3mm Phototransistor T-1

PT202C

Features

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

Descriptions

- PT202C is a high speed and high sensitive NPN silicon phototransistor molded in a standard ϕ3 mm package. Due to is water clear epoxy the device is sensitive to visible and near infrared radiation.

Applications

- Infrared applied system
- Camera
- Printer
- Opto-electronic switch

Device Selection Guide

LED Part No.	Chip Material	Lens Color
PT	Silicon	Water clear

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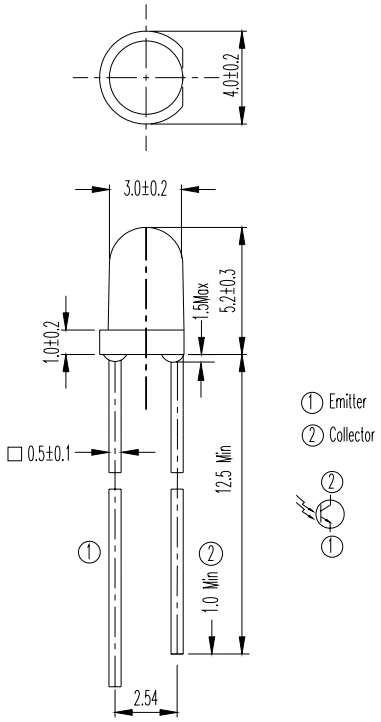
Package Dimensions



Notes: 1.All dimensions are in millimeters
2.Tolerances unless dimensions ±0.25mm

Absolute Maximum Ratings (Ta=25℃)

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℃	℃
Storage Temperature	Tstg	-40 ~ +85℃	℃
Lead Soldering Temperature*1	Tsol	260	℃
Power Dissipation at (or below) 25℃ Free Air Temperature	Pc	75	mW

Notes: *1:Soldering time≦5 seconds.

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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	---	400	---	1100	nm
Wavelength Of Peak Sensitivity	λ_P	---	---	940	---	nm
Collector – Emitter Breakdown Voltage	BV_{CEO}	I_C=100 μA Ee=0mW/cm^2	30	---	---	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E=100 μA Ee=0mW/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 I_C=1mA RL=1000Ω	---	15	---	μS
Fall Time	t_f		---	15	---	
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	2.0	---	mA

Rankings

Parameter	Symbol	Min	Max	Unit	Test Condition
G	**$I_{C(ON)}$**	0.70	1.90	**mA**	**V_{CE}=5V** Ee=1mW/c㎡
H		1.14	2.60		
J		1.77	3.61		
K		2.67	5.07		

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Typical Electro-Optical Characteristics Curves

Fig.1Collector Power Dissipation vs. Ambient Temperature

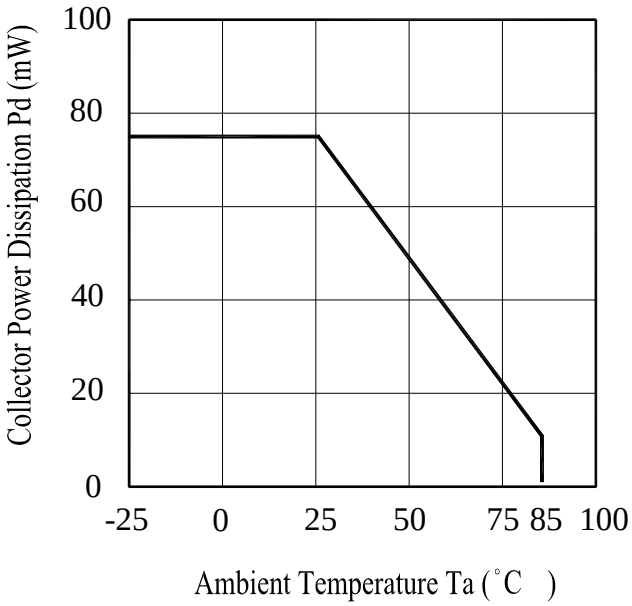


Fig.2 Spectral Sensitivity

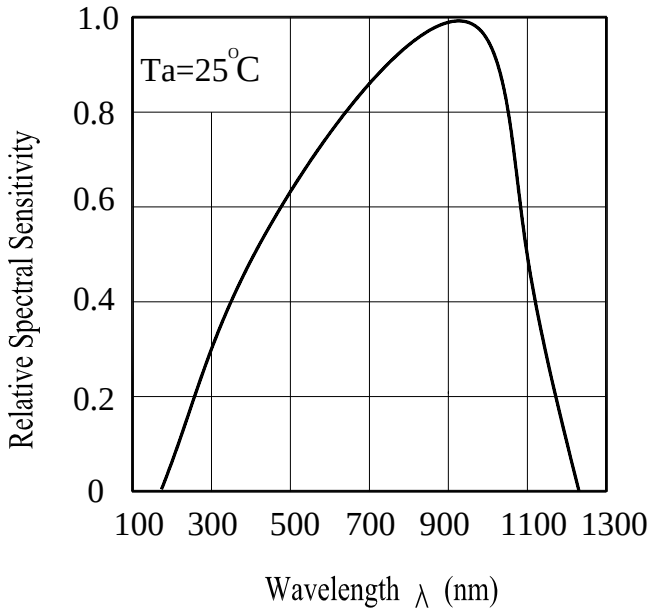


Fig.3 Relative Collector Current vs. Ambient Temperature

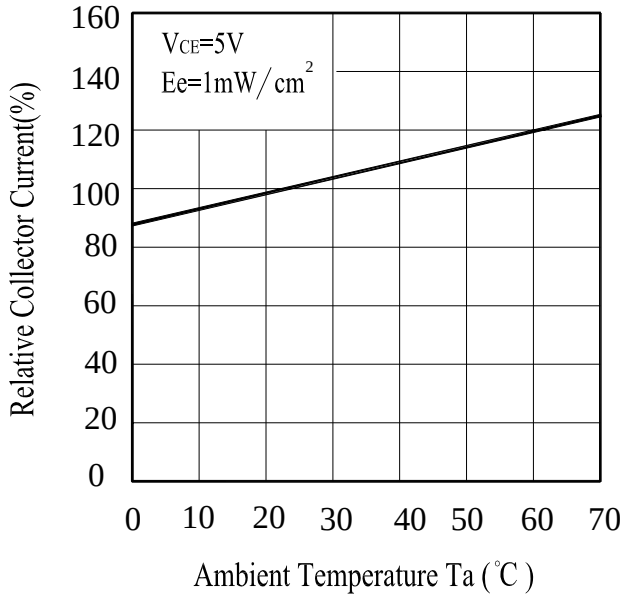
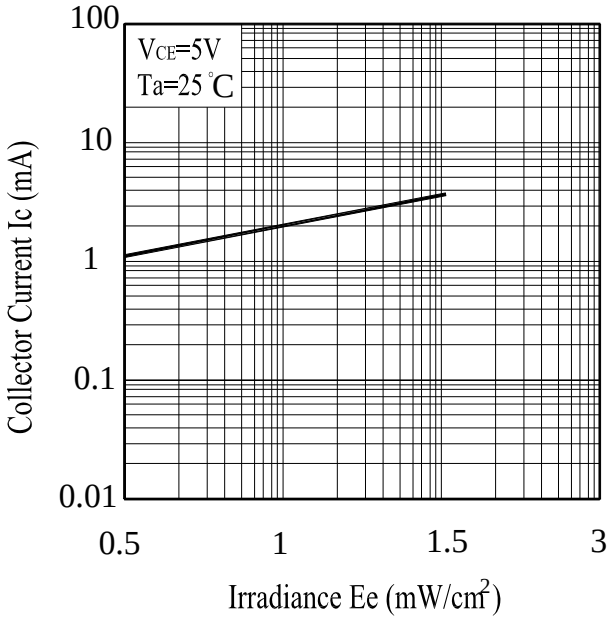


Fig.4 Collector Current vs. Irradiance



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Typical Electro-Optical Characteristics Curves

Fig.5 Collector Dark Current vs. Ambient Temperature

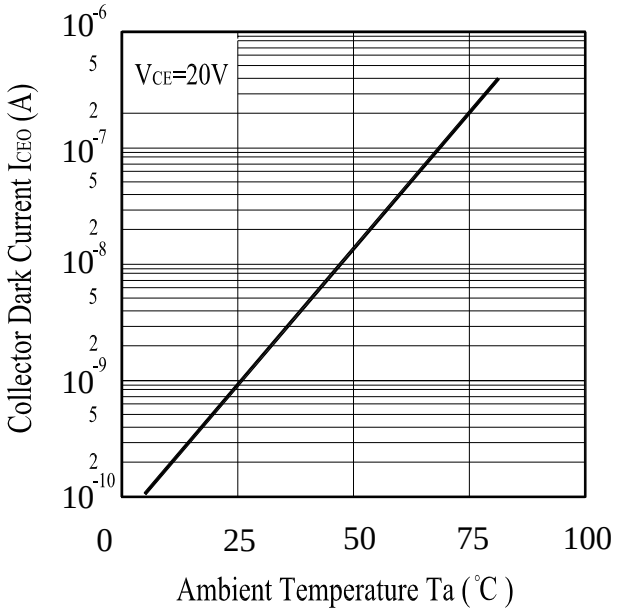
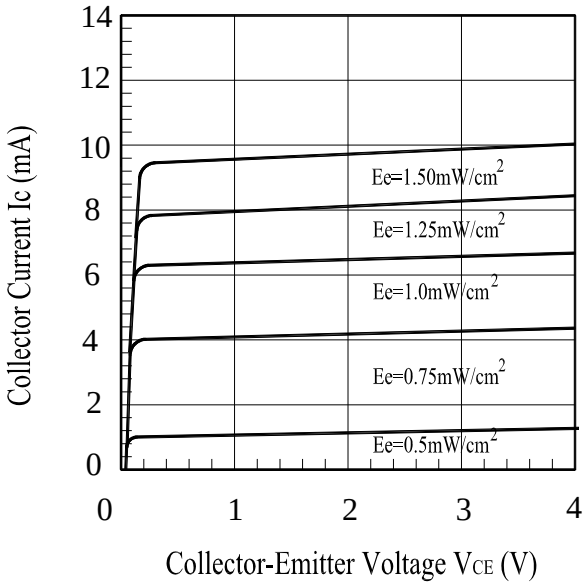


Fig.6 Collector Current vs. Collector-Emitter Voltage



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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/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP.：260℃±5℃	10secs	22pcs	$I_{C(ON)} \leqq L \times 0.8$ L：Lower Specification Limit	0/1
2	Temperature Cycle	H：+100℃ 15mins ↕ 5mins L：-40℃ 15mins	300Cycles	22pcs		0/1
3	Thermal Shock	H：+100℃ 5mins ↕ 10secs L：-10℃ 5mins	300Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.：+100℃	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP.：-40℃	1000hrs	22pcs		0/1
6	DC Operating Life	V_{CE}=5V	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85℃ / 85% R.H	1000hrs	22pcs		0/1