EVERCOLORS

DEVICE NUMBER : DPT-255-030 REV : 1.2
ECN : PAGE : 1/7

# Phototransistor

PT5529B/L2

## ■ Features :

- Wide angle of half sensitivity $\theta$ =±65°
- High sensitivity
- Fast response time
- Cutting Wavelength $\lambda$p=840nm

## ■ Description :

EVERLIGHT Dual Photo Transistor( PT5529B/L2 is a high speed and high sensitivity dual photo transistor in a flat side view plastic package.

The epoxy package spectrally matched to IR emitter ( $\lambda$p=940nm)

## ■ Applications :

- Mouse
- Optoelectronic Switch

| PART NO. | CHIP MATERIAL | LENS COLOR |
|---|---|---|
| PT | Silicon | Black |

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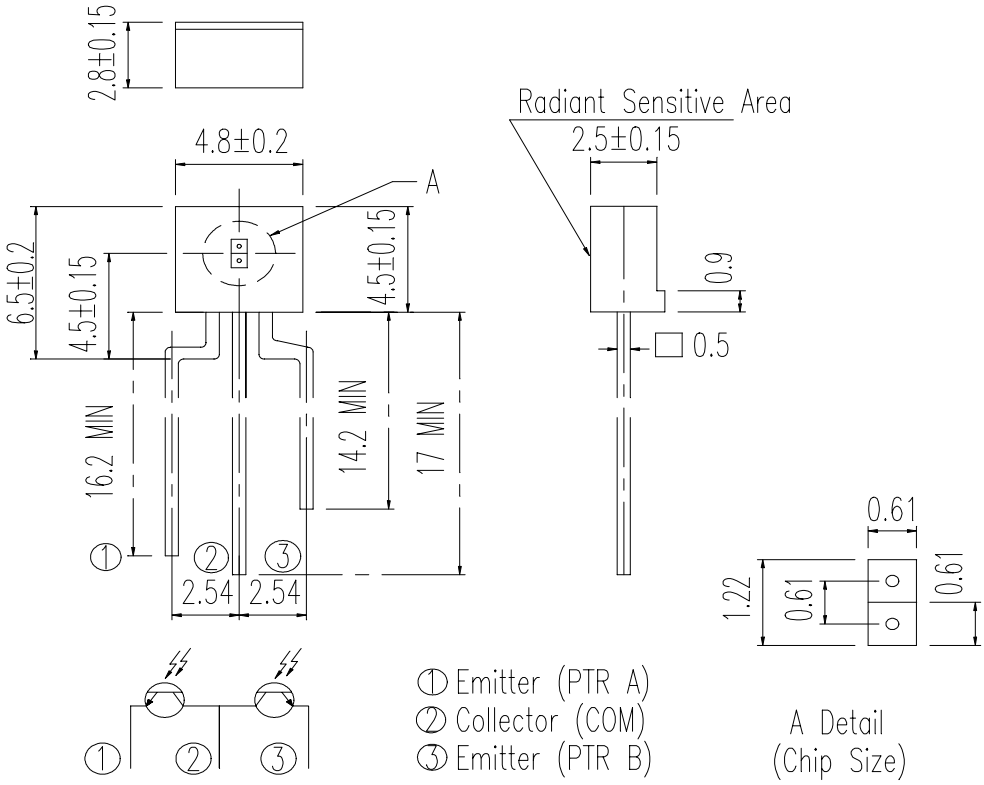
## Package Dimension :



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## ■ Absolute Maximum Ratings at $T_a$ = 25℃

| Parameter | Symbol | Rating | Unit | Notice |
|---|---|---|---|---|
| Collector power dissipation | Pd | 75 | mW | |
| C-E Voltage | $V_{ce}$ | 30 | V | |
| E-C Voltage | $V_{ec}$ | 5 | V | |
| Operating Temperature | Topr | -25 ~ +85 | ℃ | |
| Storage Temperature | Tstg | -40 ~ +85 | ℃ | |
| Soldering Temperature (1/16 inch from body for 5 sec) | Tsol | 260 | ℃ | |

## ■ Electronic Optical Characteristics :

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| Collector dark current | $I_{ceo}$ | | | 100 | nA | $V_{ce}$=20V ,$E_e$=0mW/cm$^2$ |
| C-E Saturation voltage | $V_{ce(sat.)}$ | | | 0.2 | V | $I_C$=2mA ,IB=100μA |
| C-E Breakdown voltage | $BV_{ceo}$ | 30 | | | V | $I_C$=100μA ,IB=0 |
| E-C Breakdown voltage | $BV_{eco}$ | 5 | | | V | $I_e$=100μA ,IB=0 |
| On stat ecollector current | $I_c$(ON) | 129 | | 944 | μA | $E_e$=0.555mW/cm$^2$,$V_{ce}$=5V |
| Rise Time | $t_r$ | | 15 | | μs | $V_{ce}$=5V<br>$I_C$=1mA<br>RL=1000Ω |
| Fall Time | $t_f$ | | 15 | | μs | |

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## ■ Typical Electrical/Optical/Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

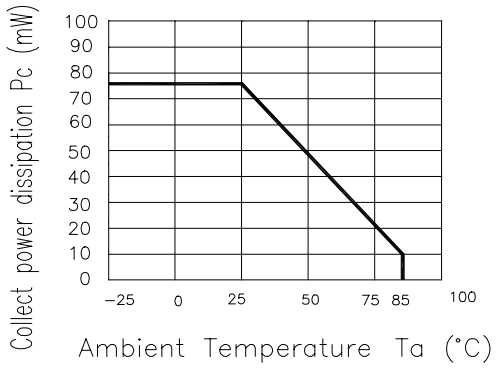



Fig.2 Collector Dark Current vs. Ambient Temperature

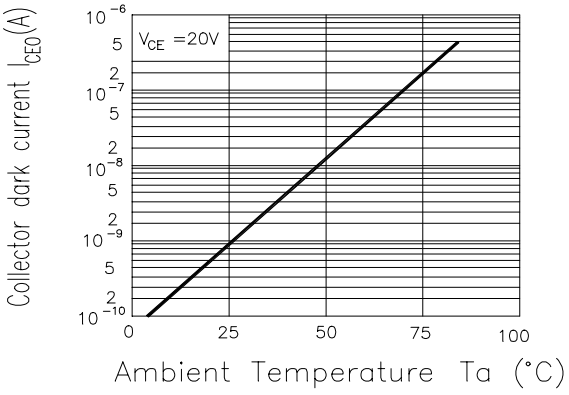



Fig. 3 Relative Collector Current vs. Ambient Temperature

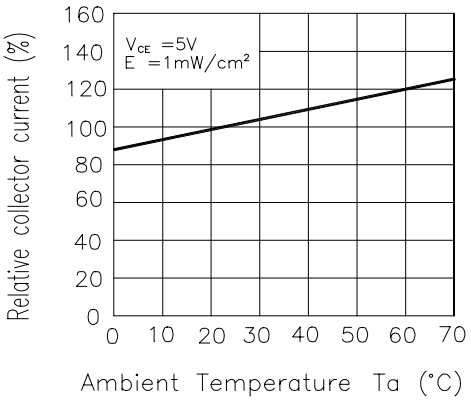



Fig.4 Collector Current vs. Irradiance

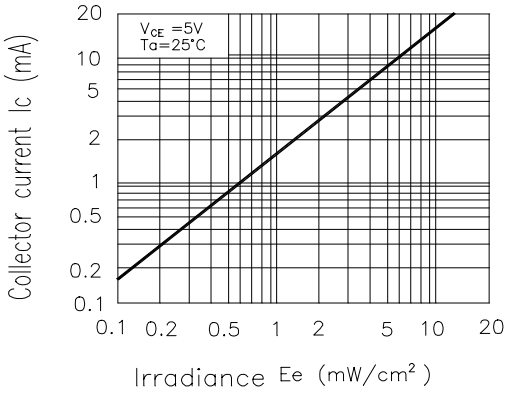



Fig.5 Spectral Sensitivity

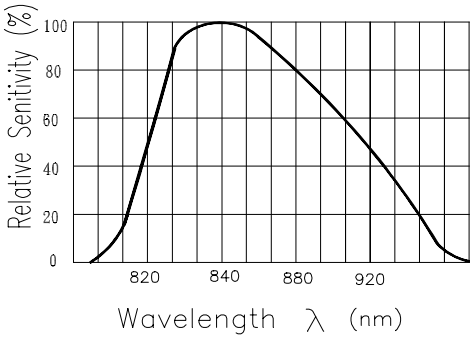
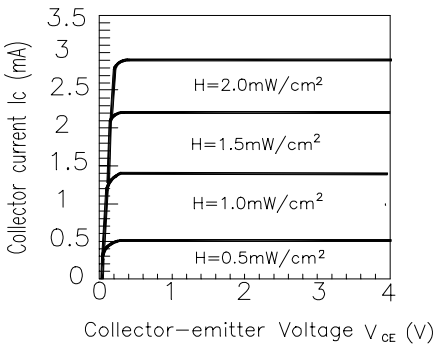



Fig.6 Collector Current vs. Collector−emitter Voltage



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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/ Cycle | Sample Size | Failure Judgement Criteria | Ac/Re |
|---|---|---|---|---|---|---|
| 1 | **Solderability** | TEMP : 230℃ ± 5 ℃ | 5 secs | 22 PCs | More than 90% of lead to be covered by soldering | 0/1 |
| 2 | **Temperature Cycle** | H : +85℃ 30 mins<br>↕ 5 mins<br>L : -55℃ 30 mins | 50 cycles | 22 PCs | $I_R \geqq U \times 2$<br>$Ee \leqq L \times 0.8$<br>$V_F \geqq U \times 1.2$ | 0/1 |
| 3 | **Thermal Shock** | H : +100℃ 5 mins<br>↕ 10 secs<br>L : -10℃ 5 mins | 50 cycles | 22 PCs | U :Upper specification limit<br>L :Lower specification limit | 0/1 |
| 4 | **High Temperature Storage** | TEMP. : +100℃ | 1000 hrs | 22 PCs | | 0/1 |
| 5 | **Low Temperature Storage** | TEMP. : -55℃ | 1000 hrs | 22 PCs | | 0/1 |
| 6 | **DC Operating Life** | $I_F$=20mA | 1000 hrs | 22 PCs | | 0/1 |
| 7 | **High Temperature / High Humidity** | 85℃ / 85% R.H. | 1000 hrs | 22 PCs | | 0/1 |

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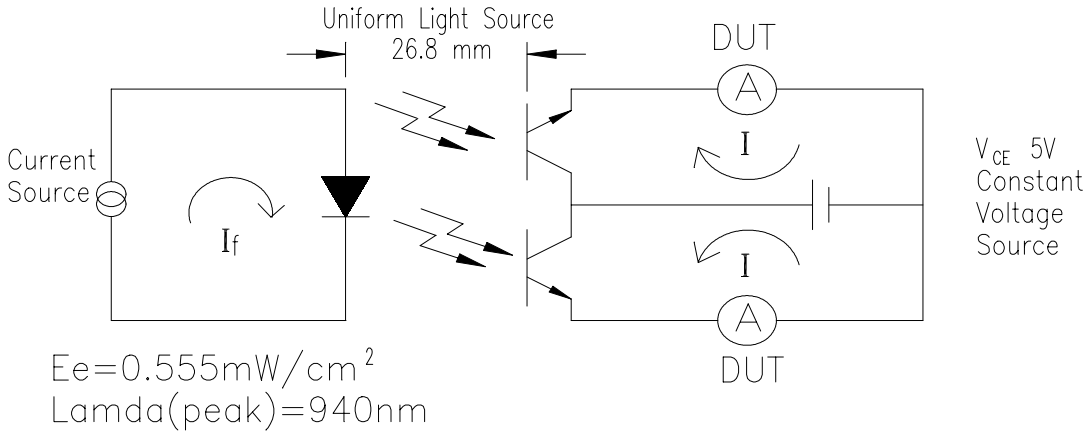
## Test Method :

The Light current testing method for PTR:




## Ranking

| Color Code | Parameter | Symbol | Min | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Red | A1 | $I_{C(ON)}$ | 129 | 226 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Blue | A2 | $I_{C(ON)}$ | 195 | 306 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Yellow | A3 | $I_{C(ON)}$ | 262 | 380 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Silver | A4 | $I_{C(ON)}$ | 330 | 461 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Green | A5 | $I_{C(ON)}$ | 398 | 544 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Purple | A6 | $I_{C(ON)}$ | 468 | 625 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| White | A7 | $I_{C(ON)}$ | 536 | 703 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Brown | A8 | $I_{C(ON)}$ | 604 | 785 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Orange | A9 | $I_{C(ON)}$ | 673 | 862 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |
| Gold | A10 | $I_{C(ON)}$ | 742 | 944 | μA | Ee=0.555mw/c㎡ $V_{CE}$=5V |

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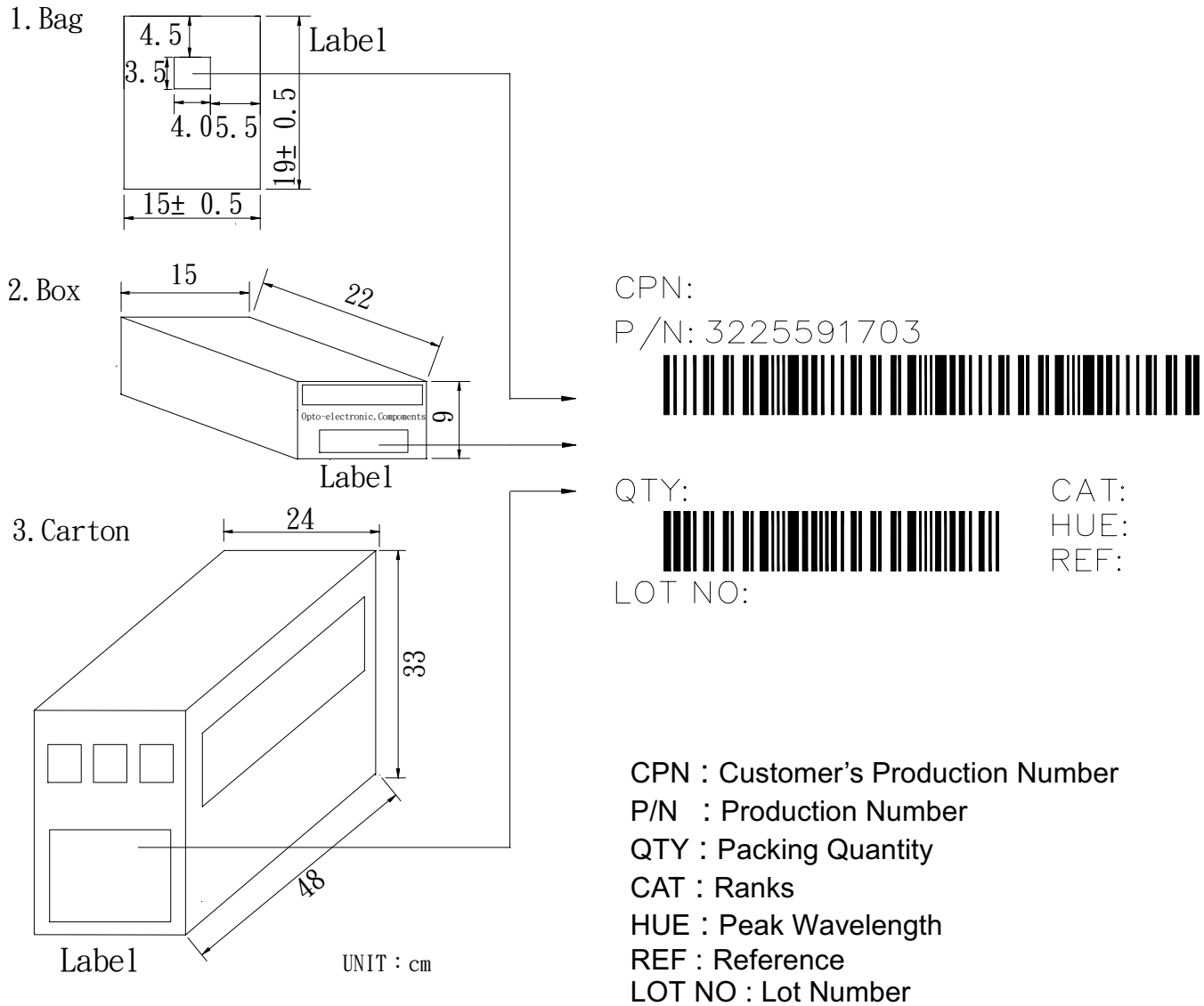
## ■ Packing Specifications




CPN：Customer's Production Number
P/N ：Production Number
QTY：Packing Quantity
CAT：Ranks
HUE：Peak Wavelength
REF : Reference
LOT NO : Lot Number

## ■ Packing Quantity Specification

1. 500 Pcs / 1 Bag，10 Bags / 1Box
2. 10 Boxess / 1Carton

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