

#### Features

- Fast response time
- High photo sensitivity
- Pb free
- This product itself will remain within RoHS compliant version.

#### Descriptions

- PT2559B/L2-F is a high speed and high sensitive dual phototransistor molded in a black plastic package with plat side view.
- The device is spectrally matched with IR emitters.

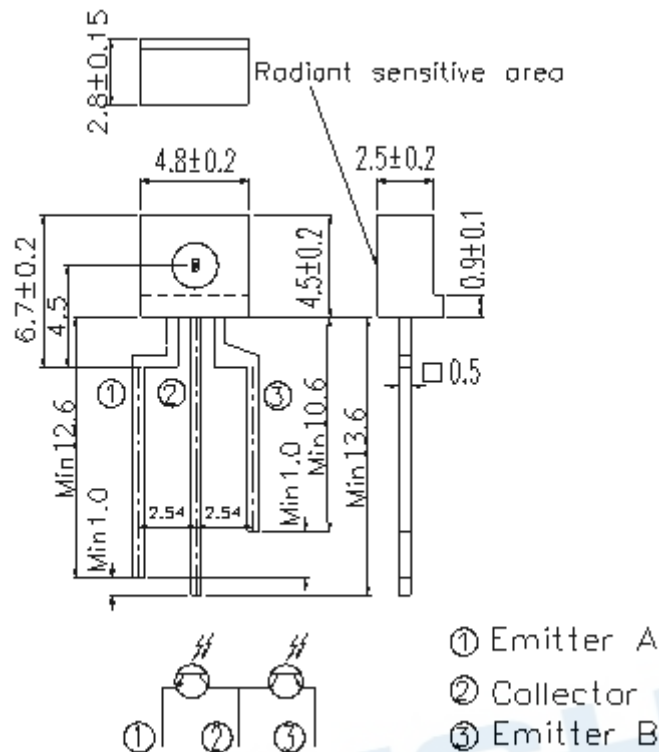
#### Applications

- Mouse
- Optoelectronic Switch
- Photo Interrupter

#### Device Selection Guide

| LED Part No. | Chip     | Lens Color |
|--------------|----------|------------|
|              | Material |            |
| PT           | Silicon  | Black      |

### Package Dimensions



- Notes:** 1.All dimensions are in millimeters  
2.Tolerances unless dimensions  $\pm 0.25\text{mm}$

### 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                                        | $T_{opr}$ | $-25 \sim +85^\circ\text{C}$ | $^\circ\text{C}$ |
| Storage Temperature                                          | $T_{stg}$ | $-40 \sim +85^\circ\text{C}$ | $^\circ\text{C}$ |
| Lead Soldering Temperature(*1)                               | $T_{sol}$ | 260                          | $^\circ\text{C}$ |
| Power Dissipation at (or below)<br>25°C Free Air Temperature | $P_D$     | 75                           | mW               |

**Notes:** \*1:Soldering time  $\leq 5$  seconds.

### Electro-Optical Characteristics (Ta=25°C)

| Parameter                             | Symbol          | Condition                                    | Min | Typ | Max  | Unit    |
|---------------------------------------|-----------------|----------------------------------------------|-----|-----|------|---------|
| Collector – Emitter Breakdown Voltage | $BV_{CEO}$      | $I_C=100\mu A$<br>$E_e=0mW/cm^2$             | 30  | --- | ---  | V       |
| Emitter-Collector Breakdown Voltage   | $BV_{ECO}$      | $I_E=100\mu A$<br>$E_e=0mW/cm^2$             | 5   | --- | ---  | V       |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$   | $I_C=2mA$<br>$E_e=1mW/cm^2$                  | --- | --- | 0.4  | V       |
| Rise Time                             | $t_r$           | $V_{CE}=5V$<br>$I_C=1mA$<br>$R_L=1000\Omega$ | --- | 15  | ---  | $\mu S$ |
| Fall Time                             | $t_f$           |                                              | --- | 15  | ---  |         |
| Collector Dark Current                | $I_{CEO}$       | $E_e=0mW/cm^2$<br>$V_{CE}=20V$               | --- | --- | 100  | nA      |
| On State Collector Current            | $I_{C(on)}$     | $V_{CE}=5V$ ,<br>$E_e=0.555mW/cm^2$          | 129 | --- | 1085 | $\mu A$ |
| Wavelength of Peak Sensitivity        | $\lambda_p$     | ---                                          | --- | 940 | ---  | nm      |
| Rang of Spectral Bandwidth            | $\lambda_{0.5}$ | ---                                          | 760 | --- | 1100 | nm      |

### Typical Electro-Optical Characteristics Curves

Fig.1 Power Dissipation vs.  
Ambient Temperature

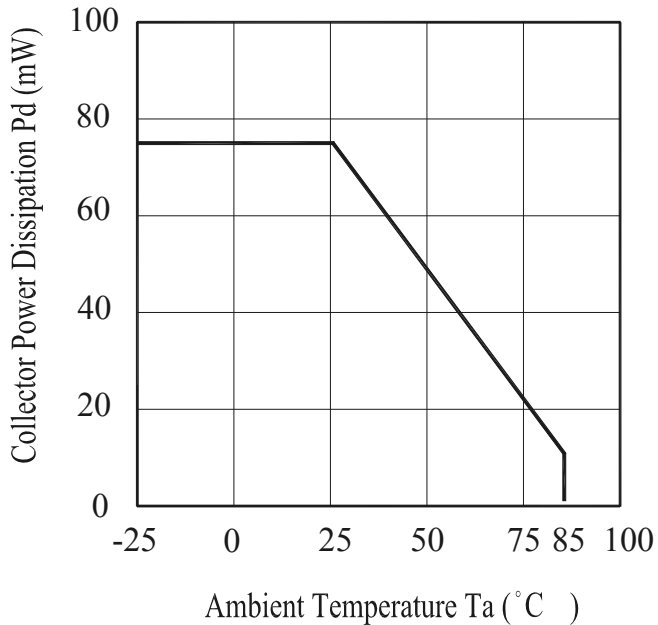


Fig.2 Spectral Sensitivity

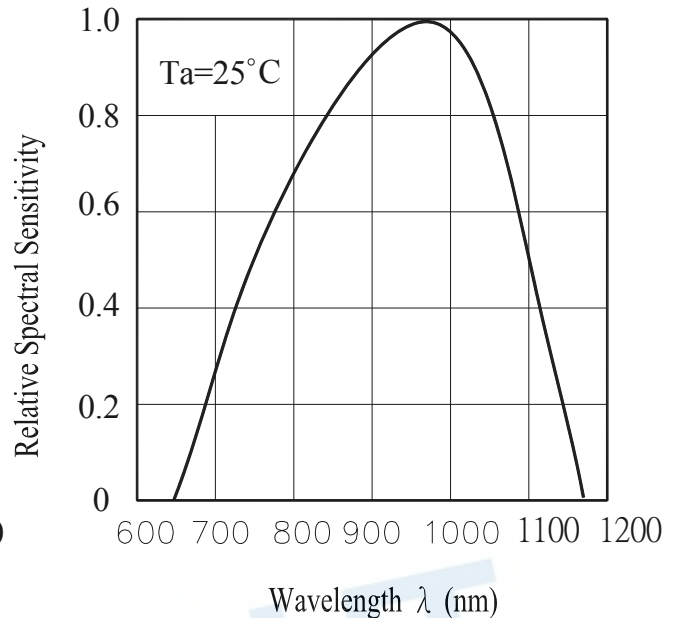


Fig.3 Dark Current vs.  
Ambient Temperature

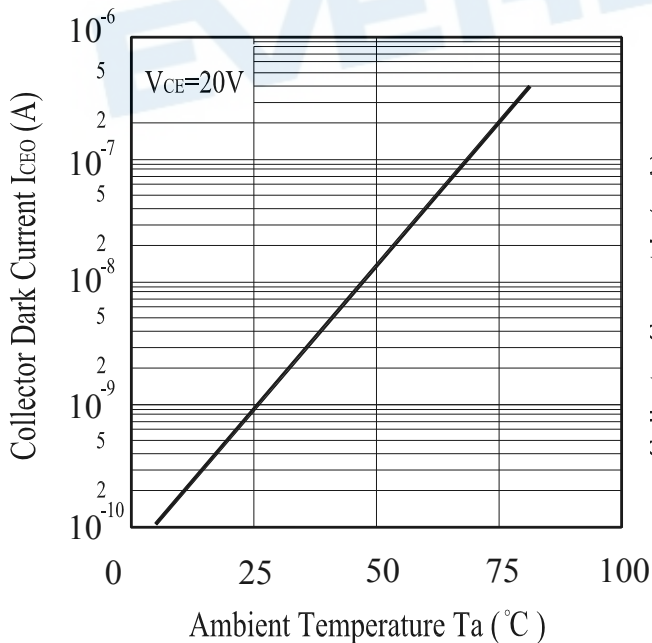
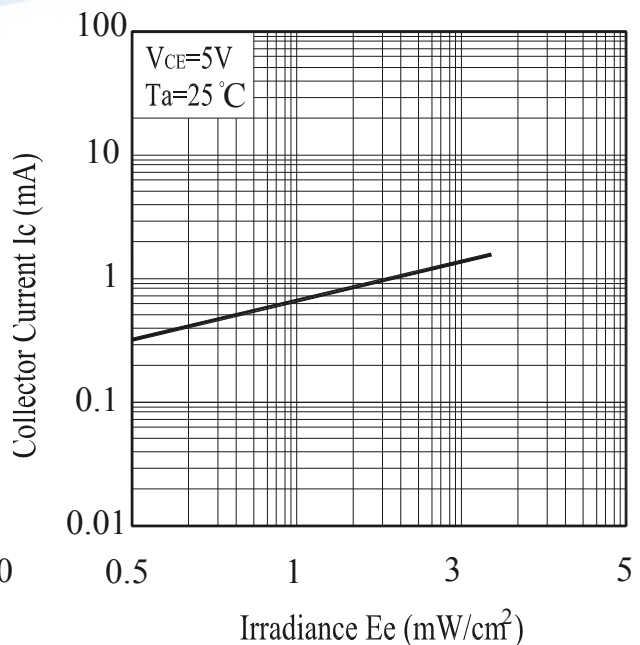


Fig. 4 Reverse Light Current vs.  
 $E_e$



# Typical Electro-Optical Characteristics Curves

Fig.5 Relative Collector Current vs.  
Ambient Temperature

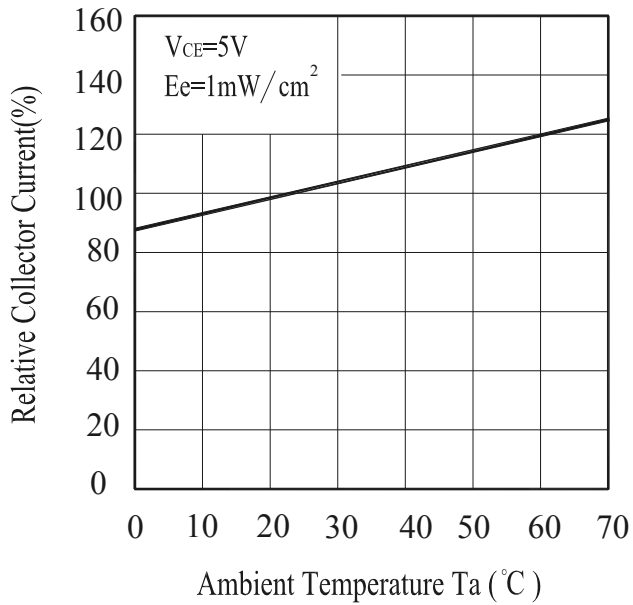
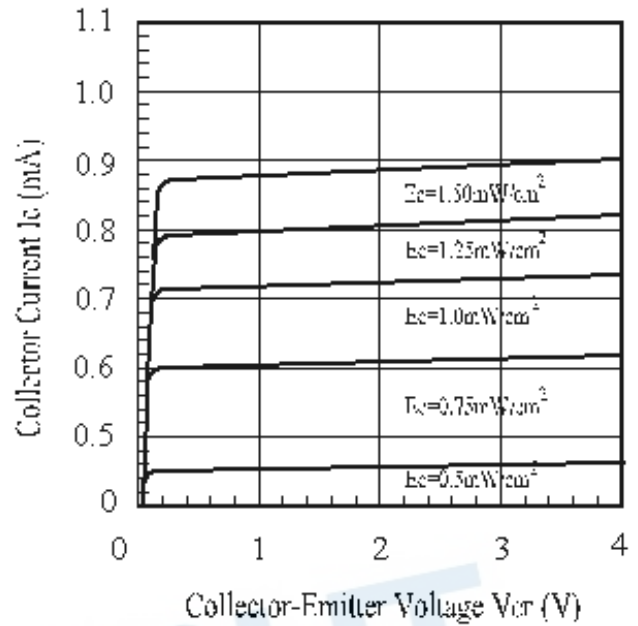


Fig.6 Collector Current vs..  
Collector-Emitter Voltage

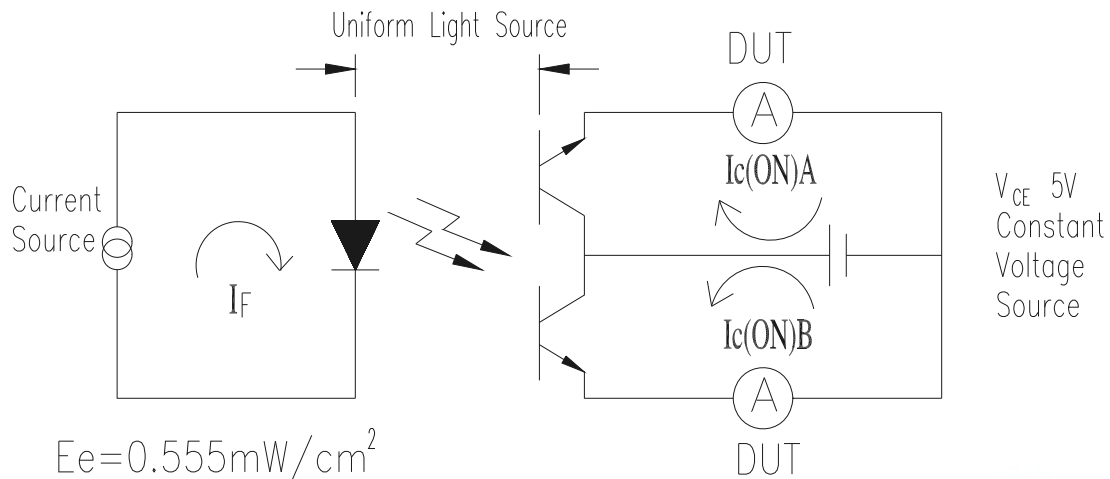


### Test Method For On State Collector Current :

Condition :  $E_e=0.555\text{mW/cm}^2$  ,  $V_{CE}=5\text{V}$

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

Unit :  $\mu\text{A}$



### To Distinguish Intensity:

Condition:  $V_{CE}=5\text{V}$   $E_e=0.555\text{mW/cm}^2$

#### A Ranks

| Ranks | Symbol      | Min | Typ | Max  | Unit          | Test Condition                                |
|-------|-------------|-----|-----|------|---------------|-----------------------------------------------|
| A1    | $I_{C(ON)}$ | 129 | --- | 226  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A2    | $I_{C(ON)}$ | 195 | --- | 306  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A3    | $I_{C(ON)}$ | 262 | --- | 380  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A4    | $I_{C(ON)}$ | 330 | --- | 461  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A5    | $I_{C(ON)}$ | 398 | --- | 544  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A6    | $I_{C(ON)}$ | 468 | --- | 625  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A7    | $I_{C(ON)}$ | 536 | --- | 703  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A8    | $I_{C(ON)}$ | 604 | --- | 785  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A9    | $I_{C(ON)}$ | 673 | --- | 862  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A10   | $I_{C(ON)}$ | 742 | --- | 944  | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A11   | $I_{C(ON)}$ | 812 | --- | 1018 | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |
| A12   | $I_{C(ON)}$ | 882 | --- | 1085 | $\mu\text{A}$ | $E_e=0.555\text{mW/c m}^2$ $V_{CE}=5\text{V}$ |

$$* I_{C(ON)} = [I_{C(ON)A} + I_{C(ON)B}] / 2$$

### Packing Quantity Specification

1. 1000Pcs/1Bag , 8Bags/1Box
2. 10Boxes/1Carton

### Label Form Specification

|                                                                                   |                  |                                                                                   |
|-----------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------|
|  | <b>EVERLIGHT</b> |  |
| CPN:<br>P/N:                                                                      |                  |                                                                                   |
|  |                  |  |
| PT2559B/L2-F                                                                      |                  |                                                                                   |
| QTY:                                                                              |                  | CAT:                                                                              |
|  |                  | HUE:                                                                              |
| LOT NO:                                                                           |                  | REF:                                                                              |
|  |                  |                                                                                   |
| Reference                                                                         |                  |                                                                                   |
|  |                  |                                                                                   |

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

X: Month

Reference: Identify Label Number

### 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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