

Technical Data Sheet

3mm Phototransistor T-1

Features

- Fast response time
- High photo sensitivity
- Pb Free
- The product itself will remain within RoHS compliant version.

PT204-6B

Descriptions

• PT204-6B is a high speed and high sensitive NPN silicon phototransistor molded in a standard 3 mm package. Due to its black epoxy the device is sensitive to infrared radiation.

Applications

- Infrared applied system
- Camera
- Printer
- Cockroach catcher

Device Selection Guide

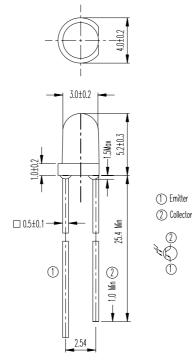
LED Part No.	Chip	Lens Color	
	Material	Lens Color	
PT204-6B	Silicon	Black	

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Package Dimensions



Notes: 1.All dimensions are in millimeters

2.Tolerances unless dimensions ±0.25mm

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector-Voltage	V_{ECO}	5	V
Collector Current	I_{C}	20	mA
Operating Temperature	Topr	-25 ~ +85°C	$^{\circ}\!\mathbb{C}$
Storage Temperature	Tstg	-40 ~ +85°C	$^{\circ}\!\mathbb{C}$
Lead Soldering Temperature	Tsol	260	$^{\circ}\! \mathbb{C}$
Power Dissipation at (or below) 25°C Free Air Temperature	Pc	75	mW

Notes: *1:Soldering time ≤ 5 seconds.



Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Collector – Emitter	BV _{CEO}	$I_C=100 \mu A$ $Ee=0mW/cm^2$	30			V
Breakdown Voltage Emitter-Collector Breakdown Voltage	BV _{ECO}	$I_{E}=100 \mu \text{ A}$ $Ee=0\text{mW/cm}^{2}$	5			V
Collector-Emitter Saturation Voltage	V _{CE)(sat)}	I _C =2mA Ee=1mW/cm ²			0.4	V
Rise Time	t _r	V _{CE} =5V		15		2
Fall Time	t_{f}	$I_{C}=1$ mA RL= 1000Ω		15		μ S
Collector Dark Current	I_{CEO}	Ee=0mW/cm ² V _{CE} =20V			100	nA
On State Collector Current	I _{C(on)}	Ee=1mW/cm ² V _{CE} =5V	0.7		5.07	mA
Wavelength of Peak Sensitivity	λ p			940		nm
Rang of Spectral Bandwidth	λ 0.5			760-1100		nm

Rankings

Parameter	Symbol	Min	Max	Unit	Test Condition
G	I _{C(ON)}	0.7	1.9	A	V _{CE} =5V Ee=1mW/c m ²
Н		1.14	2.6		
J		1.77	3.61	mA	Ee=1mW/c m ²
K		2.67	5.07		

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Typical Electro-Optical Characteristics Curves

Fig.1Collector Power Dissipation vs.

Ambient Temperature

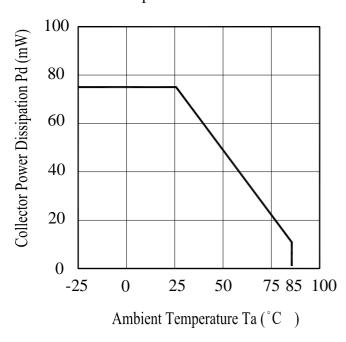


Fig.2 Spectral Sensitivity

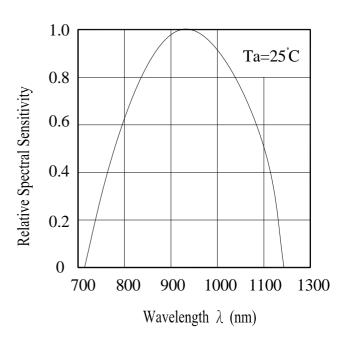


Fig.3 Relative Collector Current vs.

Ambient Temperature

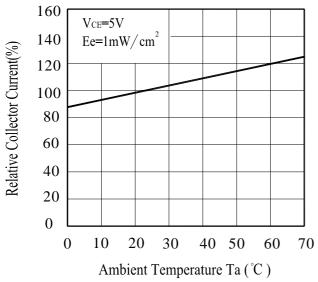
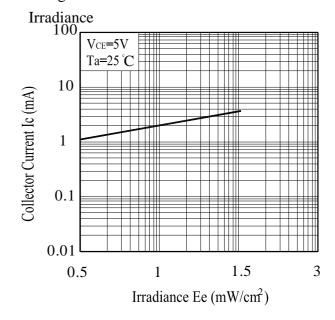


Fig.4 Collector Current vs.



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Typical Electro-Optical Characteristics Curves

Fig.5 Collector Dark Current vs.

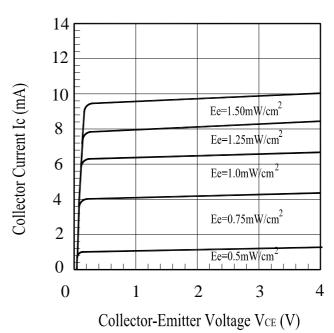
Ambient Temperature

10⁻⁶
5
VCE=20V

2
10⁻⁷
10⁻⁸
5
10⁻⁸
5
2
10⁻¹⁰
0
25
5
0
Ambient Temperature Ta (°C)

Fig.6 Collector Current vs.

Collector-Emitter Voltage



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Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

Confidence level: 90%

LTPD: 10%

NO.	Item	Test Conditions	Test Hours/	Sample	Failure	Ac/Re
			Cycles	Sizes	Judgement	
					Criteria	
1	Solder Heat	TEMP. : 260°C±5°C	10secs	22pcs		0/1
2	Temperature Cycle	$H:+100^{\circ}C$ 15mins	300Cycles	22pcs		0/1
		1 5mins			$I_{C(ON)} \leq L \times 0.8$	
		L : -40°C 15mins				
3	Thermal Shock	H :+100°C	300Cycles	22pcs	L: Lower	0/1
		▼ 10secs			Specification	
		L:- 10° C 5mins			Limit	
4	High Temperature	TEMP. : +100°C	1000hrs	22pcs		0/1
	Storage					
5	Low Temperature	TEMP. : -40°C	1000hrs	22pcs		0/1
	Storage					
6	DC Operating Life	V _{CE} =5V	1000hrs	22pcs		0/1
7	High Temperature/	85°C /85% R.H	1000hrs	22pcs		0/1
	High Humidity					

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Packing Quantity Specification

1.1000PCS/1Bag, 4Bags/1Box

2.10Boxes/1Carton

Label Form Specification

EVERLIGHT

CPN:

P/N:

PT204-6B



CAT: HUE: REF:



CPN: Customer's Production Number

P/N: Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

Notes

- 1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT 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.
- 3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

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