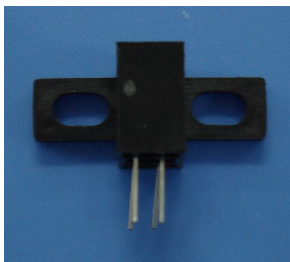


### Opto Interrupter ITR20005-F



#### Features

- Fast response time
- High analytic
- Cut-off visible wavelength  $\lambda_p=940\text{nm}$
- High sensitivity
- Pb free
- This product itself will remain within RoHS compliant version

#### Description

- The ITR20005-F consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing,
- The phototransistor receives radiation from the IRED only .This is the normal situation.
- But when an object is in between , phototransistor could not receives the radiation.

#### Applications

- Mouse Copier
- Switch Scanner
- Floppy disk driver
- Non-contact Switching
- For Direct Board

## Device Selection Guide

| Chip Materials | Lens Color  |
|----------------|-------------|
| GaAIAs         | Water clear |
| Silicon        | Water clear |

## Absolute Maximum Ratings (Ta=25°C)

| Parameter                                                              |                                                                | Symbol             | Ratings | Unit |
|------------------------------------------------------------------------|----------------------------------------------------------------|--------------------|---------|------|
| Input                                                                  | Power Dissipation at(or below) 25°C Free Air Temperature       | Pd                 | 75      | mW   |
|                                                                        | Reverse Voltage                                                | V <sub>R</sub>     | 5       | V    |
|                                                                        | Forward Current                                                | I <sub>F</sub>     | 50      | mA   |
|                                                                        | Peak Forward Current (*1)<br>Pulse width ≤100μs, Duty cycle=1% | I <sub>FP</sub>    | 1       | A    |
|                                                                        |                                                                |                    |         |      |
| Output                                                                 | Collector Power Dissipation                                    | Pd                 | 75      | mW   |
|                                                                        | Collector Current                                              | I <sub>C</sub>     | 20      | mA   |
|                                                                        | Collector-Emitter Voltage                                      | B V <sub>CEO</sub> | 30      | V    |
|                                                                        | Emitter-Collector Voltage                                      | B V <sub>ECO</sub> | 5       | V    |
| Operating Temperature                                                  |                                                                | Topr               | -25~+85 | °C   |
| Storage Temperature                                                    |                                                                | Tstg               | -40~+85 | °C   |
| Lead Soldering Temperature (*2)<br>(1/16 inch form body for 5 seconds) |                                                                | Tsol               | 260     | °C   |

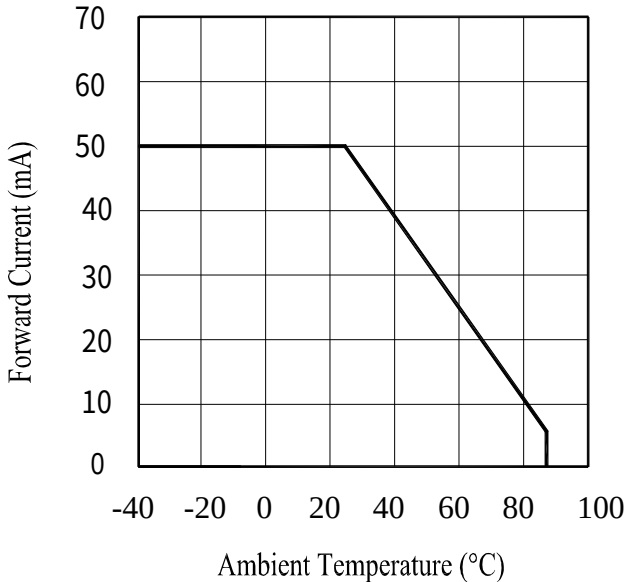
(\*1) tw=100 μsec. , T=10 msec. (\*2) t=5 Sec

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

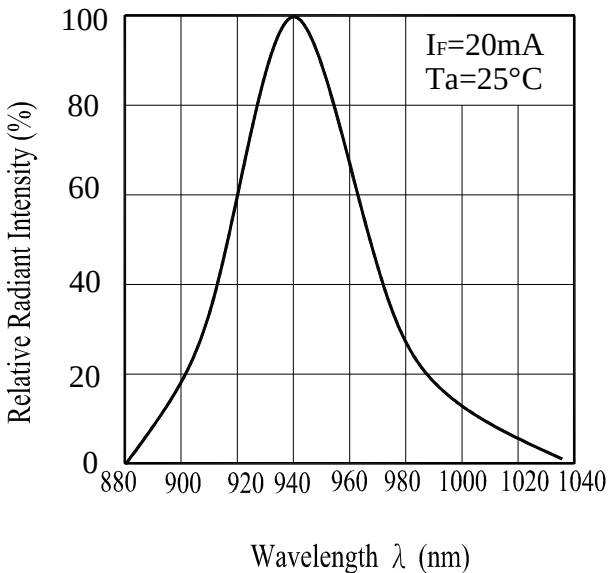
| Parameter                |                        | Symbol          | Min. | Typ. | Max. | Unit            | Conditions                                                      |
|--------------------------|------------------------|-----------------|------|------|------|-----------------|-----------------------------------------------------------------|
| Input                    | Forward Voltage        | $V_F$           | ---  | 1.2  | 1.5  | V               | $I_F=20\text{mA}$                                               |
|                          | Reverse Current        | $I_R$           | ---  | ---  | 10   | $\mu\text{A}$   | $V_R=5\text{V}$                                                 |
|                          | Peak Wavelength        | $\lambda_P$     | ---  | 940  | ---  | nm              | $I_F=20\text{mA}$                                               |
|                          | View Angle             | $2\theta_{1/2}$ | ---  | 40   | ---  | Deg             | $I_F=20\text{mA}$                                               |
| Output                   | Dark C urrent          | $I_{CEO}$       | ---  | ---  | 100  | nA              | $V_{CE}=20\text{V}, E_e=0\text{mW/cm}^2$                        |
|                          | C-E Saturation Voltage | $V_{CE(sat)}$   | ---  | ---  | 0.4  | V               | $I_C=2\text{mA}$<br>$E_e=1\text{mW/cm}^2$                       |
| Transfer Characteristics | Collect Current        | $I_C(ON)$       | 0.6  | ---  | ---  | mA              | $V_{CE}=5\text{V}$<br>$I_F=20\text{mA}$                         |
|                          |                        | $I_C(OFF)$      | ---  | ---  | 20   | $\mu\text{A}$   | $V_{CE}=5\text{V}$<br>$I_F=0\text{mA}$                          |
|                          | Rise time              | $t_r$           | ---  | 15   | ---  | $\mu\text{sec}$ | $V_{CE}=5\text{V}$<br>$I_C=1\text{mA}$<br>$R_L=1\text{K}\Omega$ |
|                          | Fall time              | $t_f$           | ---  | 15   | ---  | $\mu\text{sec}$ |                                                                 |

Typical Electrical/Optical/Characteristics Curves for IR

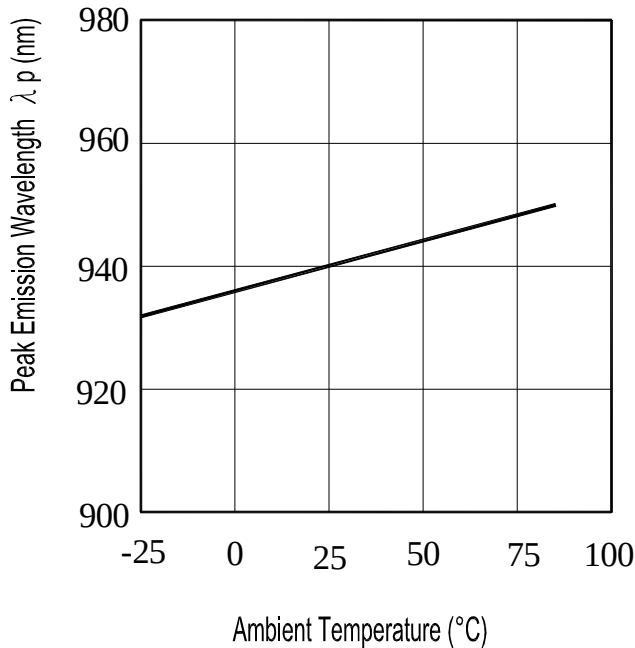
Forward Current vs. Ambient Temperature



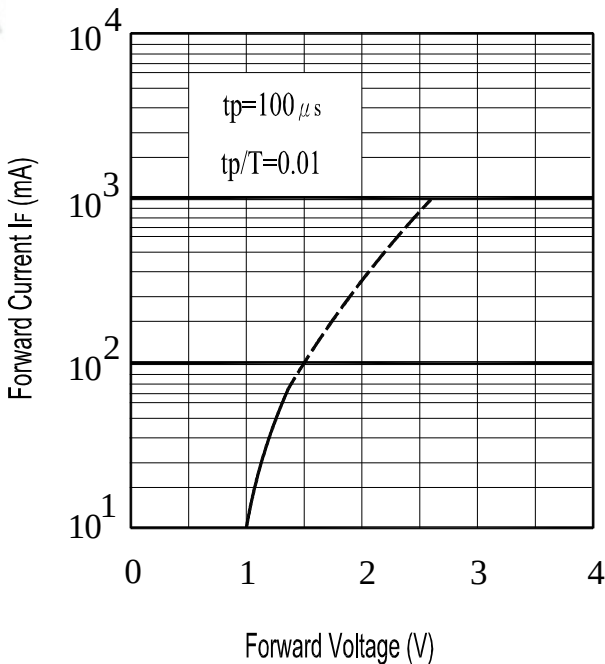
Spectral Sensitivity

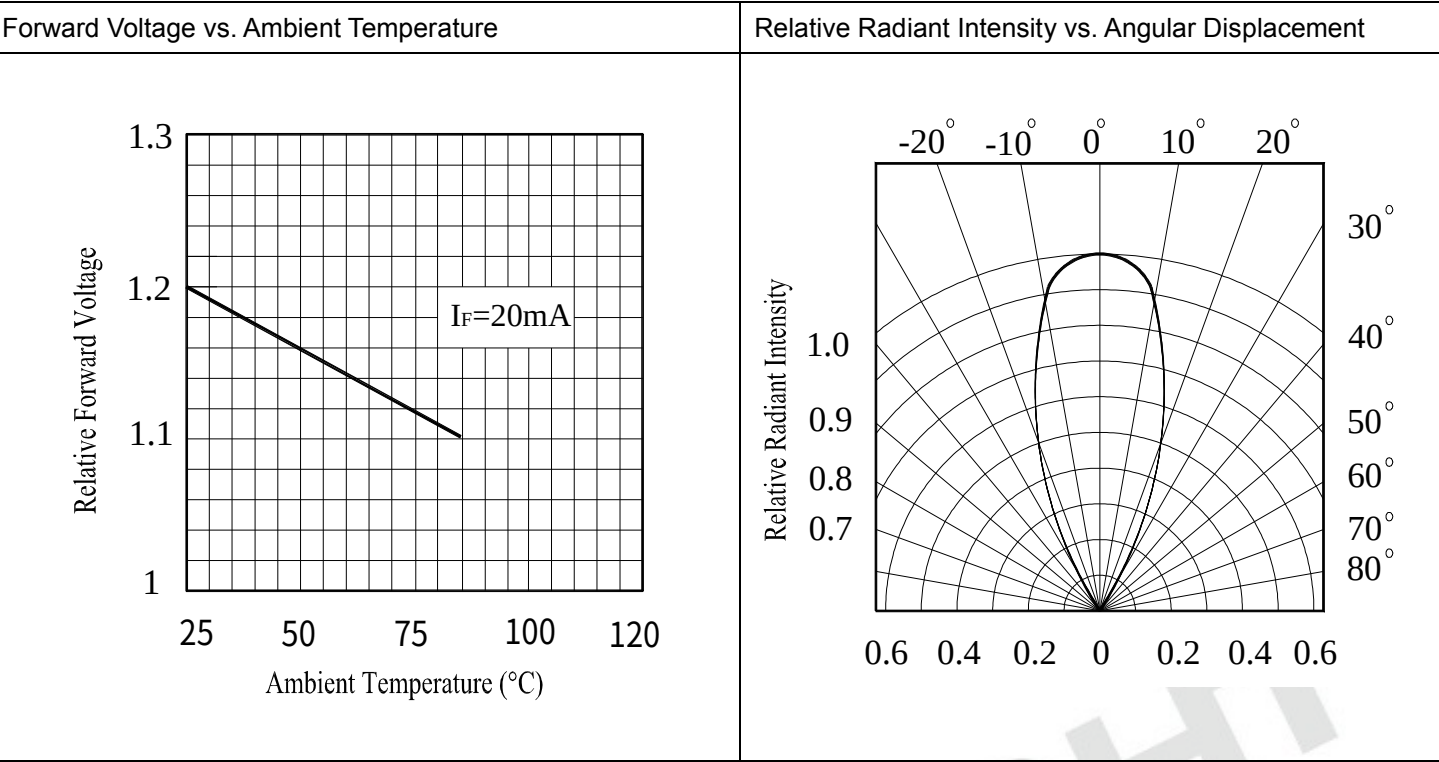


Peak Emission Wavelength vs. Ambient Temperature

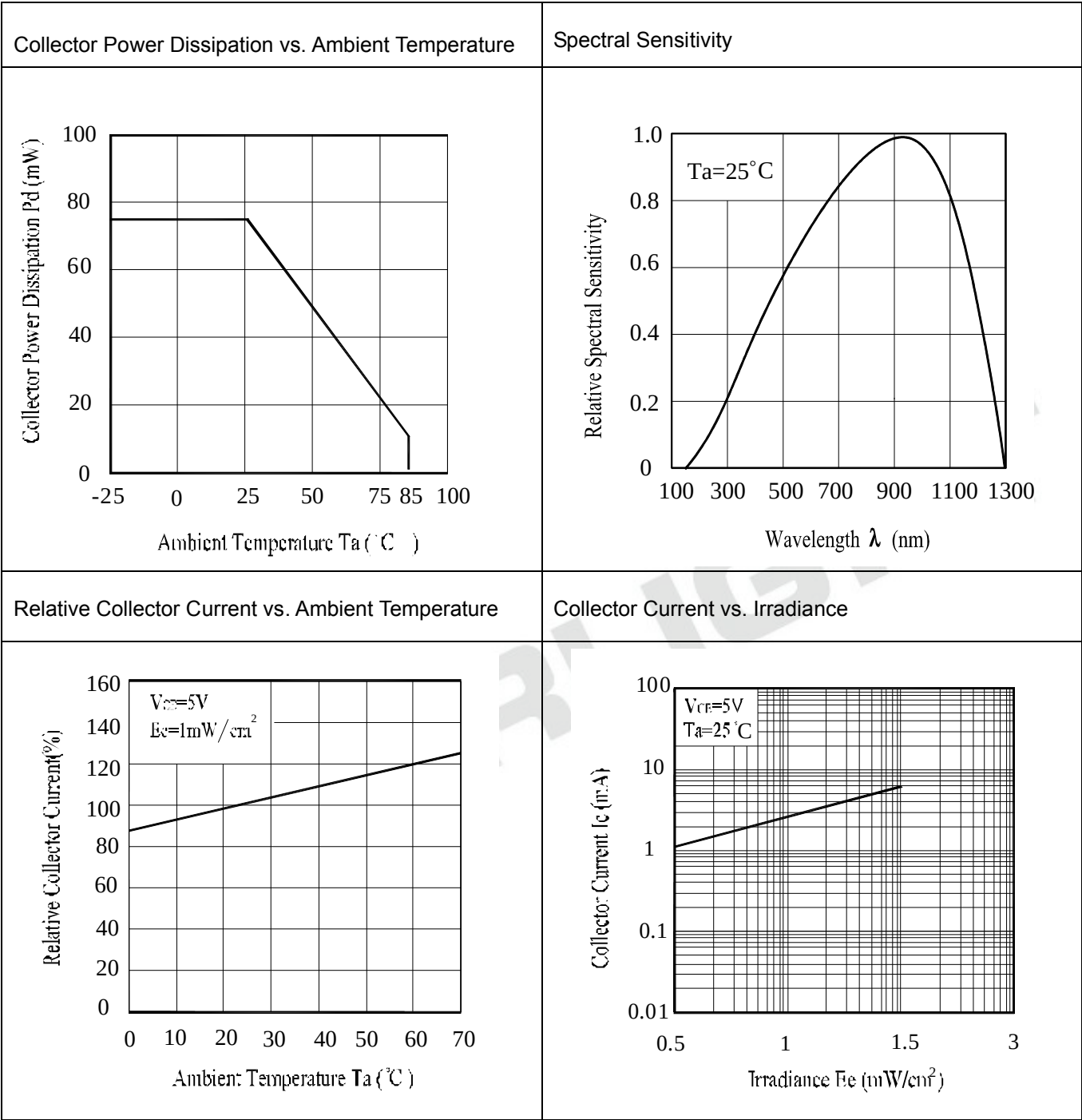


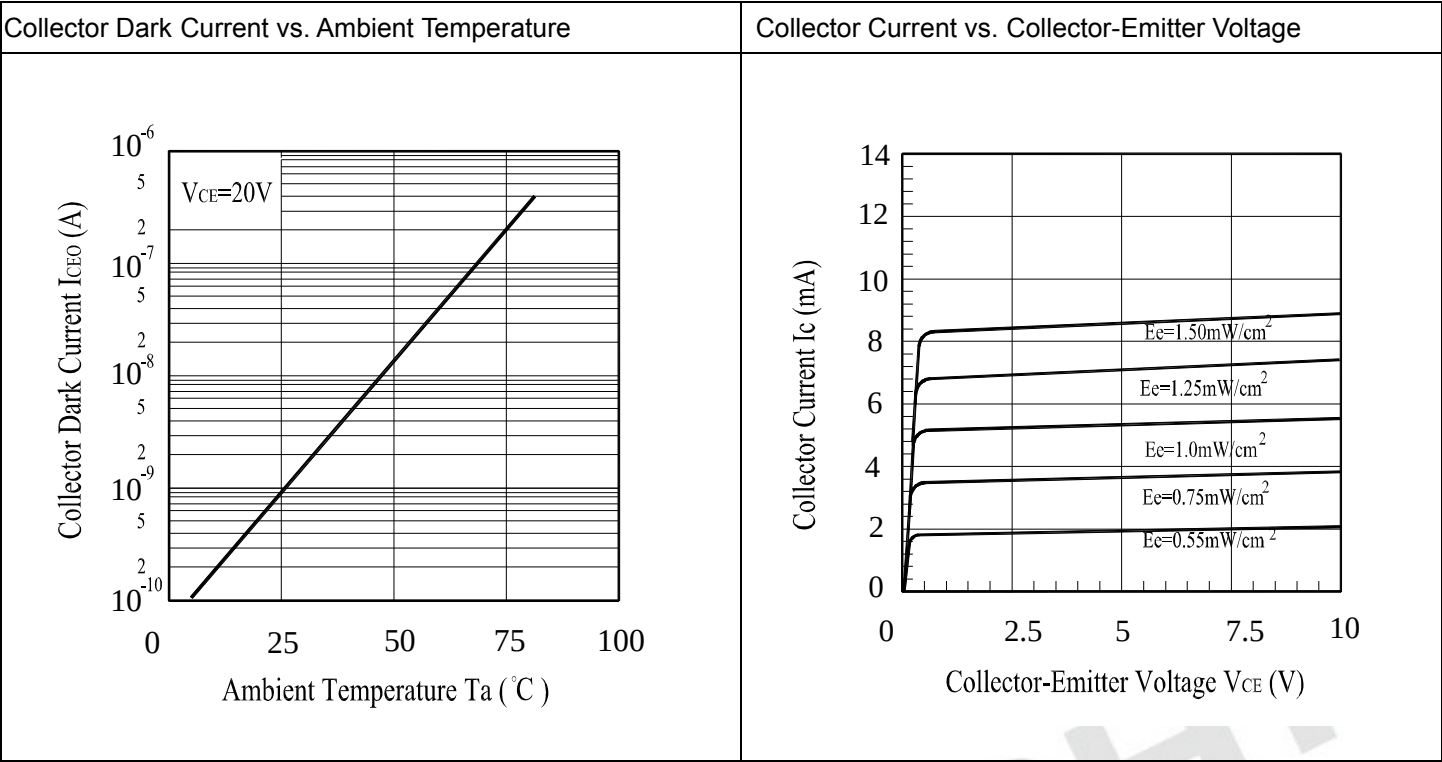
Forward Current vs. Forward Voltage



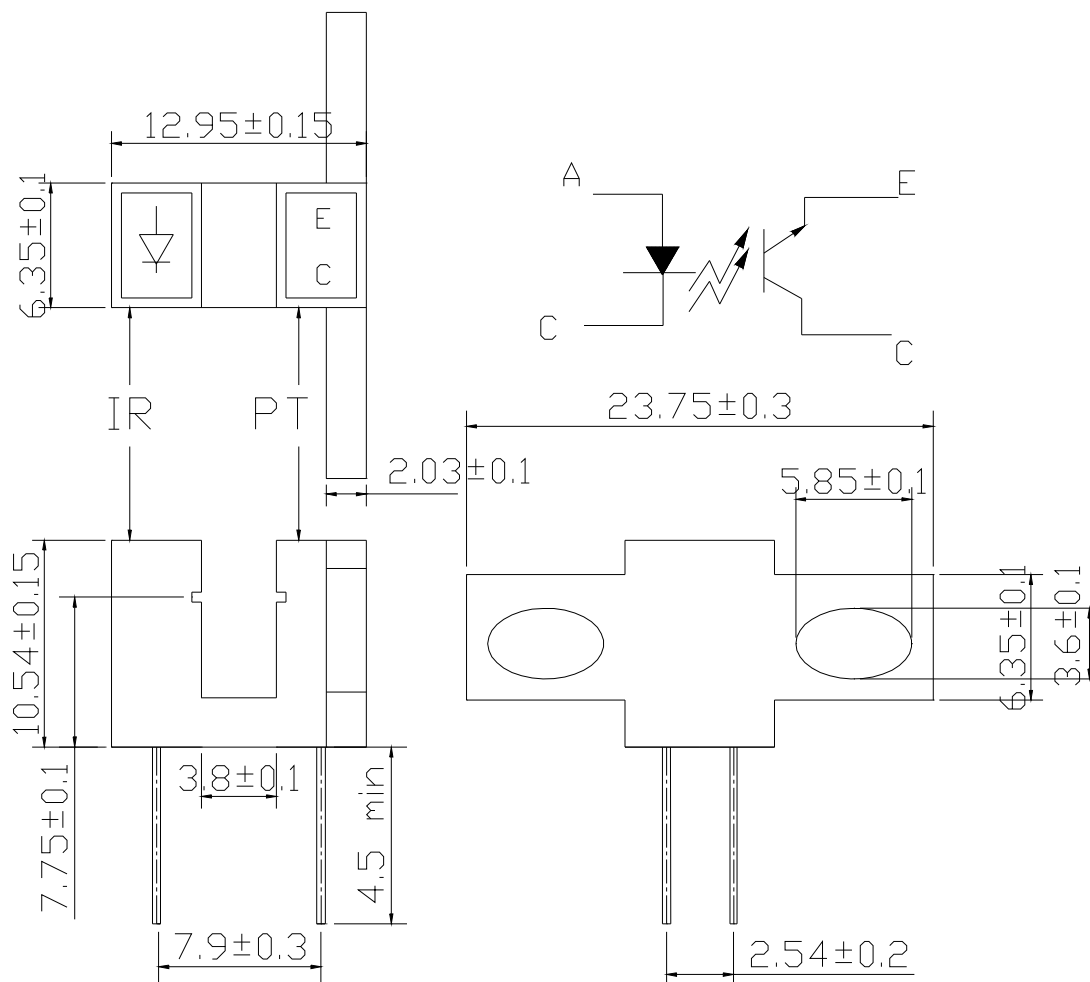


Typical Electrical/Optical/Characteristics Curves for PT





## Package Dimension



Note: Tolerances unless dimensions  $\pm 0.25\text{mm}$



**Packing Quantity Specification**

1. 150PCS/1Bag, 4Bag/1Box
2. 10Boxes/1Carton

**Label Form Specification**

The label form includes the following elements:

- EVERLIGHT** logo at the top center.
- RoHS** compliance mark on the right.
- CPN:** Customer's Product Number field.
- P/N:** Product Number field.
- QTY:** Packing Quantity field.
- CAT:** Luminous Intensity Rank field.
- HUE:** Dom. Wavelength Rank field.
- REF:** Forward Voltage Rank field.
- LOT NO:** Lot Number field.
- X:** Month field.
- Reference** field.

Each field is accompanied by a barcode.

- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- 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 instruction 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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