

## Technical Data Sheet

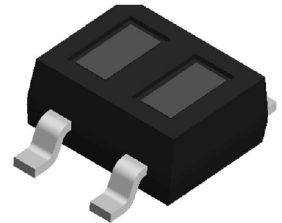
### Opto Interrupter

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#### ITR1201SR10A/TR

#### ■ Features

- Fast response time
- High sensitivity
- Cut-Off visible wavelength
- Thin
- Compact
- Pb free
- This product itself will remain within RoHS compliant version.



#### ■ Descriptions

**ITR1201SR10A/TR** is a light reflection switch which includes a GaAs IR-LED and a NPN photo-transistor with a high photosensitive receiver for short distance, operating in the infrared range.

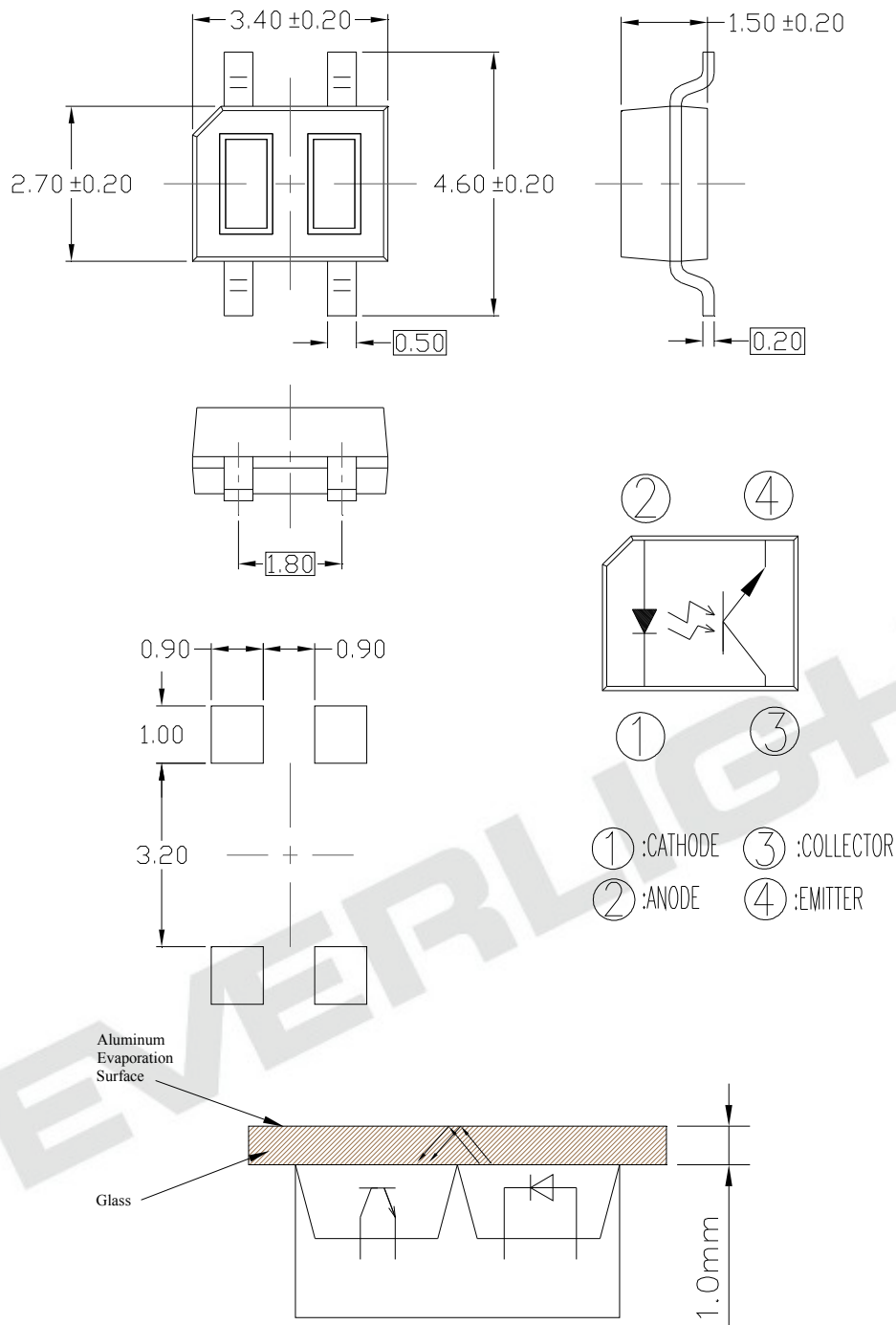
#### ■ Applications

- Printer
- Switch Scanner
- Non-contact Switching

#### ■ Device Selection Guide

| Device No. | Chip Material |
|------------|---------------|
| IR         | AlGaAs        |
| PT         | Silicon       |

### Package Dimensions



- Notes:**
1. All dimensions are in millimeters
  2. Tolerances:  $\pm 0.15\text{mm}$

## ITR1201SR10A/TR

### 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   |
|                             | Collector Power Dissipation                               | P <sub>C</sub>     | 75       | mW   |
| Output                      | Collector Current                                         | I <sub>C</sub>     | 10       | mA   |
|                             | Collector-Emitter Voltage                                 | B V <sub>CEO</sub> | 30       | V    |
|                             | Emitter-Collector Voltage                                 | B V <sub>ECO</sub> | 5        | V    |
|                             | Operating Temperature                                     | T <sub>opr</sub>   | -25~+85  |      |
| Storage Temperature         |                                                           | T <sub>stg</sub>   | -40~+100 |      |
| Lead Soldering Temperature* |                                                           | T <sub>sol</sub>   | 260      |      |

(\*) t=5 Sec

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

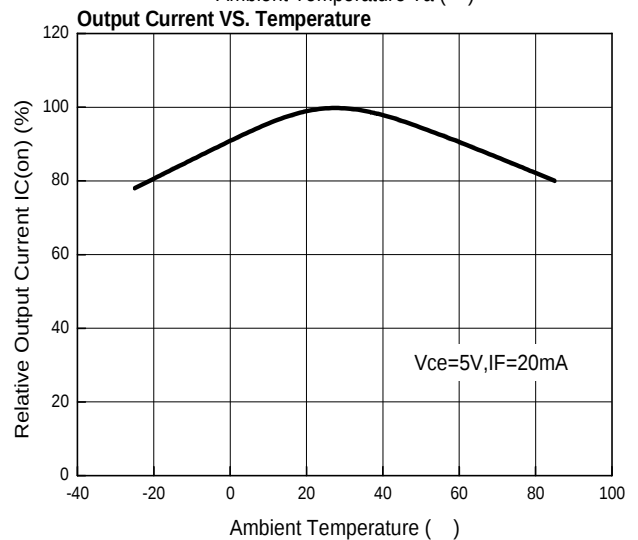
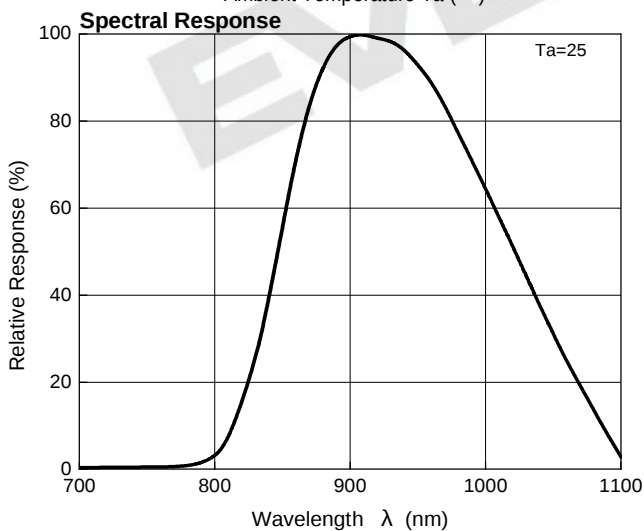
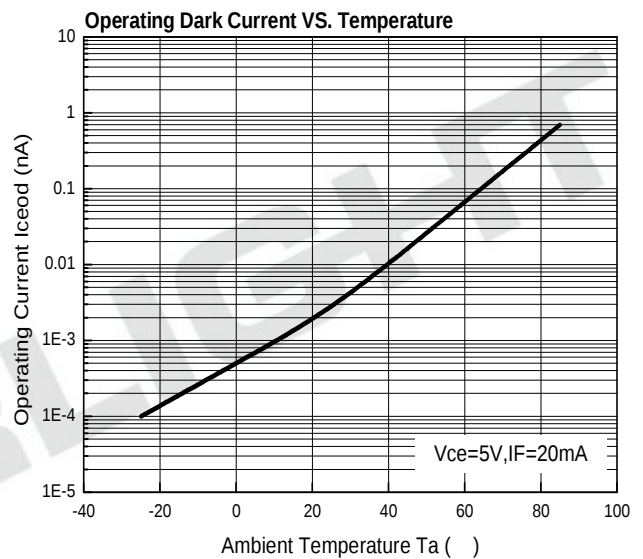
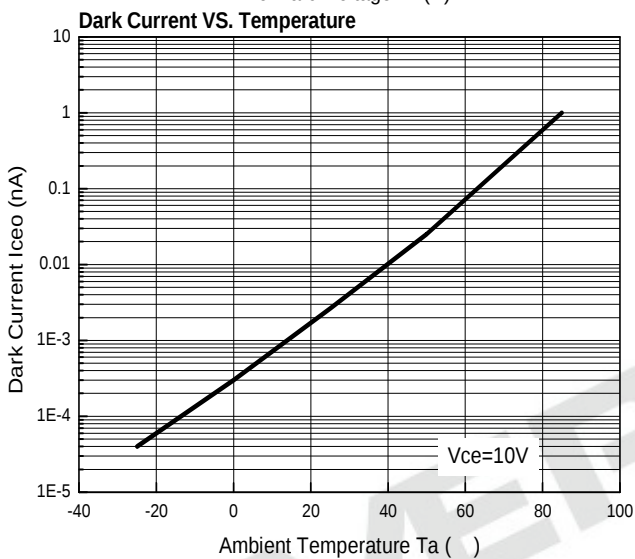
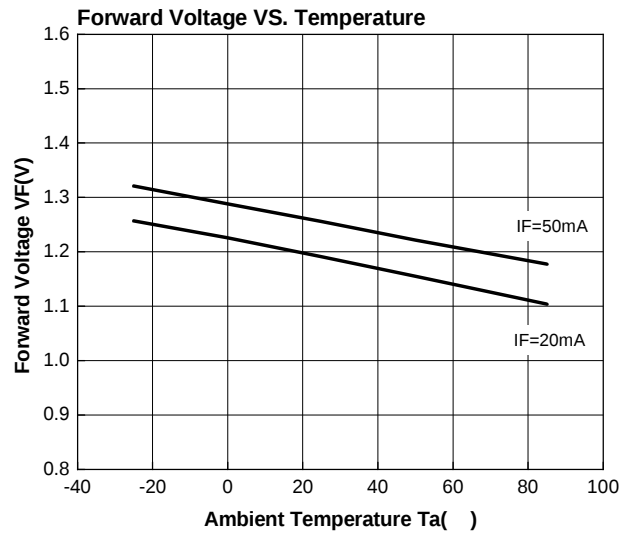
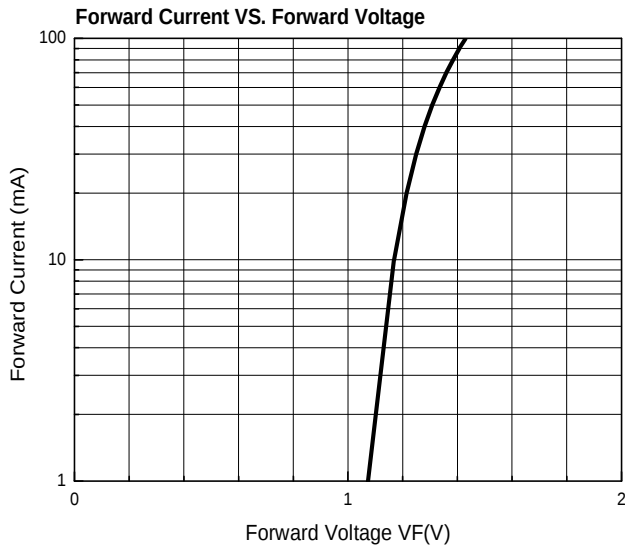
| Parameter                |                        | Symbol             | Min. | Typ. | Max. | Unit | Conditions                                                        |
|--------------------------|------------------------|--------------------|------|------|------|------|-------------------------------------------------------------------|
| Input                    | Forward Voltage        | V <sub>F</sub>     | 1.1  | 1.2  | 1.4  | V    | I <sub>F</sub> =20mA                                              |
|                          | Reverse Current        | I <sub>R</sub>     | ---  | ---  | 10   | μA   | V <sub>R</sub> =6V                                                |
|                          | Peak Wavelength        | λ <sub>P</sub>     | ---  | 940  | ---  | nm   | I <sub>F</sub> =20mA                                              |
| Output                   | Dark Current           | I <sub>CEO</sub>   | ---  | ---  | 0.1  | μA   | V <sub>CE</sub> =10V                                              |
| Transfer Characteristics | Collector Current      | I <sub>C(ON)</sub> | 300  | ---  | 2300 | μA   | V <sub>CE</sub> =5V,<br>I <sub>F</sub> =20mA                      |
|                          | Operating Dark Current | I <sub>CEOD</sub>  | ---  | ---  | 0.2  | μA   | V <sub>CE</sub> =5V,<br>I <sub>F</sub> =20mA                      |
|                          | Rise time              | t <sub>r</sub>     | ---  | 15   | ---  | ms   | V <sub>CE</sub> =5V<br>I <sub>C</sub> =1mA<br>R <sub>L</sub> =1KΩ |
|                          | Fall time              | t <sub>f</sub>     | ---  | 15   | ---  | ms   |                                                                   |

### Rank

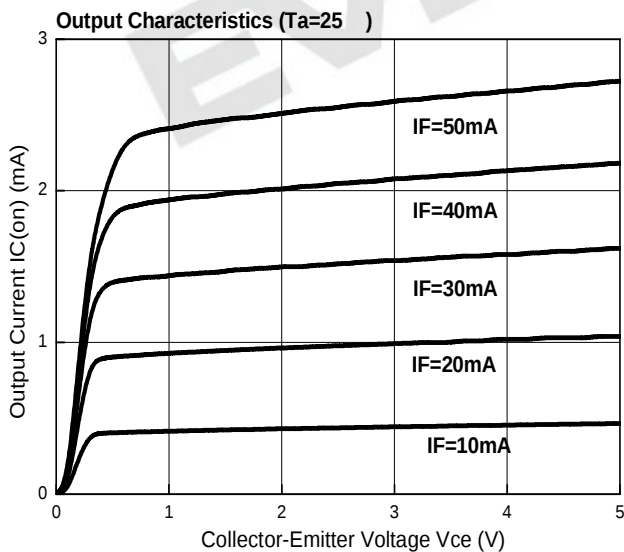
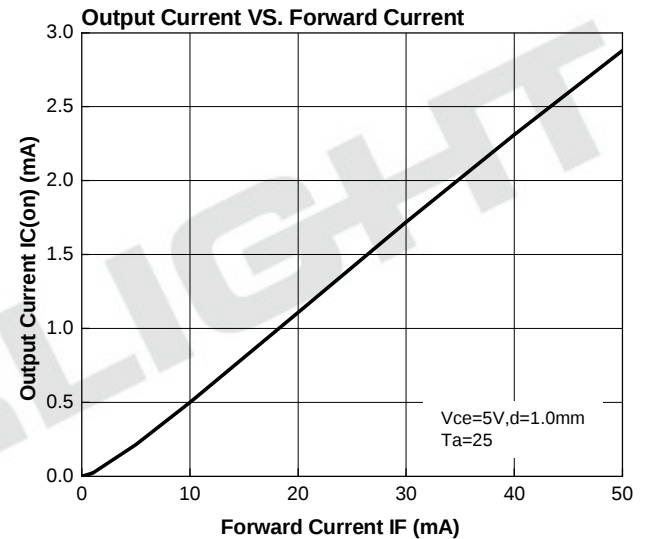
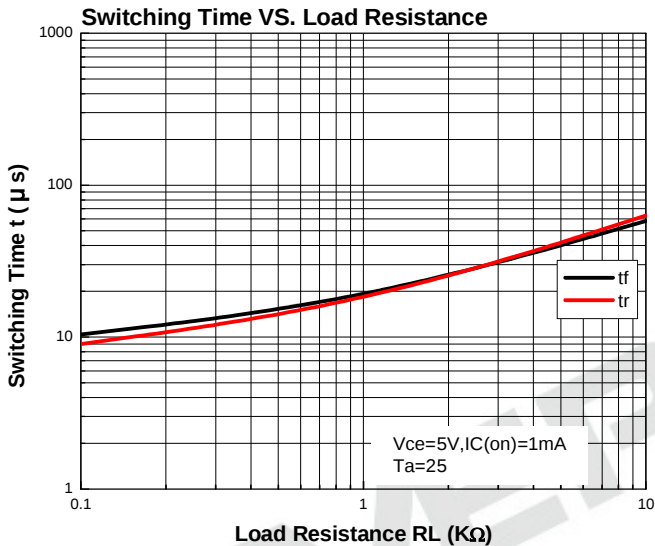
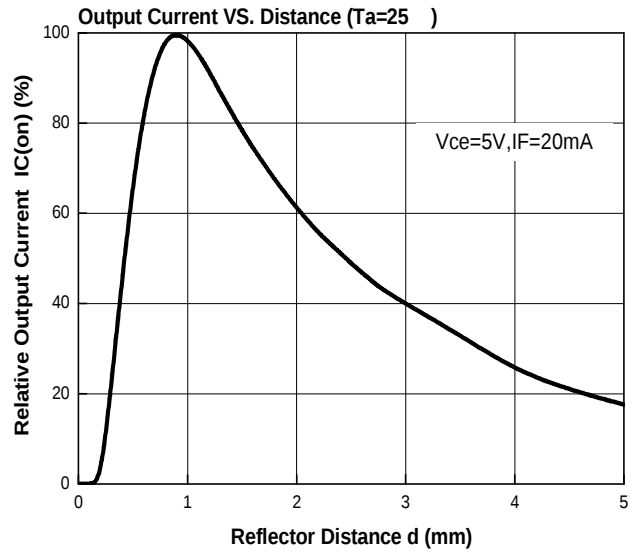
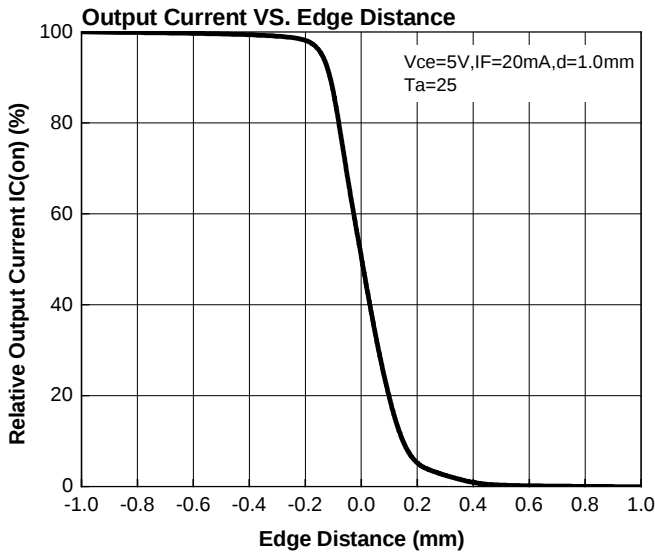
Conditions : I<sub>F</sub>=20mA V<sub>CE</sub>=5V , Unit: μ A

| Bin number | Min  | Max  |
|------------|------|------|
| A          | 300  | 740  |
| B          | 600  | 1280 |
| C          | 1045 | 1680 |
| D          | 1470 | 2300 |

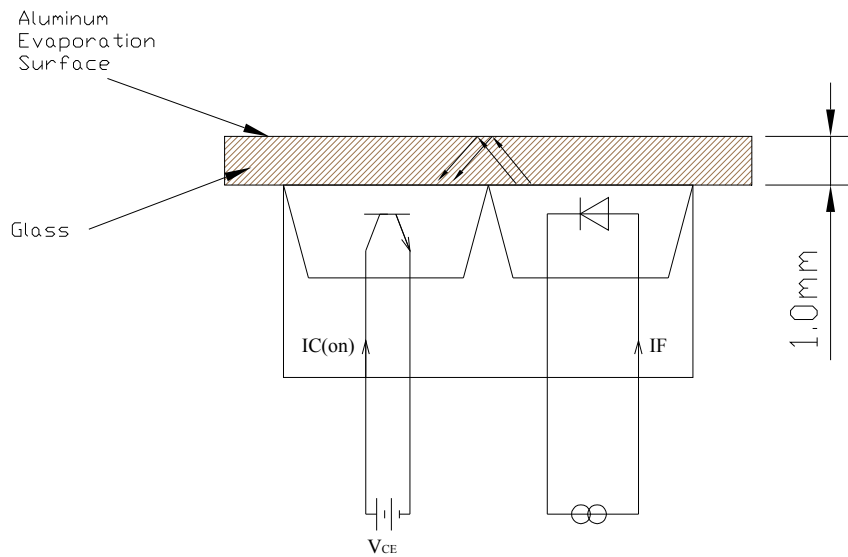
### Typical Electro-Optical Characteristics Curves



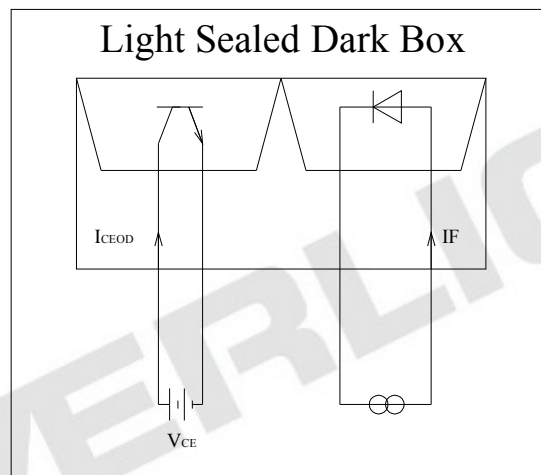
## ITR1201SR10A/TR



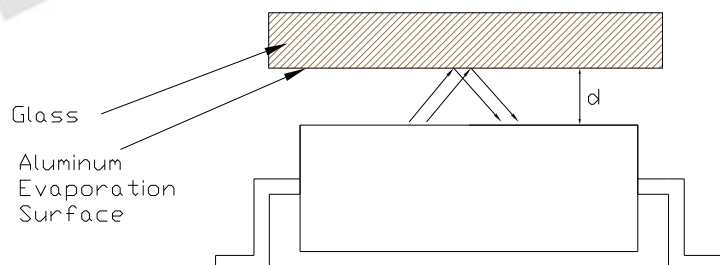
### Measuring Specification For Output Current



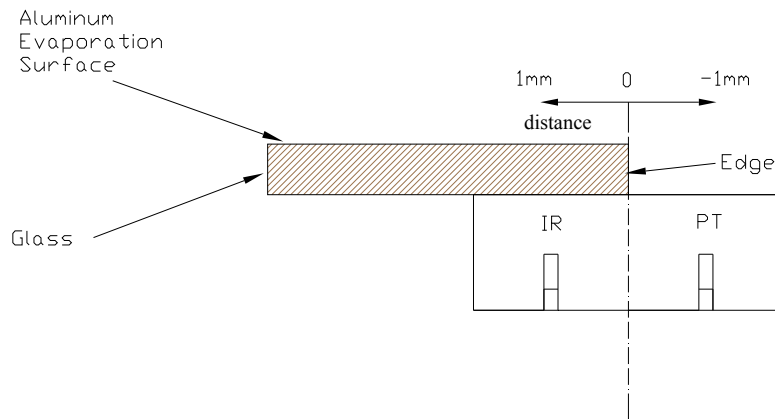
### Measuring Circuit For Operating Dark Current



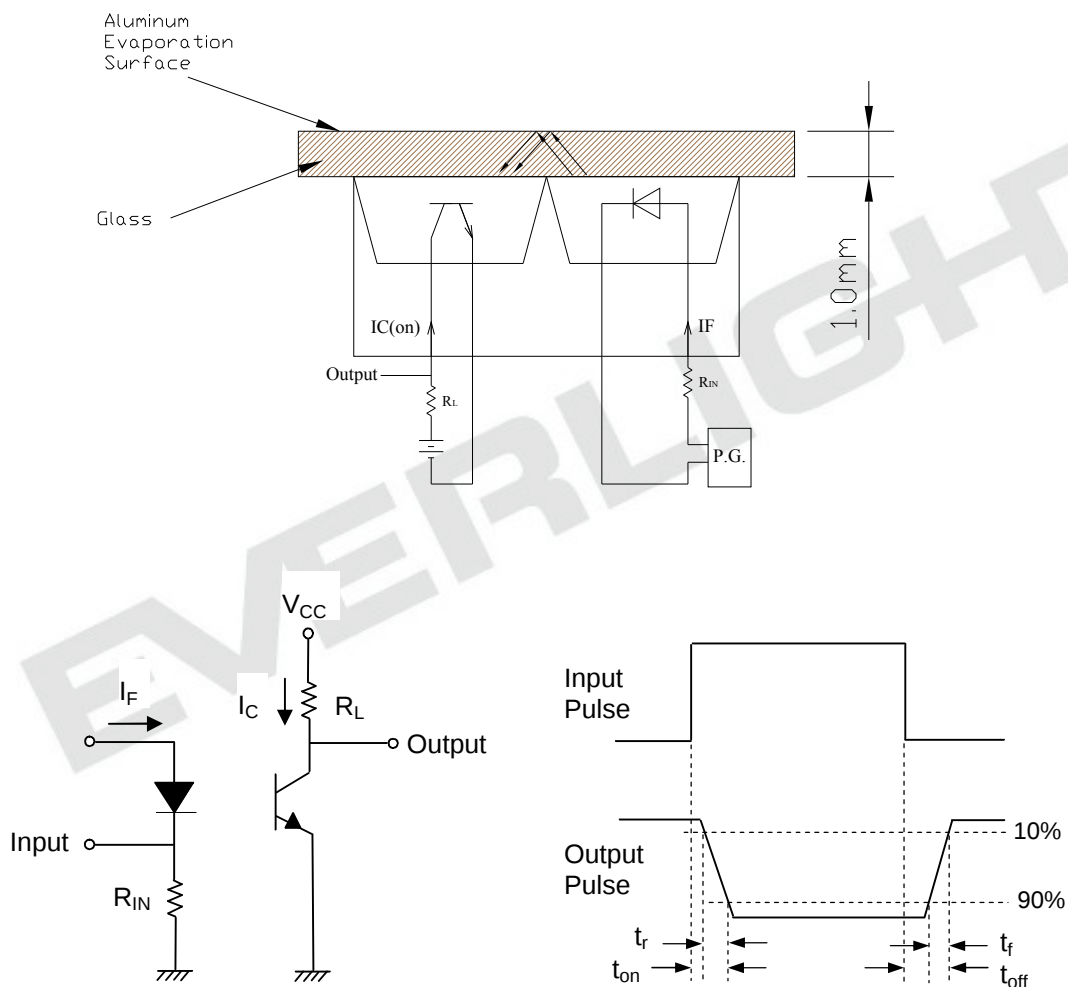
### Measuring Specification For Reflector Response



### Measuring Specification For Edge Response



### Measuring Circuit For Response Time



### Precautions For Use

#### 1. Over-current-proof

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change ( Burn out will happen ).

#### 2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30 ° or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30 ° or less and 70%RH or less.

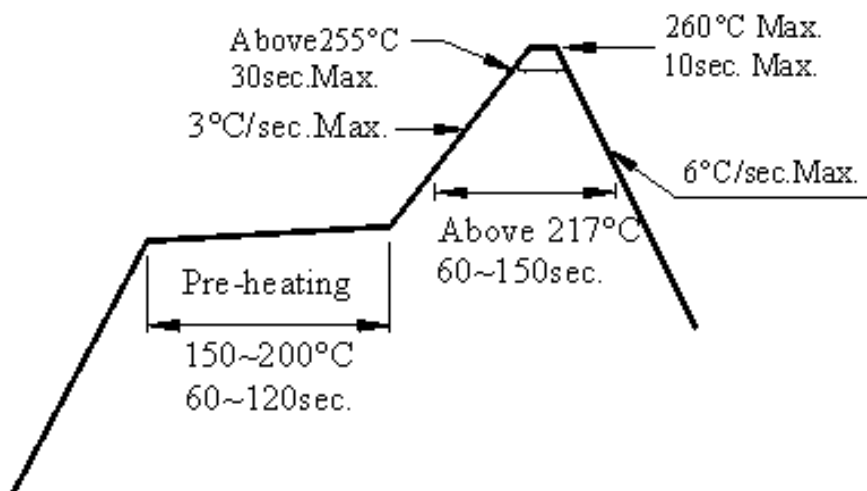
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5 ° for 24 hours.

#### 3. Soldering Condition

##### 3.1 Pb-free solder temperature profile



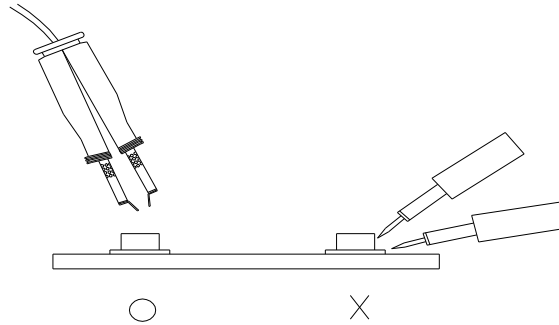
3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

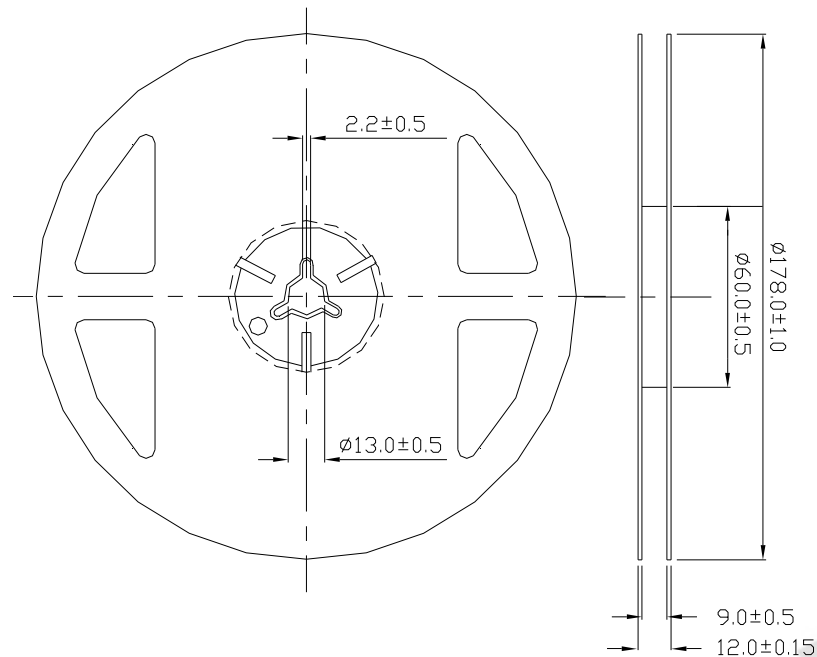
- Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

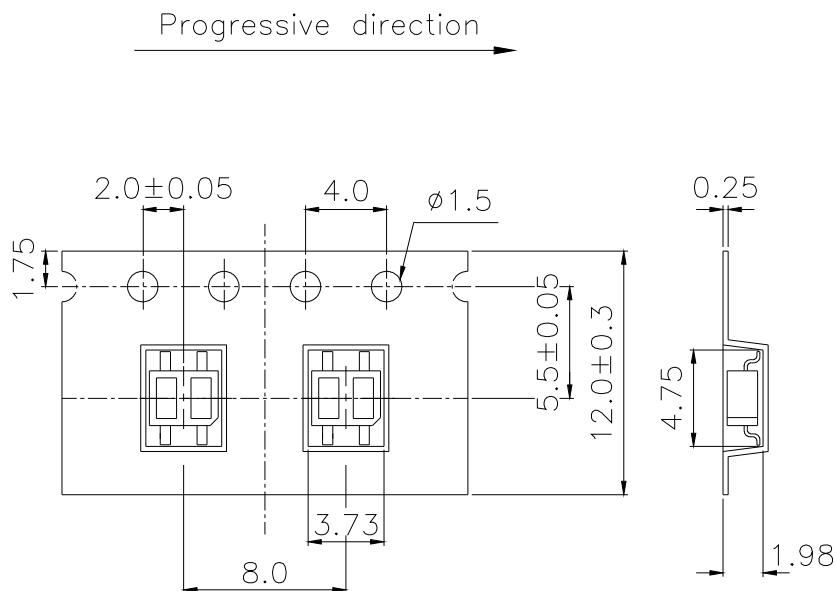


EVERLIGHT

### Package Dimensions



### Taping Dimension



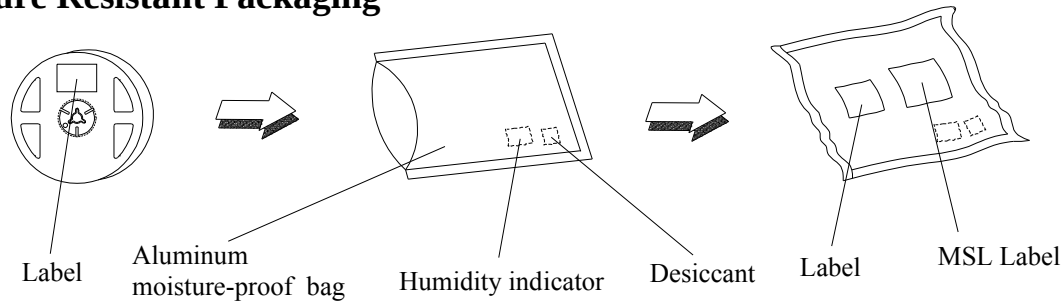
General Tolerance  $\pm 0.1$

UNIT:mm

### Packing Quantity Specification

1. 1000 Pcs/ 1Reel
2. 15 Reel /1 Box
3. 2 Box/ 1 Carton

### Moisture Resistant Packaging



### Label Form Specification

The label form includes the following fields and barcodes:

- EVERLIGHT** (Logo)
- RoHS** (Compliance Mark)
- 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

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

### 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.
3. 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.

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