Phototransistor

MODEL NO : PT25559B/L2/H3

■ Features :

- Wide angle of half sensitivity $\theta = \pm 65^{\circ}$
- High sensitivity
- Fast response time

■ Description :

EVERLIGHT Dual Photo Transistor(**PT2559B/L2/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 (λp=940nm)

■ Applications :

- Mouse
- Optoelectronic Switch
- Photo Interrupter

PART NO.	CHIP MATERIAL	LENS COLOR
PT	Silicon	Black

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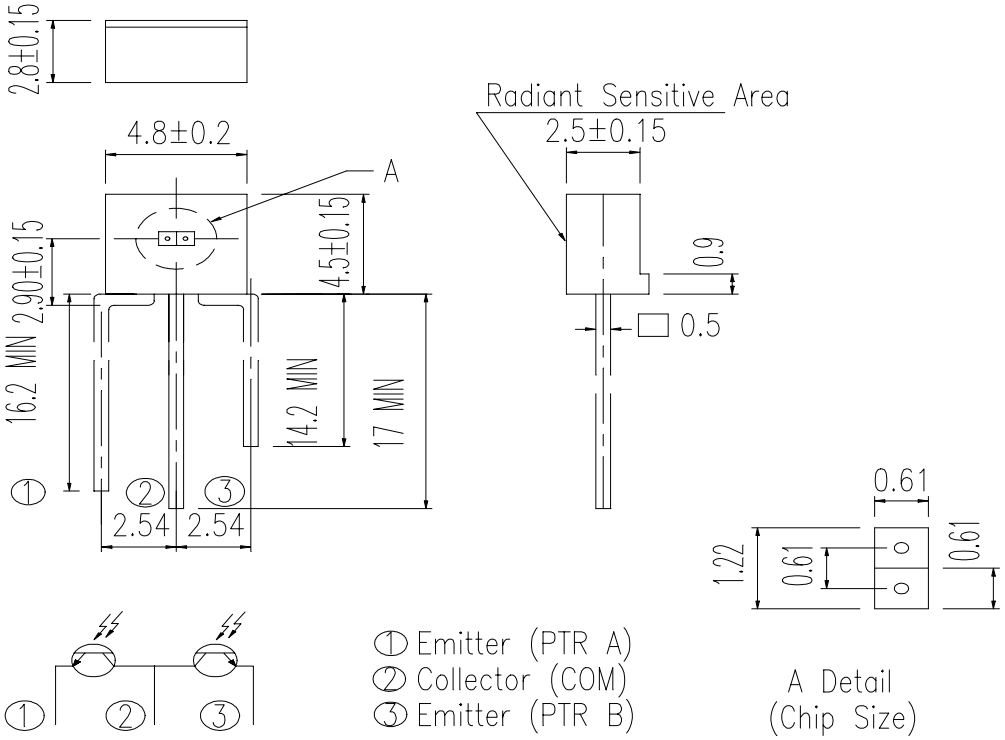
■ Package Dimension :



■ Notes :

1.All dimensions are in millimeter.

2. Tolerance is ±0.15mm unless otherwise note.

3.Lead spacing is measured where the lead emerge from the package.

4.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.

5.These specification sheets include materials protected under copyright of EVERLIGHT corporation . Please don't reproduce or cause anyne to reproduce them without EVERLIGHT's consent.

6.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.

7.Lens color: Black transparent

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■ Absolute Maximum Ratings at T_A = 25℃

Parameter	Symbol	Rating	Unit
Collector Power Dissipation	P_D	75	mW
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	Ic	20	mA
Operating Temperature	Topr	-25~+85	℃
Storage Temperature	Tstg	-40~+85	℃
Soldering Temperature (1/16 inch from body for 5 seconds)	Tsol	260	℃

■ Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector dark current	I_{ceo}	0.16	0.4		nA	V_{CE}=20V, Ee=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
Peak Sensitivity Wavelength	λp	800		1050	nm	---
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 I_C=1mA RL=1000Ω
Fall Time	t_f		15		μs	

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■ Typical Electrical/Optical/Characteristics Curves For PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

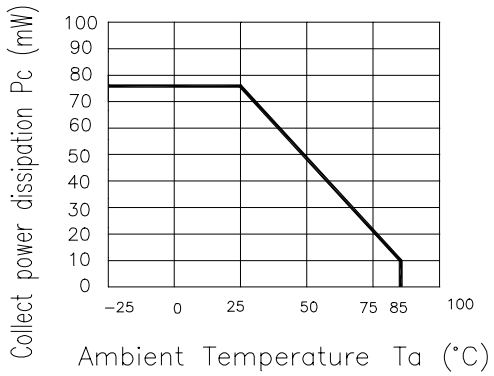


Fig.2 Collector Dark Current vs. Ambient Temperature

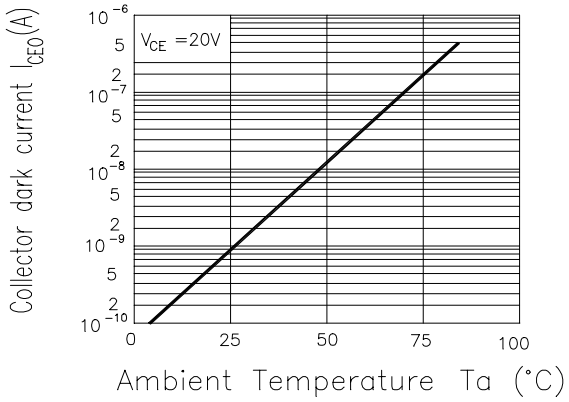


Fig. 3 Relative Collector Current vs. Ambient Temperature

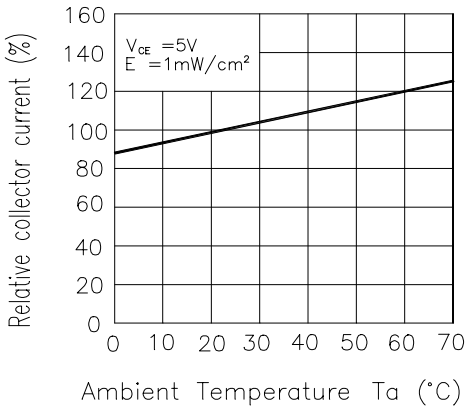


Fig.4 Collector Current vs. Irradiance

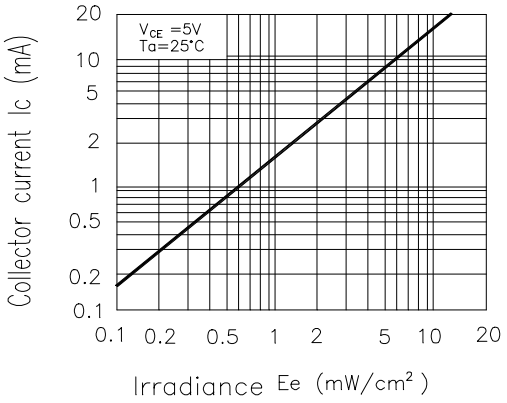


Fig.5 Spectral Sensitivity

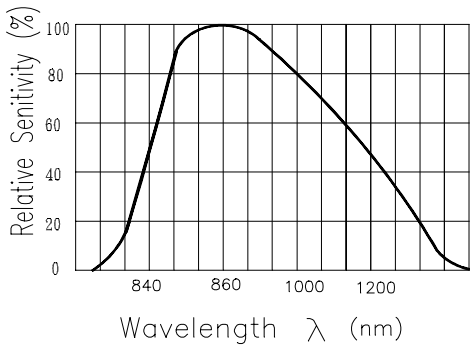
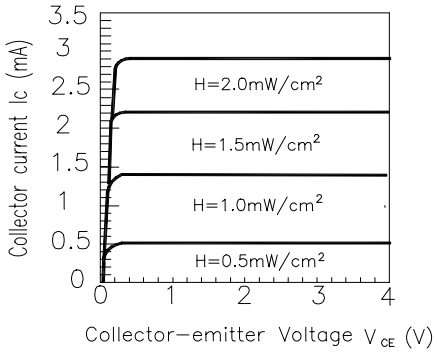


Fig.6 Collector Current vs. Collector−emitter Voltage



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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	**Solder Heat**	TEMP : 260℃ ± 5 ℃	5 sec	22 PCs	$I_{c(on)} \leqq L \times 0.8$ L :Lower specification limit	0/1
2	**Temperature Cycle**	H : +85℃ 30 min 5 min L : -55℃ 30 min	50 cycle	22 PCs		0/1
3	**Thermal Shock**	H : +100℃ 5 min 10 sec L : -10℃ 30 min	50 cycle	22 PCs		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**	V_{CE}=5V	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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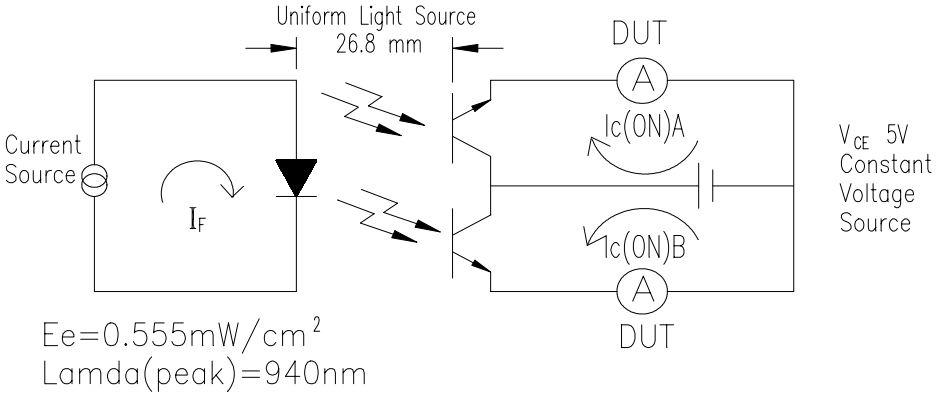
Test Method For On State Collector Current :

Condition : Ee=0.555mW/cm^2 , V_{CE}=5V

Test Item : Collector Current [$I_{C(ON)}$]

Unit : μA

The Light current testing method for PTR:



To Distinguish Intensity:

Condition:V_{CE}:5V Ee:0.555mW/cm^2

A Ranks

Color Code	Ranks	Symbol	Min	Typ	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
Collector Current Ratio of 2 Photo Transistors		R	0.8	---	1.2	Ic(ON)A / Ic(ON)B	

* $I_C(ON)$=[$I_C(ON)A$+ $I_C(ON)B$]/2

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N Ranks

Color Code	Ranks	Symbol	Min	Typ	Max	Unit	Test Condition
Red	N1	$I_{C(ON)}$	210	---	350	μA	Ee=0.555mW/c㎡ V_{CE}=5V
Blue	N2	$I_{C(ON)}$	280	---	430	μA	Ee=0.555mW/c㎡ V_{CE}=5V
Yellow	N3	$I_{C(ON)}$	350	---	510	μA	Ee=0.555mW/c㎡ V_{CE}=5V
Silver	N4	$I_{C(ON)}$	420	---	590	μA	Ee=0.555mW/c㎡ V_{CE}=5V
Green	N5	$I_{C(ON)}$	490	---	670	μA	Ee=0.555mW/c㎡ V_{CE}=5V
Purple	N6	$I_{C(ON)}$	560	---	750	μA	Ee=0.555mW/c㎡ V_{CE}=5V
White	N7	$I_{C(ON)}$	630	---	830	μA	Ee=0.555mW/c㎡ V_{CE}=5V
Brown	N8	$I_{C(ON)}$	700	---	910	μA	Ee=0.555mW/c㎡ V_{CE}=5V
Collector Current Ratio of 2 Photo Transistors		R	0.8	---	1.2	Ic(ON)A / Ic(ON)B	

* $I_C(ON)=[I_C(ON)A+ I_C(ON)B]/2$

* For the intensity test method, the output intensity is measured indirectly by a wide uniform light source(unfocused) calibrated to 0.555mW/cm^2,~940nm radiant intensity at the PTR face. Details are shown in the above diagram. It's important that light intensity must be uniform across the face of the PTR under test. Maximum and minimum values must include all variation due to mechanical and electrical sorting and measurement error.

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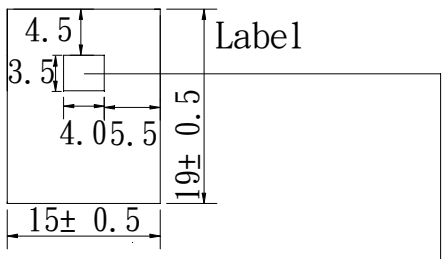
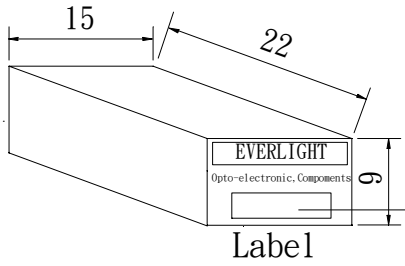
■ Packing Specifications

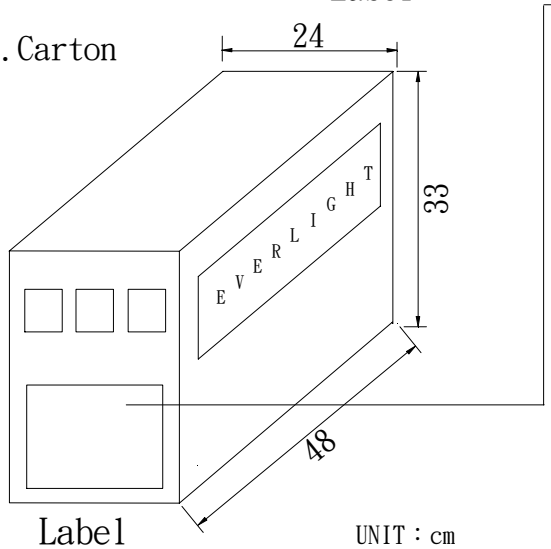
1. Bag



2. Box



3. Carton



UNIT：cm

EVERLIGHT

CPN:

P/N: 3225598603

PT2559B/L2/H3

QTY: CAT:

HUE:

REF:

LOT NO:

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

1.500Pcs/1Bag，10Bags/1Box
2.10Boxes/1Carton