

DEVICE NUMBER : DPT-255-011REV : 1.1

ECN : _____

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Phototransistor

MODEL NO : PT2559B

■ 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) 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 :

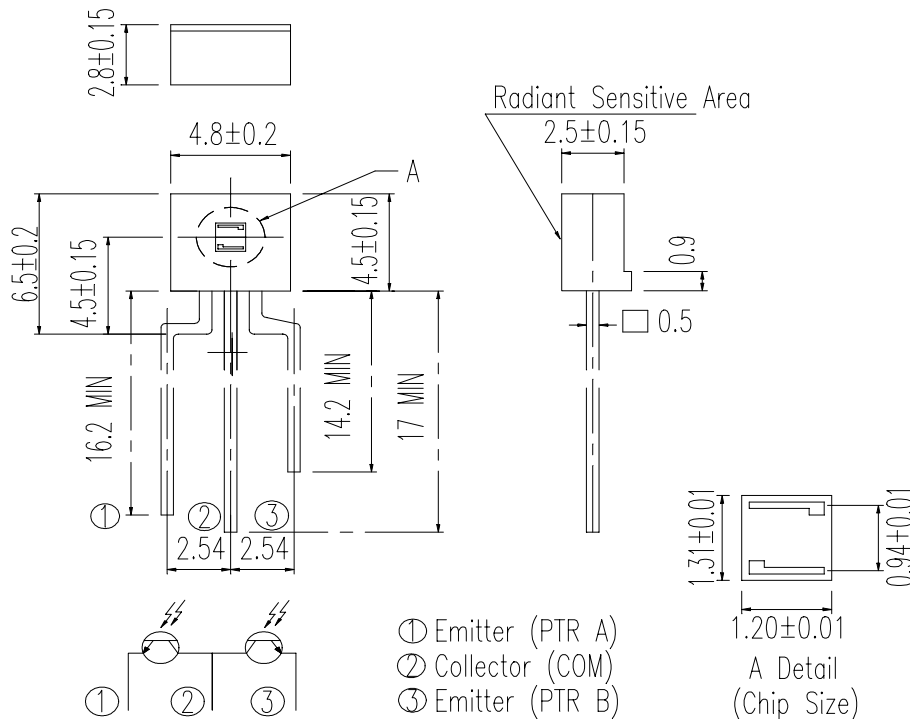
- Mouse
- Optoelectronic Switch

PART NO.	CHIP	LENS COLOR
	MATERIAL	
PT	Silicon	Black

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Package Dimension :



Notes :

- All dimensions are in millimeter.
- Lead spacing is measured where the lead emerge from the package.
- Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 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.
- 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.
- Lens color: Black transparent
- Tolerance is ± 0.15 mm unless otherwise note.



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■ Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	Notice
Collector power dissipation	P_d	75	mW	
C-E Voltage	V_{ce}	30	V	
E-C Voltage	V_{ec}	5	V	
Operating Temperature	T_{opr}	-25 ~ +85	$^\circ\text{C}$	
Storage Temperature	T_{stg}	-40 ~ +85	$^\circ\text{C}$	
Soldering Temperature (1/16 inch from body for 5 sec)	T_{sol}	260	$^\circ\text{C}$	

■ Electronic Optical Characteristics :

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



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Typical Electrical/Optical/Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

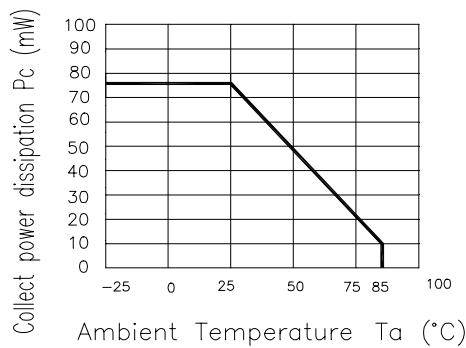


Fig.2 Collector Dark Current vs. Ambient Temperature

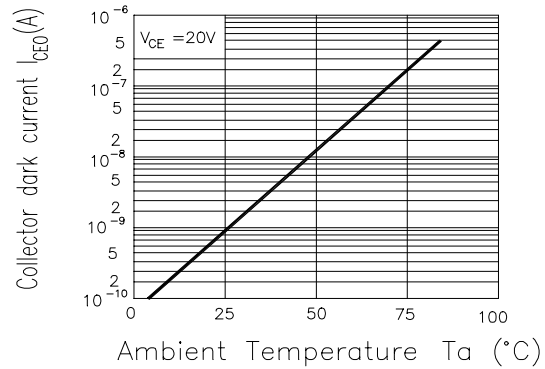


Fig. 3 Relative Collector Current vs. Ambient Temperature

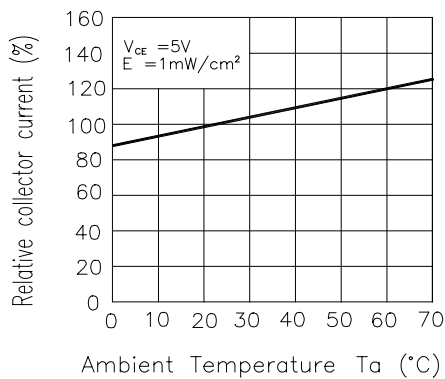


Fig.4 Collector Current vs. Irradiance

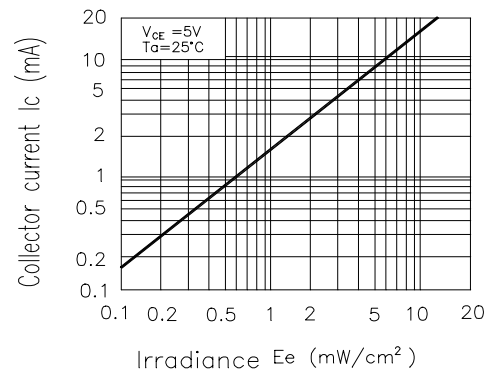


Fig.5 Spectral Sensitivity

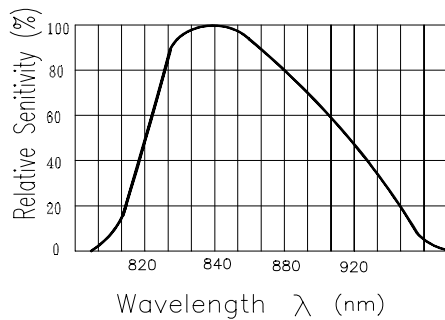
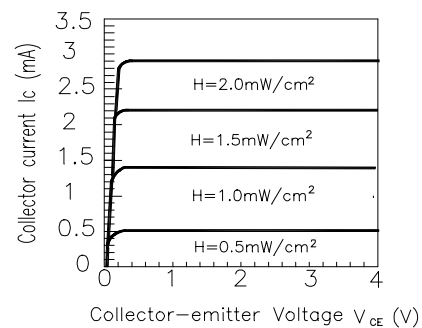


Fig.6 Collector Current vs. Collector-emitter Voltage





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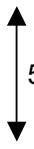
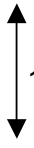
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■ Reliability Test Item And Condition

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

Confidence level:90%

LTPD:10%

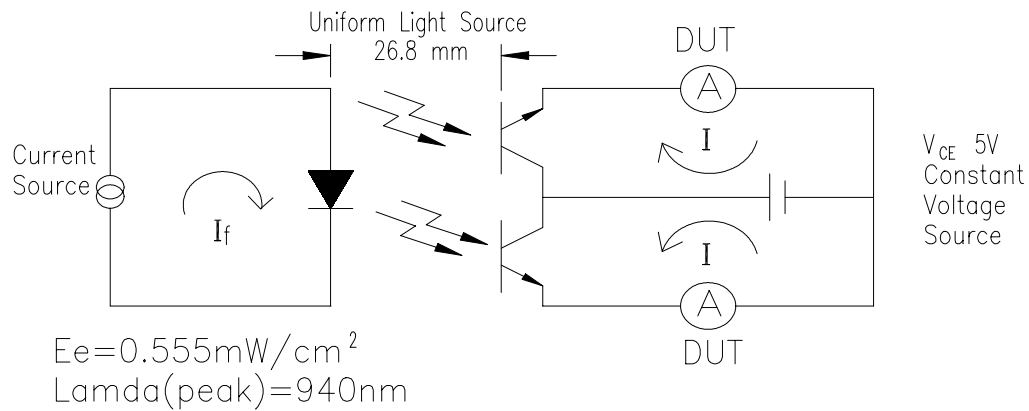
NO.	Item	Test Conditions	Test Hours/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	Solderability	TEMP : 230°C ± 5 °C	5 secs	22 PCs	More than 90% of lead to be covered by soldering	0/1
2	Temperature Cycle	H : +85°C 30 mins  L : -55°C 30 mins	50 cycles	22 PCs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$	0/1
3	Thermal Shock	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	High Temperature Storage	TEMP. : +100°C	1000 hrs	22 PCs		0/1
5	Low Temperature Storage	TEMP. : -55°C	1000 hrs	22 PCs		0/1
6	DC Operating Life	$I_F = 20\text{mA}$	1000 hrs	22 PCs		0/1
7	High Temperature / High Humidity	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	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Blue	A2	$I_{C(ON)}$	195	306	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Yellow	A3	$I_{C(ON)}$	262	380	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Silver	A4	$I_{C(ON)}$	330	461	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Green	A5	$I_{C(ON)}$	398	544	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Purple	A6	$I_{C(ON)}$	468	625	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
White	A7	$I_{C(ON)}$	536	703	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Brown	A8	$I_{C(ON)}$	604	785	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Orange	A9	$I_{C(ON)}$	673	862	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$
Gold	A10	$I_{C(ON)}$	742	944	μA	$E_e = 0.555 \text{ mW/cm}^2$ $V_{CE} = 5V$



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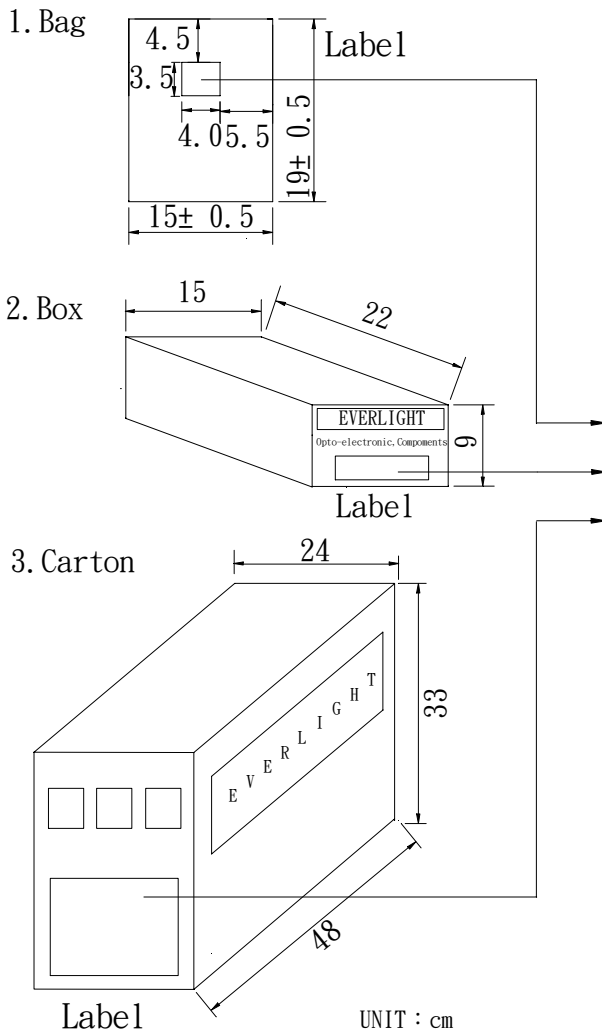
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■ Packing Specifications



CPN:
P/N: 3225591503



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QTY:



LOT NO:

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
MADE IN TAIWAN : Production place

■ Packing Quantity Specification

- 500 Pcs / 1 Bag , 10 Bags / 1Box
- 10 Boxes / 1Carton