

## Slot/Snap-in Mounted Wide-width Type (Slot Width: 15 mm)

- Can be used with wide range of substrates and panels ( $t = 0.8$  to  $1.6$  mm)
- Featuring enhanced maintainability thanks to a snap-in mounted structure in which mounting screws are unnecessary and through use of an all-purpose EI connector manufactured by TE Connectivity.
- Photo IC output (Light-ON)
- Directly connectable to C-MOS
- Connector with cable (Order Separately) is available.  
EE-1005 (see page 3)



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) | Connector         | 15 mm (Slot width) | Both emitting side and detecting side 2 dia. | Photo IC    | EE-SX461-P11 (Light-ON) | 1                                |

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

## Ratings, Characteristics and Exterior Specifications

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Item                           | Symbol    | Rated value | Unit             |
|--------------------------------|-----------|-------------|------------------|
| Power supply voltage           | $V_{CC}$  | 7           | V                |
| Output voltage                 | $V_{OUT}$ | 28          | V                |
| Output current                 | $I_{OUT}$ | 16          | mA               |
| Permissible output dissipation | $P_{OUT}$ | 250*        | mW               |
| Operating temperature          | $T_{opr}$ | -20 to 75   | $^\circ\text{C}$ |
| Storage temperature            | $T_{stg}$ | -40 to 85   | $^\circ\text{C}$ |

\* Refer to the temperature rating chart if the ambient temperature exceeds  $25^\circ\text{C}$ .

### Exterior Specifications

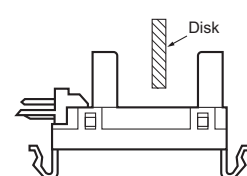
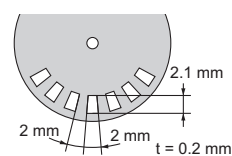
| Connecting method | Weight (g) | Material      |              |
|-------------------|------------|---------------|--------------|
|                   |            | Case          | Mounting tab |
| Connector         | 3.7        | Polycarbonate | Polyamide    |

### Electrical and Optical Characteristics

( $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 5 \text{ V} \pm 10\%$ )

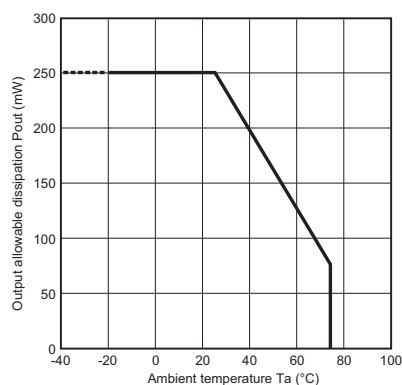
| Item                      | Symbol   | Value                 |      |      | Unit | Condition                                                           |
|---------------------------|----------|-----------------------|------|------|------|---------------------------------------------------------------------|
|                           |          | MIN.                  | TYP. | MAX. |      |                                                                     |
| Current consumption       | $I_{CC}$ | —                     | —    | 35   | mA   | With and without incident                                           |
| Low-level output voltage  | $V_{OL}$ | —                     | —    | 0.3  | V    | $I_{OUT} = 16 \text{ mA}$ , with incident                           |
| High-level output voltage | $V_{OH}$ | $(V_{CC} \times 0.9)$ |      | —    | V    | $V_{OUT} = V_{CC}$ , without incident<br>$R_L = 47 \text{ k}\Omega$ |
| Response frequency        | $f$      | 3                     | —    | —    | kHz  | $V_{OUT} = V_{CC}$ ,<br>$R_L = 47 \text{ k}\Omega$                  |

\* The value of the response frequency is measured by rotating the disk as shown below.

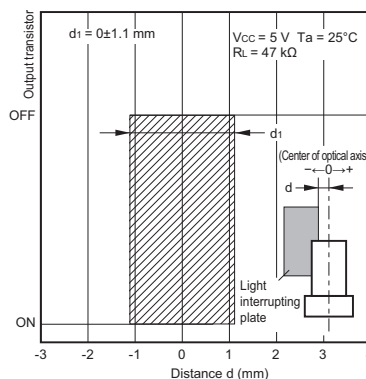


## Engineering Data (Reference Value)

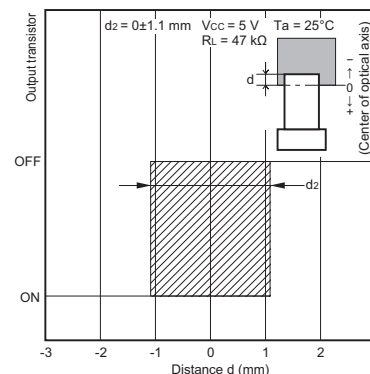
**Fig 1. Output Allowable Dissipation vs. Ambient Temperature Characteristics**



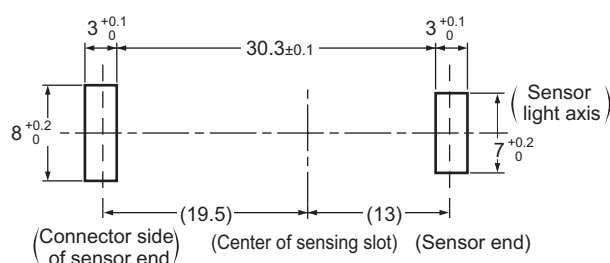
**Fig 2. Sensing Position Characteristics (Typical)**



**Fig 3. Sensing Position Characteristics (Typical)**



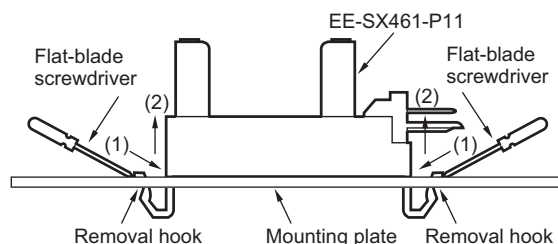
## Recommended Mounting Holes/Mounting and Dismounting Method



- Attachable plate thickness is 0.8 to 1.6 mm
- Open mounting holes with dimensions as indicated in the mounting hole drawing.
- Insertion force is approx. 3 to 5 kg. Do not insert all at once. Mounting can be accomplished easily by first inserting partially in two mounting holes and then applying force.
- Removal is possible from either the top side or bottom side (examples of both are shown).

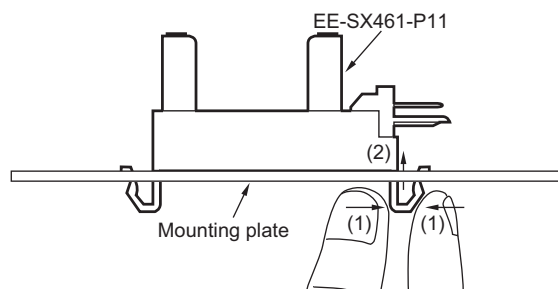
### <From top side>

- Press the removal hook with a flat-blade screwdriver and pry up.

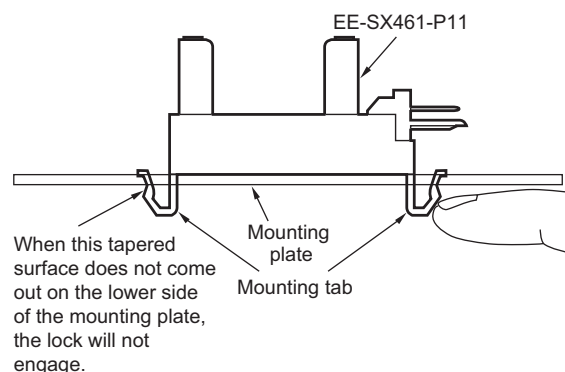


### <From bottom side>

- Attach as shown below, and push up while squeezing the tab with your fingers.



- The optimum way of opening mounting holes is by press punching. When mounting on the burr side of the punched mounting plate, or when mounting on a mounting plate with holes cut by wire cutting, a stronger insertion force is necessary, and insertion may be difficult in some cases (an insertion force of 5 to 6 kg may be necessary).
- If there are large burrs on the punched mounting plate, the locking mechanism may not engage completely. Press the mounting tabs with your finger as shown below to verify that the lock is completely engaged.



## 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. Dispose of this product as industrial waste.

### 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.

**Do not short-circuit the load.**

Otherwise explosion or burning may occur.

**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)

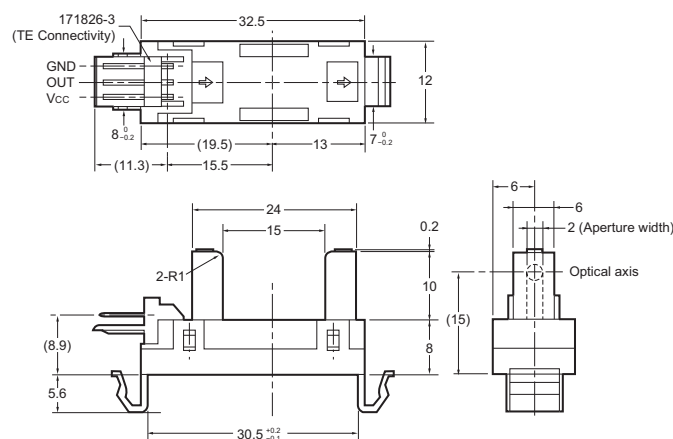
### Photomicrosensor

#### EE-SX461-P11



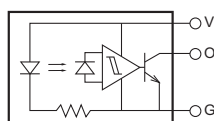
Aperture size

| Emitter | Detector |
|---------|----------|
| 2 dia.  | 2 dia.   |



Recommended compatible connector: Connector manufactured by TE Connectivity 171822-3 (crimp type)  
172142-3 (crimp type)  
Connector manufactured by OMRON EE-1005 (with harness)

Internal circuit



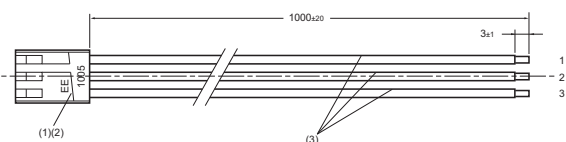
| Terminal No. | Name               |
|--------------|--------------------|
| V            | Power supply (Vcc) |
| O            | Output (OUT)       |
| G            | Ground (GND)       |

Unless otherwise specified, the tolerances are as shown below.

| Dimensions   | Tolerance |
|--------------|-----------|
| 3 mm max.    | ±0.3      |
| 3 < mm ≤ 6   | ±0.375    |
| 6 < mm ≤ 10  | ±0.45     |
| 10 < mm ≤ 18 | ±0.55     |
| 18 < mm ≤ 30 | ±0.65     |

## Compatible Connector

#### EE-1005



| No. | Product name       | Model/Specification | Quantity | Manufacturer    |
|-----|--------------------|---------------------|----------|-----------------|
| (1) | Receptacle housing | 171822-3            | 1        | TE Connectivity |
| (2) | Receptacle contact | 170262-1            | 3        | TE Connectivity |
| (3) | Lead wire          | UL1007<br>AWG24     | 3        | —               |

Wiring

| Connector circuit No. | Lead wire color | Output when connected with EE-SX461-P11 |
|-----------------------|-----------------|-----------------------------------------|
| 1                     | Red             | Vcc                                     |
| 2                     | Orange          | OUT                                     |
| 3                     | Yellow          | GND                                     |

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## OMRON Corporation

Device & Module Solutions Company

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