

### ■ Dimensions

(Unit: mm)

| Terminal No. | Name      |
|--------------|-----------|
| A            | Anode     |
| K            | Cathode   |
| C            | Collector |
| E            | Emitter   |

Unless otherwise specified, the dimensional tolerance is  $\pm 0.15$  mm.

### ■ Features

- Ultra-compact model.
- PCB surface mounting type.

### ■ Absolute Maximum Ratings (Ta=25°C)

| Item                  |                           | Symbol | Rated value       | Unit |
|-----------------------|---------------------------|--------|-------------------|------|
| Emitter               | Forward current           | IF     | 50 <sup>*1</sup>  | mA   |
|                       | Reverse voltage           | VR     | 6                 | V    |
| Detector              | Collector-Emitter voltage | VCEO   | 35                | V    |
|                       | Emitter-Collector voltage | VECO   | 6                 | V    |
|                       | Collector current         | IC     | 20                | mA   |
|                       | Collector dissipation     | PC     | 75 <sup>*1</sup>  | mW   |
| Total allowable loss  |                           | Ptot   | 100 <sup>*1</sup> | mW   |
| Operating temperature |                           | Topr   | -25 to 85         | °C   |
| Storage temperature   |                           | Tstg   | -40 to 100        | °C   |
| Soldering temperature |                           | Tsol   | 260 <sup>*2</sup> | °C   |

- \*1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.  
 \*2. Complete soldering within 5 seconds.  
 For reflow soldering, use the conditions given on page 4.

### ■ Electrical and Optical Characteristics (Ta=25°C)

| Item         | Symbol                               | Value                 |      |      | Unit | Condition  |  |
|--------------|--------------------------------------|-----------------------|------|------|------|--|--|
|              |                                      | MIN.                  | TYP. | MAX. |      |  |  |
| Emitter      | Forward current                      | V <sub>F</sub>        | ---  | 1.2  | 1.4  | V  | I <sub>F</sub> = 20mA  |
|              | Reverse voltage                      | I <sub>R</sub>        | ---  | ---  | 10   | μA   | VR = 6V  |
|              | Peak emission wavelength             | λ <sub>P</sub>        | ---  | 950  | ---  | nm   | ---  |
| Detector     | Light current                        | I <sub>L</sub>        | 40   | 85   | 130  | μA   | I <sub>F</sub> = 4 mA, V <sub>CE</sub> = 2V, Aluminum-deposited surface, d = 1 mm* |
|              | Dark current                         | I <sub>D</sub>        | ---  | 1    | 100  | nA   | V <sub>CE</sub> = 20V, 0lx   |
|              | Leakage current                      | I <sub>LEAK</sub>     | ---  | ---  | 500  | nA   | I <sub>F</sub> = 4mA, V <sub>CE</sub> = 2V, with no reflection                     |
|              | Collector-Emitter saturated voltage  | V <sub>CE (sat)</sub> | ---  | ---  | ---  | V  | ---  |
|              | Peak spectral sensitivity wavelength | λ <sub>P</sub>        | ---  | 930  | ---  | nm   | ---  |
| Rising time  | t <sub>r</sub>                       | ---                   | 20   | 100  | μA   | V <sub>CC</sub> = 2 V, R <sub>L</sub> = 1 kΩ, I <sub>L</sub> = 100 μA, d = 1 mm* |  |
| Falling time | t <sub>f</sub>                       | ---                   | 20   | 100  | μA   | V <sub>CC</sub> = 2 V, R <sub>L</sub> = 1 kΩ, I <sub>L</sub> = 100 μA, d = 1 mm* |  |

\* Refer to Fig 12. Light Current Measurement Setup Diagram on page 2.

Engineering Data

Fig 1. Forward Current vs. Collector Dissipation Temperature Rating

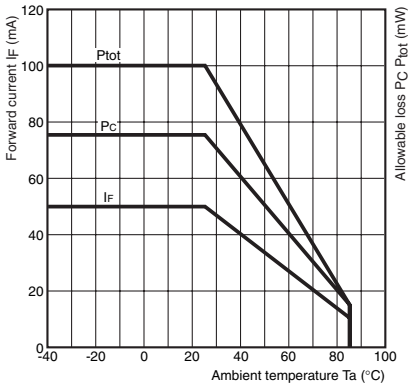


Fig 4. Light Current vs. Collector-Emitter Voltage Characteristics (Typical)

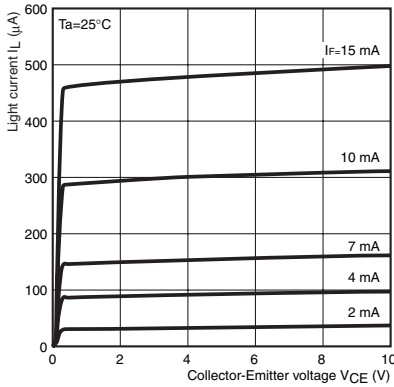


Fig 7. Response Time vs. Load Resistance Characteristics (Typical)

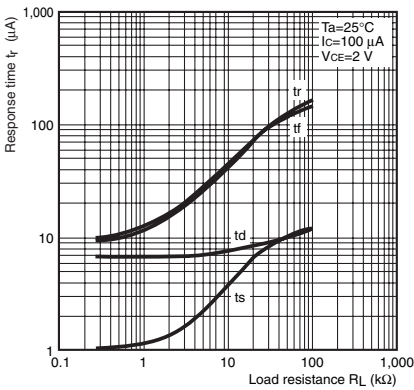


Fig 10. Relative Light Current vs. Card Moving Distance Characteristics (Typical)

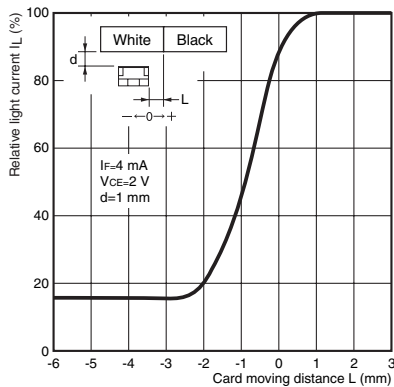


Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)

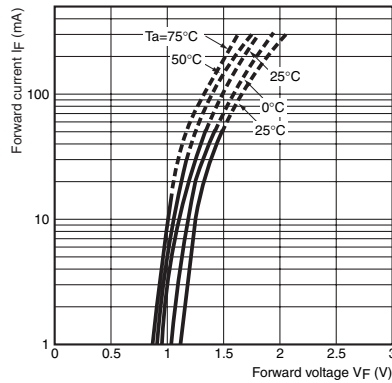


Fig 5. Relative Light Current vs. Ambient Temperature Characteristics (Typical)

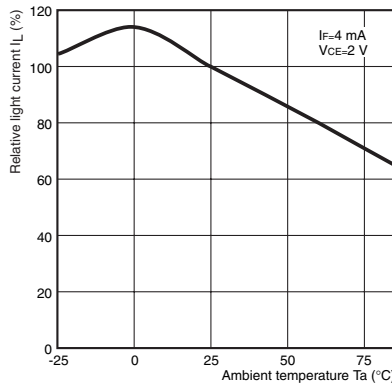


Fig 8. Relative Light Current vs. Distance Characteristics (Typical)

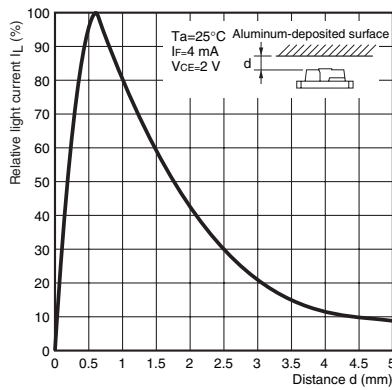


Fig 11. Response Time Measurement Circuit

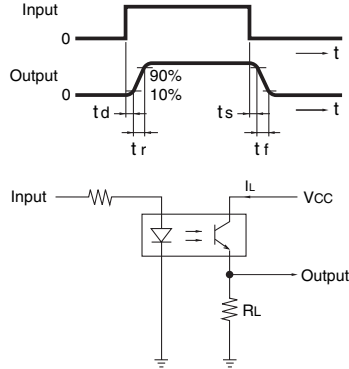


Fig 3. Light Current vs. Forward Current Characteristics (Typical)

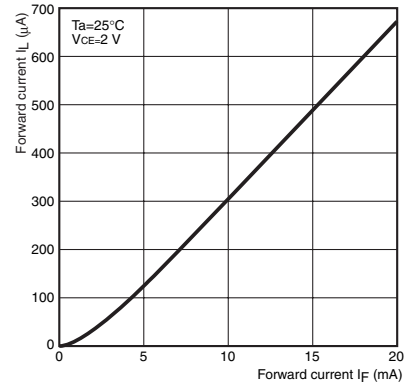


Fig 6. Dark Current vs. Ambient Temperature Characteristics (Typical)

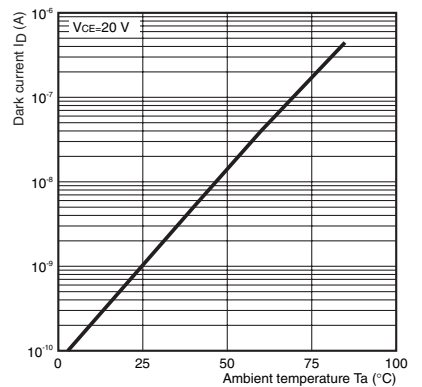


Fig 9. Relative Light Current vs. Card Moving Distance Characteristics (Typical)

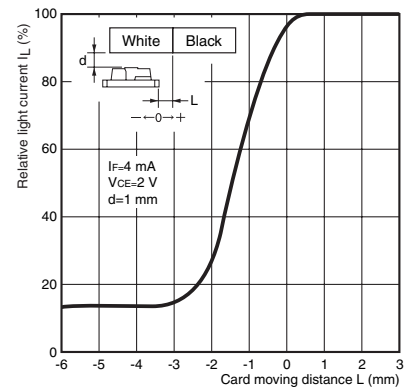
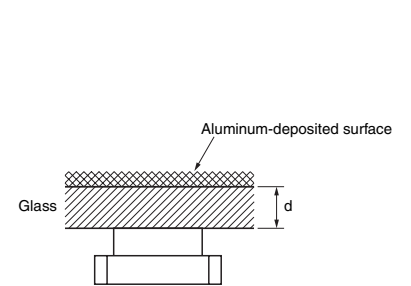


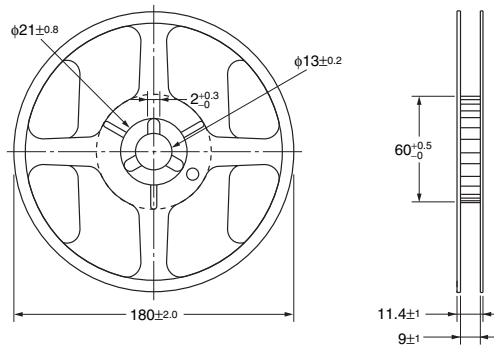
Fig 12. Light Current Measurement Setup Diagram



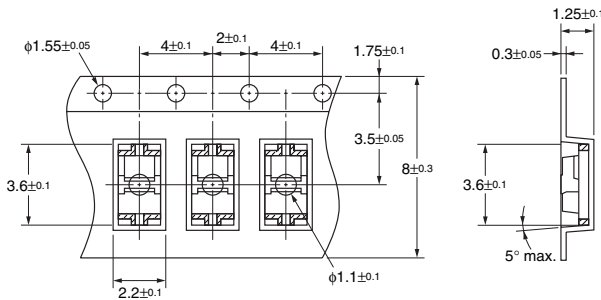
# EE-SY199

## ■ Tape and Reel

### ● Reel Dimension (Unit: mm)

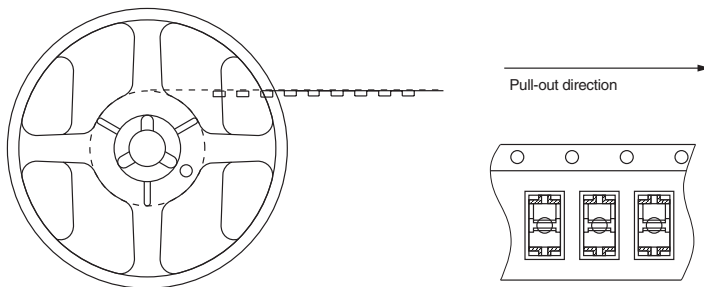


### ● Tape Dimension (Unit: mm)



### ● Part Mounting Direction

- The devices are oriented in the rectangular holes in the carrier tape so that the edge with the LED faces the round feeding holes.



### ● Tape Quantity

2,000 pcs./reel

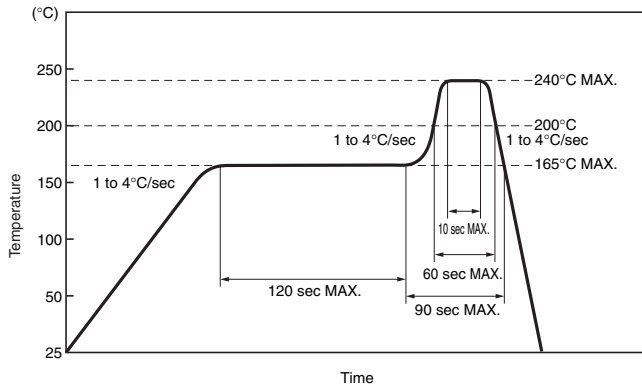
### ● Packing Specifications

- One reel is sealed in an aluminum-laminated bag.
- The model number, lot number, and quantity are given on the label.

## ■ Precautions

### ● Temperature Profile

The reflow soldering must be completed in one time and must comply with the following diagram.



### ● Solder Quantity

The pin's wiring pattern between the package and the board must not be soldered. Doing so would result in damage to the product's reliability. Make sure to adjust the solder quantity to the product sidewall of the terminal.

### ● Other Precautions

- The use of an infrared lamp causes the temperature of the resin to rise partially too high.
- Do not immerse the resin part into the solder.
- Test the soldering method under actual conditions and make sure the soldering works fine, since the impact on the junction between the device and PCB varies depending on the cooling and soldering conditions.

## ■ Storage and Handling after Opening

### ● Storage Conditions

Store the product under the following conditions:

- Temperature: 5 to 30°C
- Humidity: 70% max.

### ● Treatment after Opening

After opening the bag, store the products between 5 and 25°C at 60% humidity or lower and mount them within two days.

If storage for longer than two days after opening the bag is required, use a dry box or reseal the products in a moisture-proof bag with a commercially available desiccant. Store them between 5 and 30°C at 70% humidity or lower, and mount them within two weeks.

### ● Baking before Mounting

If the above treatment could not be carried out, mounting is still possible after baking treatment. However, baking treatment must be limited to only one time.

Recommended conditions: 125°C, 16 to 24 hours

Note: Do not bake the products while they are still in the bag. Temporarily mount them to the PCB or place them in metal trays.

### ● Cleaning Conditions

Cleaning in Solvent:

Solvent temperature: 45°C max.

Immersion time: 3 hours max.

Ultrasonic Cleaning:

Do not use ultrasonic cleaning.

Recommended Solvents:

Ethyl alcohol, methyl alcohol, or isopropyl alcohol

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- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

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- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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