCB, the PCB holes must be aligned exactly with the lead position of the Photo Interrupter. If the Photo Interrupter are mounted with stress at The leads, it causes deterioration of the epoxy resin and this will degrade the Photo Interrupter.

Soldering

- Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
- Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

3. Recommended soldering profile



- Avoiding applying any stress to the lead frame while the Photo Interrupter are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the Photo Interrupter, the epoxy bulb should be protected from mechanical shock or vibration until the Photo Interrupter return to room temperature.
- A rapid-rate process is not recommended for cooling the Photo Interrupter down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the Photo Interrupter.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

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