



Technical Data Sheet

1206 Package Phototransistor

PT15-21C



Features

- Fast response time
- High photo sensitivity
- Small junction capacitance

Descriptions

- PT15-21C is a phototransistor in miniature SMD package which is molded in a water clear with flat top view lens. The device is Spectrally matched to visible and infrared emitting diode.

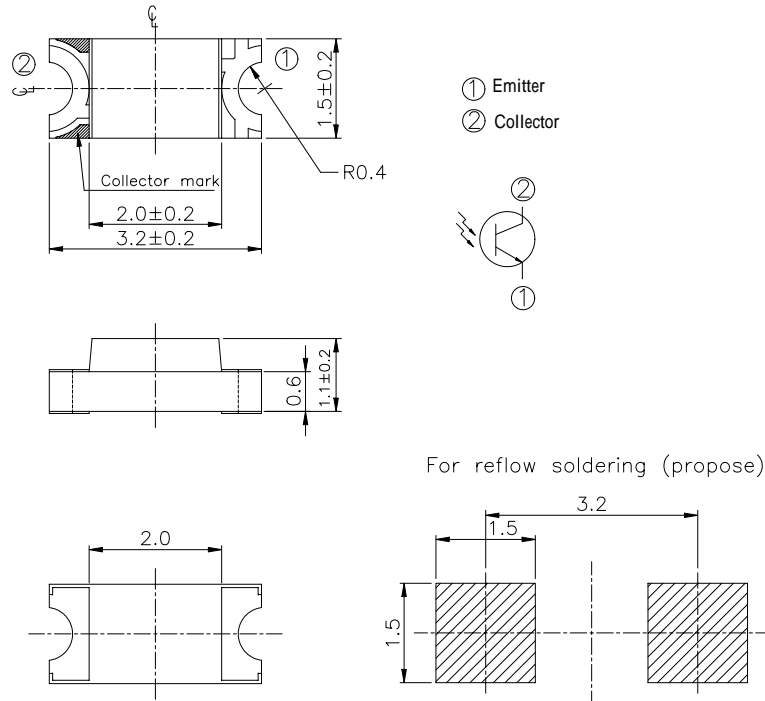
Applications

- Miniature switch
- Counters and sorter
- Position sensor
- Infrared applied system

Device Selection Guide

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

Package Dimensions



- Notes:**
- 1.All dimensions are in millimeters
 - 2.Tolerances unless dimensions ± 0.1 mm

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

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	T_{opr}	-25 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +85	
Soldering Temperature	T_{sol}	260	
Power Dissipation at(or below) 25 Free Air Temperature	P_c	75	mW

Notes: *1:Soldering time 5 seconds.

Electro-Optical Characteristics (Ta=25)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rang Of Spectral Bandwidth	0.5	---	400	---	1100	nm
Wavelength Of Peak Sensitivity	P	---	---	940	---	nm
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=100 \mu A$ $E_e=0mW/cm^2$	30	---	---	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=100 \mu A$ $E_e=0mW/cm^2$	5	---	---	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2mA$ $E_e=1m W/cm^2$	---	---	0.4	V
Collector Dark Current	I_{CEO}	$V_{CE}=20V$ $E_e=0mW/cm^2$	---	---	100	nA
On State Collector Current	$I_{C(ON)}$	$V_{CE}=5V$ $E_e=1mW /cm^2$	0.1	0.3		mA
Rise Time	t_r	$V_{CE}=5V$ $I_C=1mA$ $R_L=1000$	---	15	---	μS
Fall Time	t_f		---	15	---	

Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

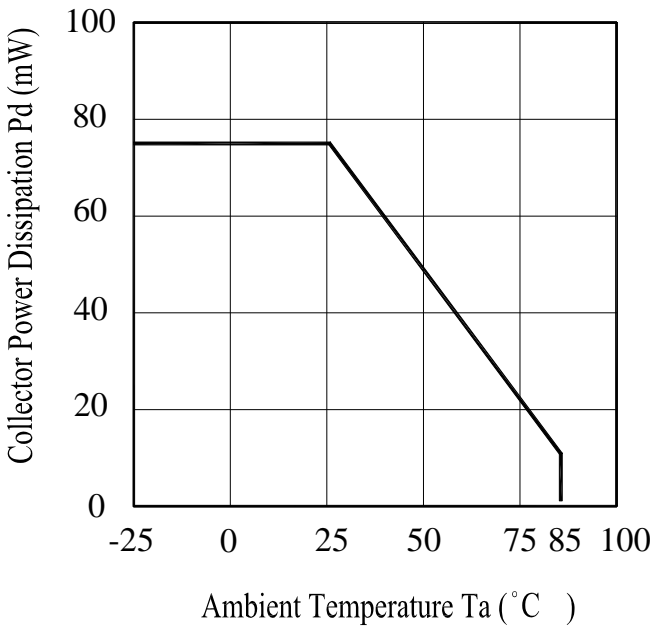


Fig.2 Spectral Sensitivity

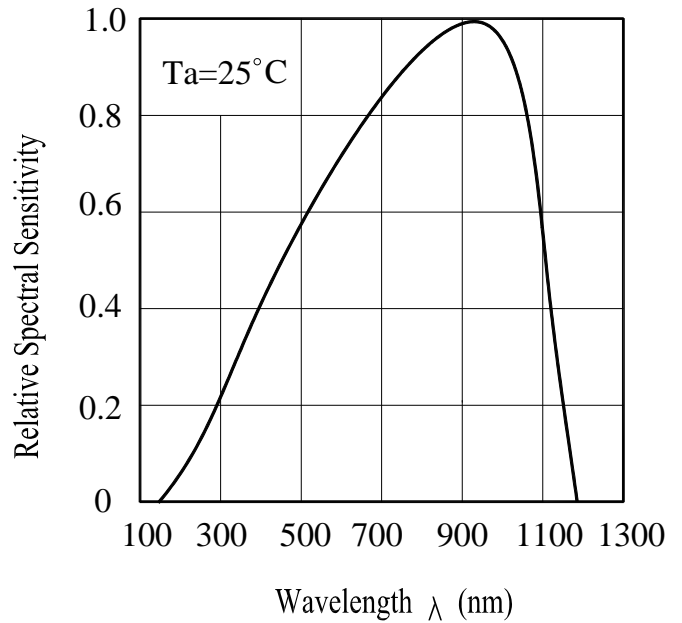


Fig.3 Relative Collector Current vs. Ambient Temperature

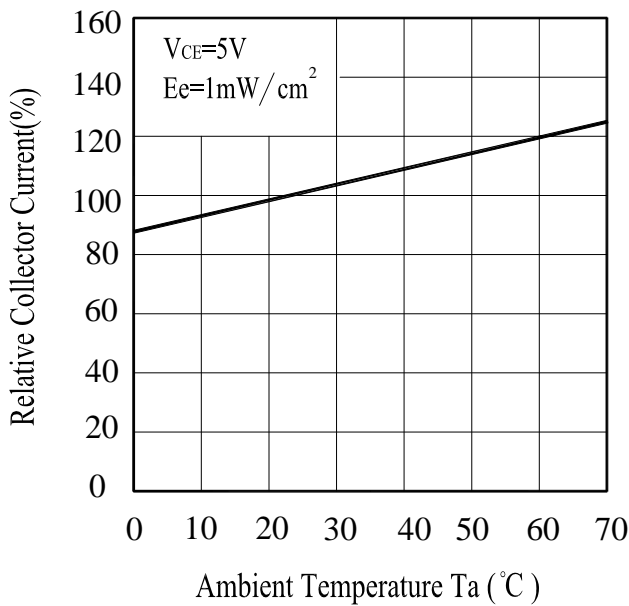
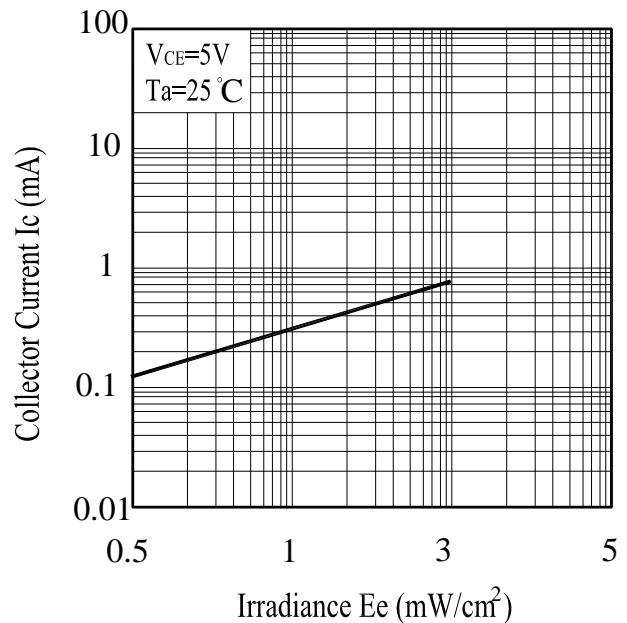


Fig.4 Collector Current vs. Irradiance



Typical Electro-Optical Characteristics Curves

Fig.5 Collector Dark Current vs.

Ambient Temperature

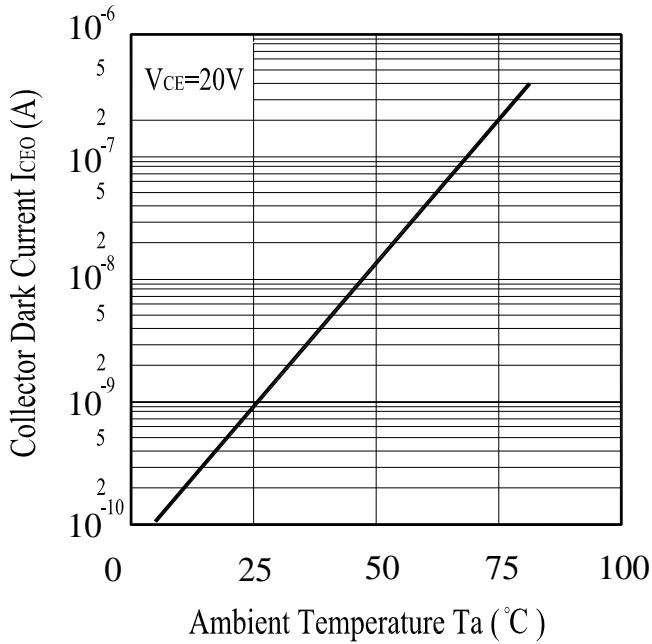
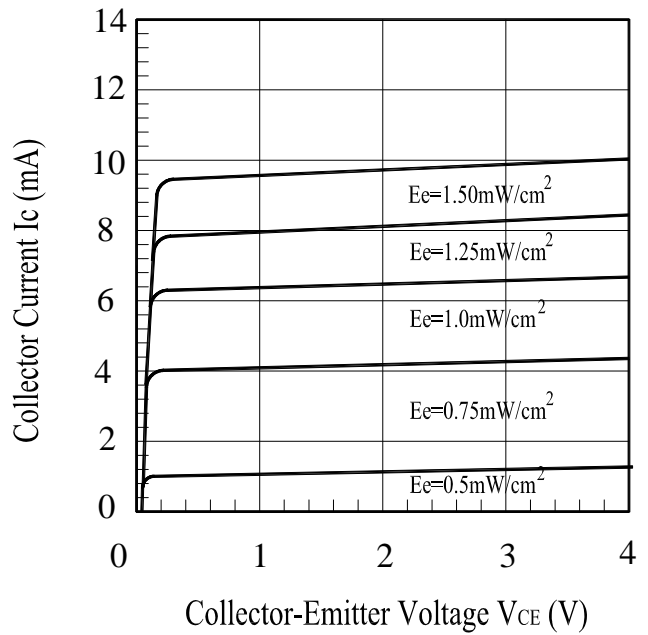


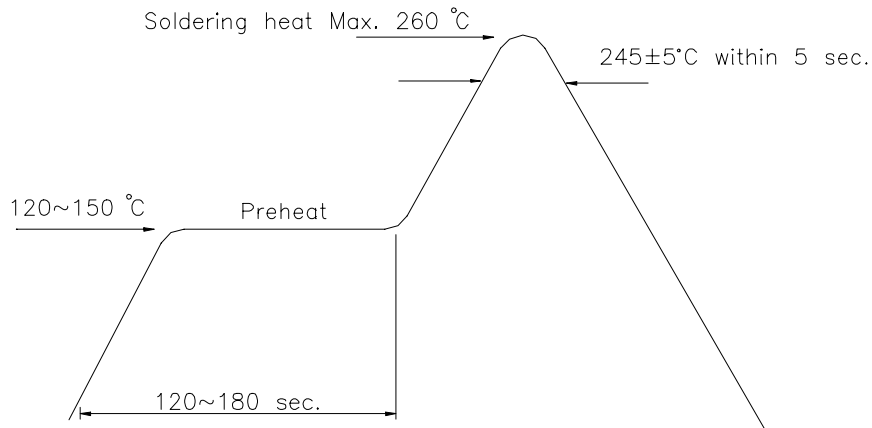
Fig.6 Collector Current vs.

Collector-Emitter Voltage



Soldering heat reliability(DIP)

Please refer to the following figure

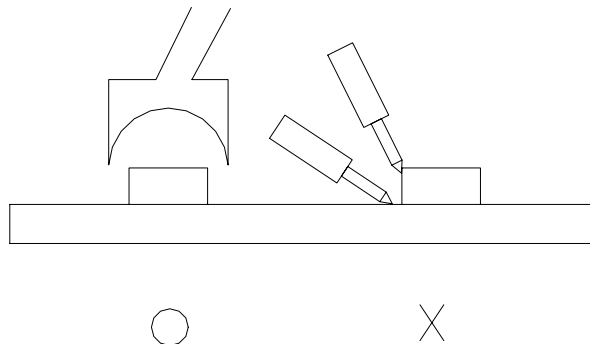


Soldering Iron

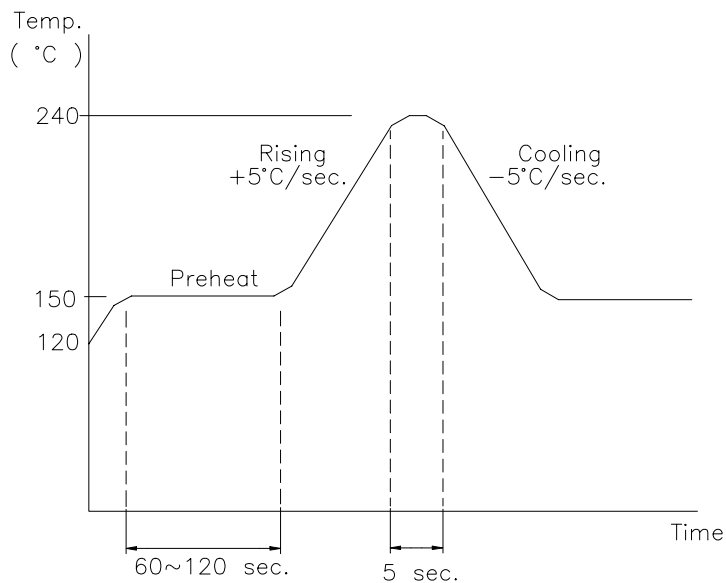
Basic spec is 5 sec when 260 . If temperature is higher , time should be shorter (+10 ———> -1sec).Power dissipation of Iron should be smaller than 15W ,and temperature should be controllable. Surface temperature of the device should be under 230 .

Rework

- 1.Customer must finish rework within 5 sec under 245
- 2.The head of iron can not touch copper foil.
- 3.Twin-head type is preferred.



Reflow Temp./Time



Precautions For Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 The operation of temperature and R.H are : 5 ~ 35 , R.H.60%.

2.2 Once the package is opened, the products be should be used within a week.

Otherwise, they should be keep in a damp proof box with desiccation anent.

Considering the tape life, we suggest our customers to use products within a year (from production date).

2-3. If opened more than one week in an atmosphere 5 ~ 35, R.H.60%, they should be treated at 60 ± 5 for 15hrs.

2-4. When you discover that the desiccant in the package has a pink color (normal=blue), you should treat them in the same conditions as 2.3

Reliability Test Item And Condition

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

Confidence level : 90%

LTPD : 10%

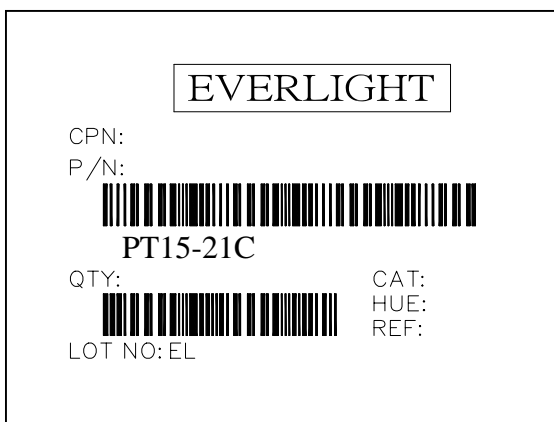
NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	REFLOW	TEMP. : 240 ± 5 5secs	6Mins	22pcs	I _{C(ON)} L× 0.8 L : Lower Specification Limit	0/1
2	Temperature Cycle	H : +85 30mins ↑ 5mins ↓ L : -55 30mins	50Cycles	22pcs		0/1
3	Thermal Shock	H : +100 5mins ↑ 10secs ↓ L : -10 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP. : +100	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : -55	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



Packing Quantity Specification

- 1.1000Pcs/1Bag , 10Bags/1Box
- 2.10Boxes/1Carton

Label Form Specification



- CPN: Customer's Production Number
- P/N : Production Number
- QTY: Packing Quantity
- CAT: Ranks
- HUE: Peak Wavelength
- REF: Reference
- LOT No: Lot Number
- MADE IN TAIWAN: Production Place

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.
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