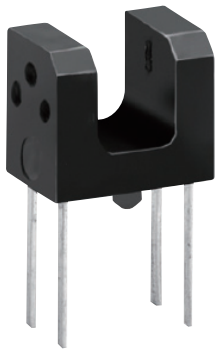
# Photomicrosensor (Transmissive)
# EE-SX1106

## Compact Slot/Terminal Type (Slot Width: 3 mm)

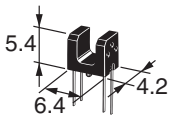
- Low profile (Height: 5.4 mm) type
- Terminal for PCB mounting
- Includes reverse insertion prevention boss

⚠ **Be sure to read *Safety Precautions* on Page 3.**



## Ordering Information

### Photomicrosensor

| Appearance | Sensing method | Connecting method | Sensing distance | Aperture size (H × W) (mm) | Output type | Model | Minimum packing unit (Unit: pcs) |
|---|---|---|---|---|---|---|---|
|  | Transmissive (slot type) | Terminal for PCB mounting | 3 mm (Slot width) | Both emitting side and detecting side 1.2 × 0.4 | Phototransistor | **EE-SX1106** | 1 |

**Note:** Order in multiples of minimum packing unit.

## Ratings, Characteristics and Exterior Specifications

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

| Item | | Symbol | Rated value | Unit |
|---|---|---|---|---|
| **Emitter** | | | | |
| | **Forward current** | $I_F$ | 50*1 | mA |
| | **Pulse forward current** | $I_{FP}$ | — | A |
| | **Reverse voltage** | $V_R$ | 5 | V |
| **Detector** | | | | |
| | **Collector-Emitter voltage** | $V_{CEO}$ | 30 | V |
| | **Emitter-Collector voltage** | $V_{ECO}$ | 4.5 | V |
| | **Collector current** | $I_C$ | 30 | mA |
| | **Collector dissipation** | $P_C$ | 80*1 | mW |
| **Operating temperature** | | $T_{opr}$ | -25 to 85 | °C |
| **Storage temperature** | | $T_{stg}$ | -30 to 85 | °C |
| **Soldering temperature** | | $T_{sol}$ | 260*2 | °C |

*1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.
*2. Complete soldering within 3 seconds.

### Exterior Specifications

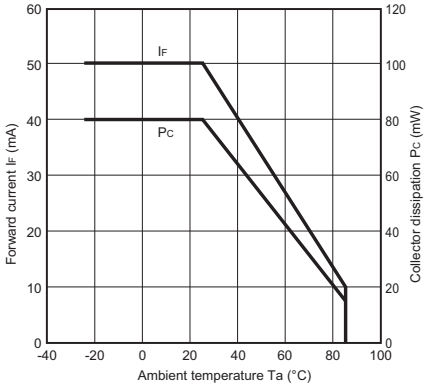
| Connecting method | Weight (g) | Material | |
|---|---|---|---|
| | | Case | Lens |
| Terminal for PCB mounting | 0.2 | PPS | Epoxy resin |

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

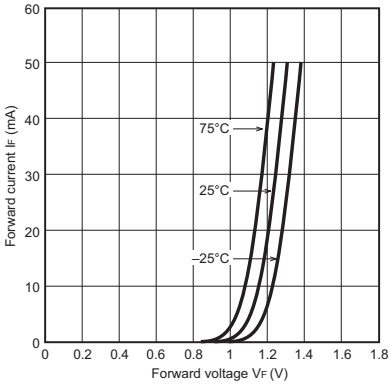
| Item | | Symbol | Value | | | Unit | Condition |
|---|---|---|---|---|---|---|---|
| | | | MIN. | TYP. | MAX. | | |
| **Emitter** | | | | | | | |
| | **Forward voltage** | $V_F$ | — | 1.3 | 1.6 | V | $I_F$ = 50 mA |
| | **Reverse current** | $I_R$ | — | — | 10 | μA | $V_R$ = 5 V |
| | **Peak emission wavelength** | $\lambda_P$ | — | 950 | — | nm | $I_F$ = 50 mA |
| **Detector** | | | | | | | |
| | **Light current** | $I_L$ | 0.2 | — | — | mA | $I_F$ = 20 mA, $V_{CE}$ = 5 V |
| | **Dark current** | $I_D$ | — | — | 500 | nA | $V_{CE}$ = 10 V, 0 lx |
| | **Leakage current** | $I_{LEAK}$ | — | — | — | μA | — |
| | **Collector-Emitter saturated voltage** | $V_{CE}$ (sat) | — | — | 0.4 | V | $I_F$ = 20 mA, $I_L$ = 0.1 mA |
| | **Peak spectral sensitivity wavelength** | $\lambda_P$ | — | 800 | — | nm | $V_{CE}$ = 5 V |
| **Rising time** | | tr | — | 10 | — | μs | $V_{CC}$ = 5 V, $R_L$ = 100 Ω $I_F$ = 20 mA |
| **Falling time** | | tf | — | 10 | — | μs | $V_{CC}$ = 5 V, $R_L$ = 100 Ω $I_F$ = 20 mA |

# Engineering Data (Reference Value)

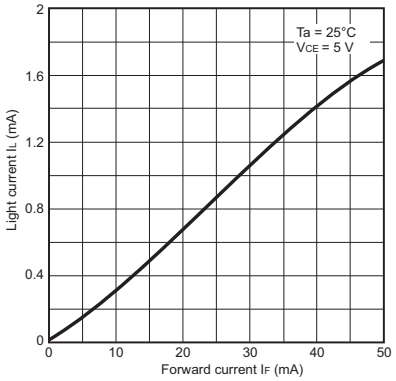
### Fig 1. Forward Current vs. Collector Dissipation Temperature Rating



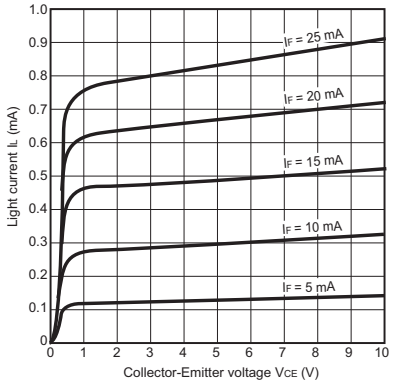

### Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)



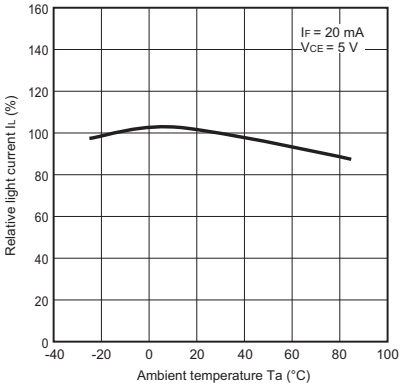

### Fig 3. Light Current vs. Forward Current Characteristics (Typical)



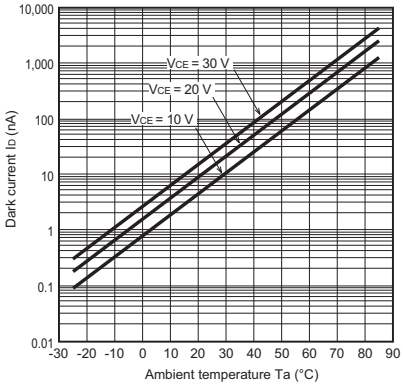

### Fig 4. Light Current vs. Collector-Emitter Voltage Characteristics (Typical)



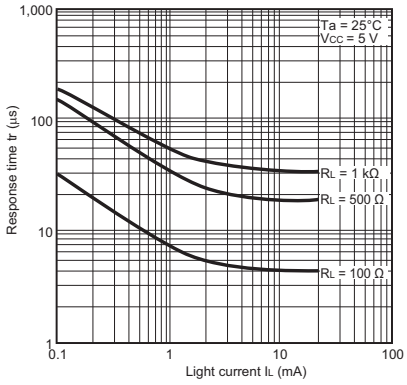

### Fig 5. Relative Light Current vs. Ambient Temperature Characteristics (Typical)



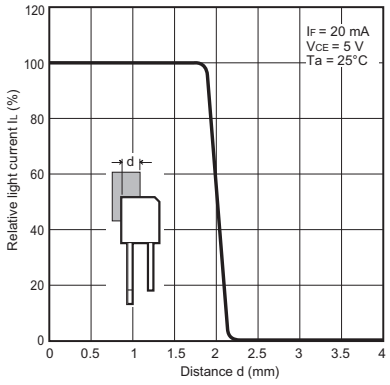

### Fig 6. Dark Current vs. Ambient Temperature Characteristics (Typical)



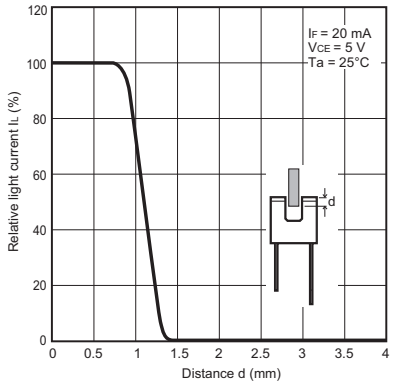

### Fig 7. Response Time vs. Light Current Characteristics (Typical)



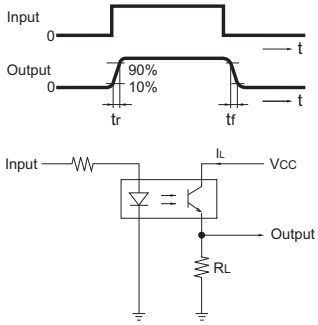

### Fig 8. Sensing Position Characteristics (Typical)




### Fig 9. Sensing Position Characteristics (Typical)




### Fig 10. Response Time Measurement Circuit



# Safety Precautions

**To ensure safe operation, be sure to read and follow the Instruction Manual provided with the Sensor.**

**⚠ CAUTION**

**This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.**

**Precautions for Correct Use**

Do not use the product in atmospheres or environments that exceed product ratings.

**Precautions for Safe Use**

**Do not use the product with a voltage or current that exceeds the rated range.**

Applying a voltage or current that is higher than the rated range may result in explosion or fire.

**Do not miswire such as the polarity of the power supply voltage.**

Otherwise the product may be damaged or it may burn.

**This product does not resist water. Do not use the product in places where water or oil may be sprayed onto the product.**

# Dimensions and Internal Circuit

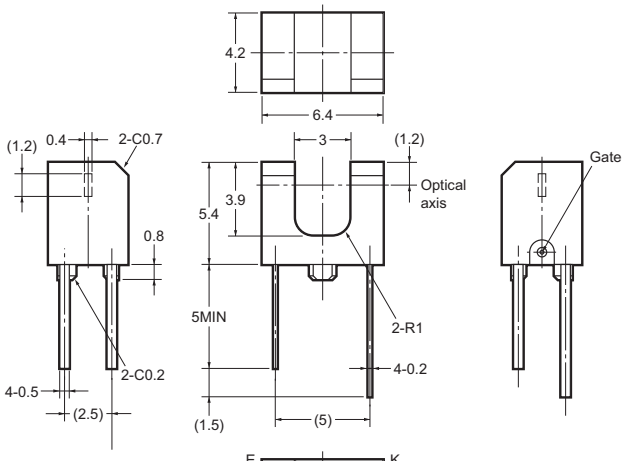
**(Unit: mm)**

## Photomicrosensor

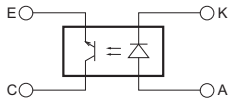
**EE-SX1106**

Aperture size (H × W)

| Emitter | Detector |
|---|---|
| 1.2 × 0.4 | 1.2 × 0.4 |




Internal circuit




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

**Note: 1.** Unless otherwise specified, the tolerances are ±0.2 mm.
**2.** Dimensions in parentheses are for reference only.
**3.** Dimensions of the slit are those of the primary mold.

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