



DEVICE NUMBER : DPT-255-017

REV : 1.1

ECN : \_\_\_\_\_

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## Phototransistor

MODEL NO : PT2559B/L1/H3

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### ■ Features :

- Wide angle of half sensitivity  $\theta = \pm 65^\circ$
- High sensitivity
- Fast response time
- Cutting Wavelength  $\lambda_p = 840\text{nm}$

### ■ Description :

EVERLIGHT Dual Photo Transistor(PT2559B/L1/H3) 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 ( $\lambda_p = 940\text{nm}$ )

### ■ Applications :

- Mouse
- Optoelectronic Switch

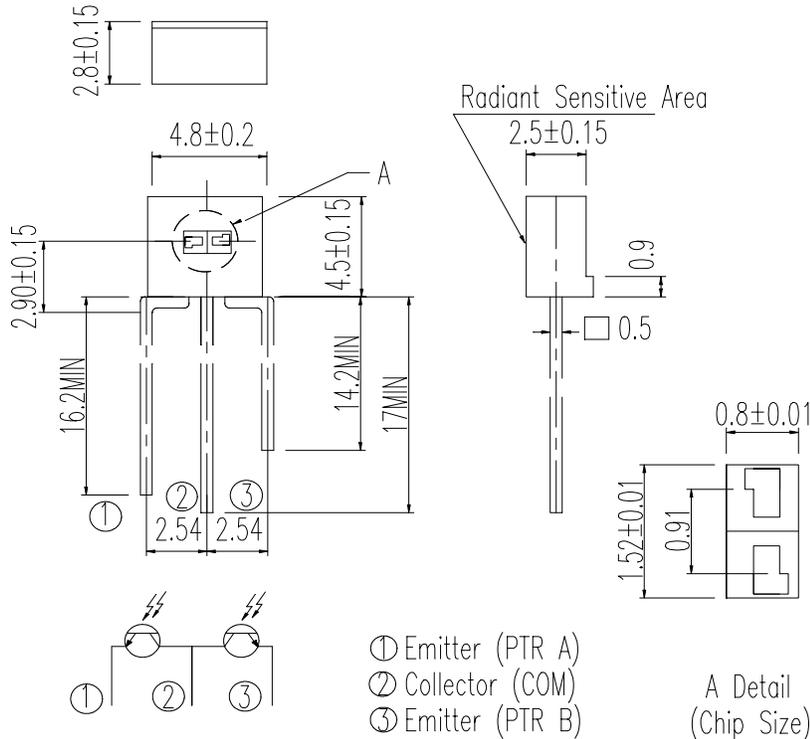
PART NO.	CHIP	LENS COLOR
	MATERIAL	
PT	Silicon	Black

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### Package Dimensions :



### Notes :

1. All dimensions are in millimeter.
2. Lead spacing is measured where the lead emerge from the package.
3. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
4. 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.
5. When using this product , please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERIGHT 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.
6. Lens color: Black transparent
7. Tolerance is  $\pm 0.15$ mm unless otherwise note.

DEVICE NUMBER : DPT-255-017  
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PAGE : 3/7**Phototransistor**MODEL NO : PT2559B/L1/H3**■ Absolute Maximum Ratings at T<sub>a</sub> = 25°C**

Parameter	Symbol	Rating	Unit	Notice
Collector power dissipation (25°C Free Air Temperature)	P <sub>d</sub>	75	mW	
C-E Voltage	V <sub>ce</sub>	30	V	
E-C Voltage	V <sub>ec</sub>	5	V	
Operating Temperature	T <sub>opr</sub>	-25 ~ +85	°C	
Storage Temperature	T <sub>stg</sub>	-40 ~ +85	°C	
Soldering Temperature (1/16 inch from body for 5 sec)	T <sub>sol</sub>	260	°C	

**■ Electronic Optical Characteristics :**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector dark current	I <sub>ceo</sub>			100	nA	V <sub>ce</sub> =10V , E <sub>e</sub> =0mW/cm <sup>2</sup>
C-E Saturation voltage	V <sub>ce(SAT.)</sub>			0.2	V	I <sub>c</sub> =2mA , I <sub>B</sub> =100 μA
C-E Breakdown voltage	BV <sub>ceo</sub>	30			V	I <sub>c</sub> =80 μA , E <sub>e</sub> =1mW/cm <sup>2</sup>
E-C Breakdown voltage	BV <sub>eco</sub>	5			V	I <sub>e</sub> =100 μA E <sub>e</sub> =1mW/cm <sup>2</sup>
Peak Sensitivity Wavelength	λ <sub>p</sub>	800		1050	nm	
Rise Time	t <sub>r</sub>		15		us	V <sub>ce</sub> =5V I <sub>c</sub> =0.5mA R <sub>L</sub> =100Ω
Fall Time	t <sub>f</sub>		15		us	

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### ■ Typical Electrical/Optical/Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

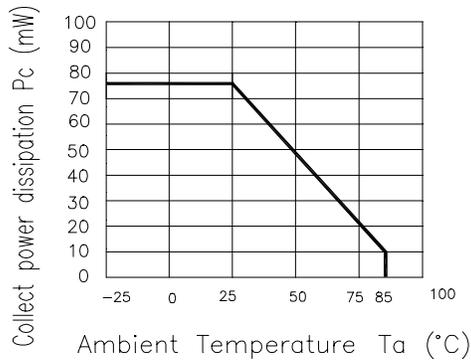


Fig.2 Collector Dark Current vs. Ambient Temperature

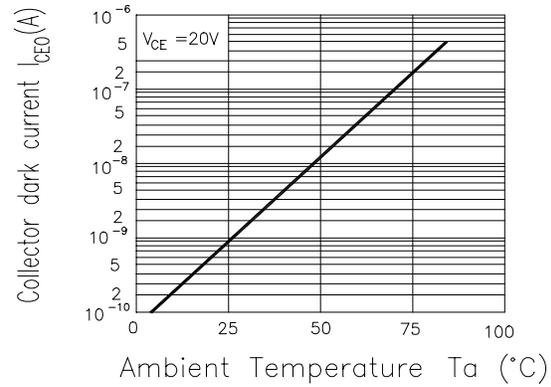


Fig. 3 Relative Collector Current vs. Ambient Temperature

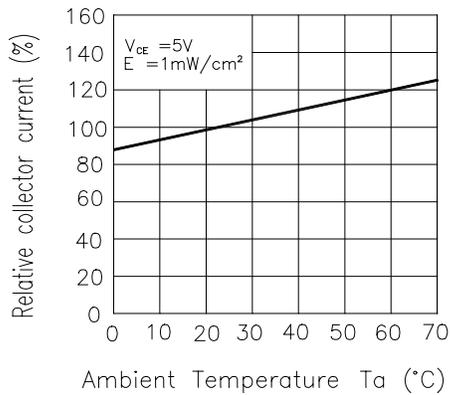


Fig.4 Collector Current vs. Irradiance

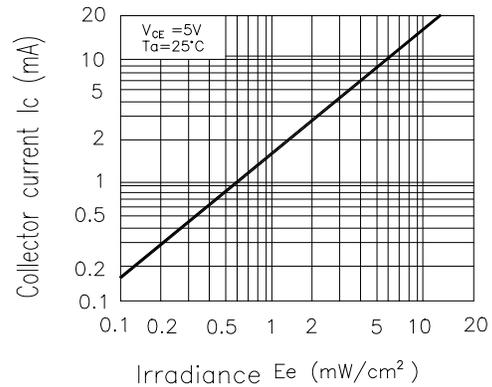


Fig.5 Spectral Sensitivity

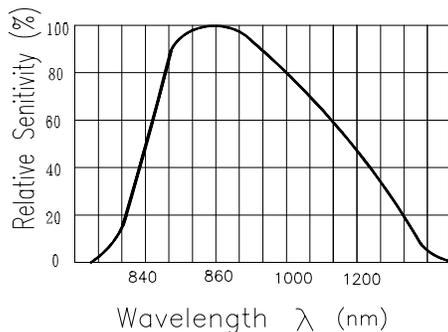
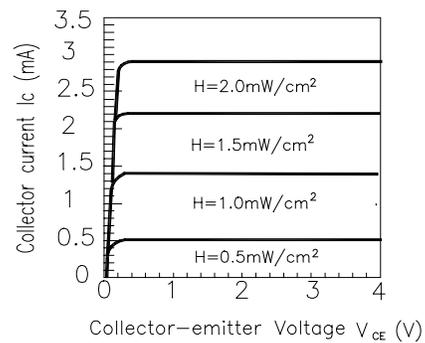


Fig.6 Collector Current vs. Collector-emitter Voltage





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## Phototransistor

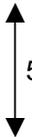
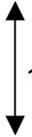
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### ■ Reliability Test Item And Condition

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

Confidence level:90%

LTPD:10%

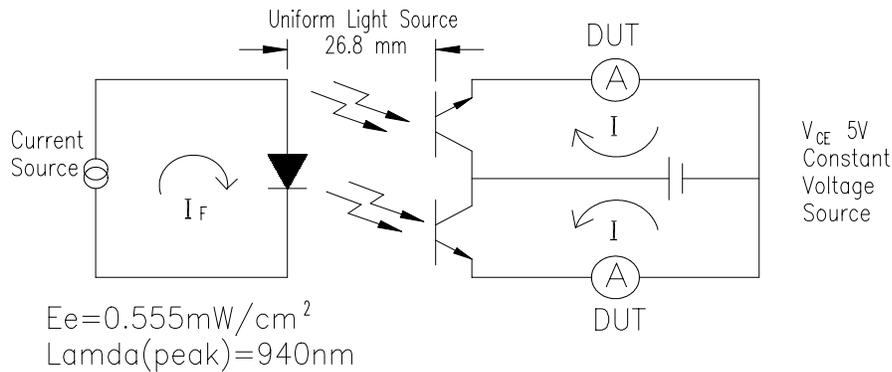
NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Size	Failure Judgement Criteria	Ac/Re
1	<b>Solderability</b>	TEMP : 230°C ± 5 °C	5 secs	22 PCs	More than 90% of lead to be covered by soldering	0/1
2	<b>Temperature Cycle</b>	H : +85°C    30 mins  L : -55°C    30 mins	50 cycles	22 PCs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$	0/1
3	<b>Thermal Shock</b>	H : +100°C    5 mins  L : -10°C    5 mins	50 cycles	22 PCs	U :Upper specification limit L :Lower specification limit	0/1
4	<b>High Temperature Storage</b>	TEMP. : +100°C	1000 hrs	22 PCs		0/1
5	<b>Low Temperature Storage</b>	TEMP. : -55°C	1000 hrs	22 PCs		0/1
6	<b>DC Operating Life</b>	$I_F = 20\text{mA}$	1000 hrs	22 PCs		0/1
7	<b>High Temperature / High Humidity</b>	85°C / 85% R.H.	1000 hrs	22 PCs		0/1

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### Test Method :

The Light current testing method for PTR:



### Ranking

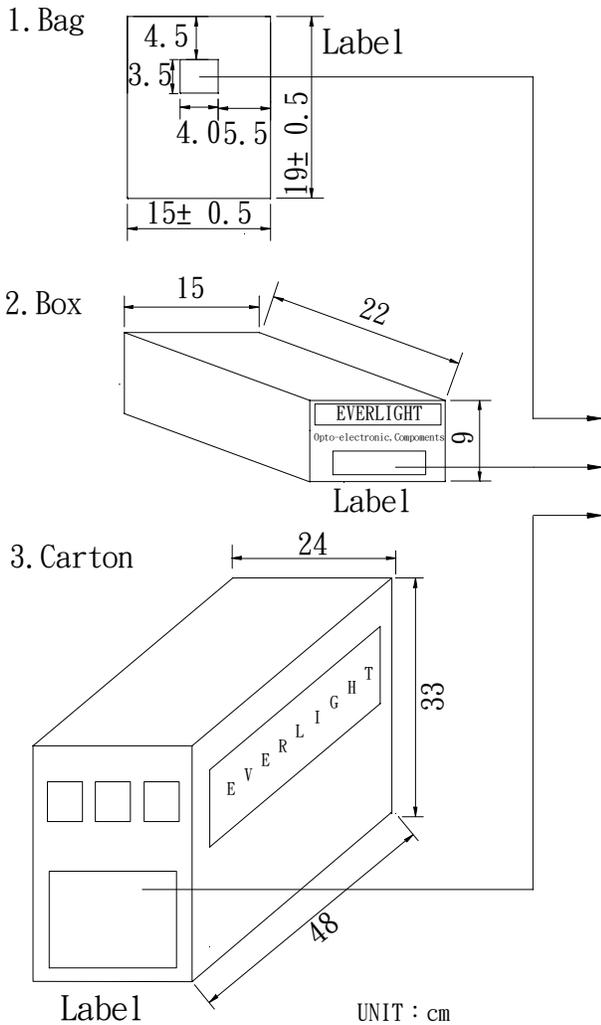
Color Code	Parameter	Symbol	Min	Max	Unit	Test Condition
Red	A1	$I_{C(ON)}$	129	226	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Blue	A2	$I_{C(ON)}$	195	306	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Yellow	A3	$I_{C(ON)}$	262	380	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Silver	A4	$I_{C(ON)}$	330	461	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Green	A5	$I_{C(ON)}$	398	544	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Purple	A6	$I_{C(ON)}$	468	625	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
White	A7	$I_{C(ON)}$	536	703	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Brown	A8	$I_{C(ON)}$	604	785	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Orange	A9	$I_{C(ON)}$	673	862	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$
Gold	A10	$I_{C(ON)}$	742	944	$\mu\text{A}$	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5\text{V}$



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### ■ Packing Specifications

**EVERLIGHT**

CPN:

P/N: 3225591203



PT2559B/L1/H3

QTY:



LOT NO:

CAT:

HUE:

REF:

MADE IN TAIWAN

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

### ■ Packing Quantity Specification

1. 500 Pcs / 1 Bag , 10 Bags / 1Box

2. 10 Boxes / 1Carton