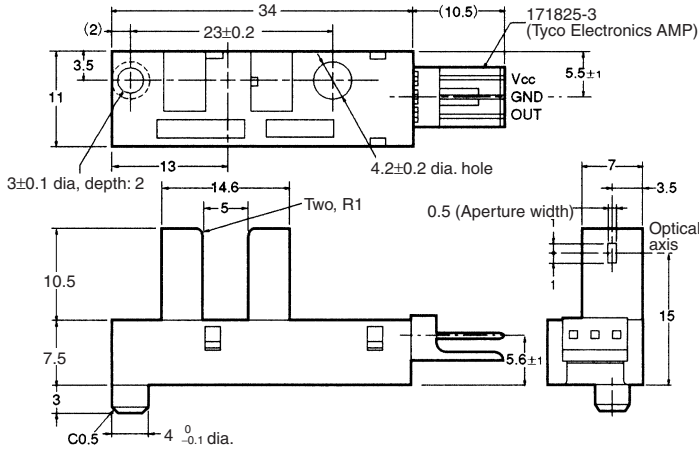


Photomicrosensor (Transmissive) EE-SX3009-P1/-SX4009-P1

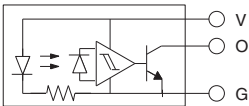
⚠ Be sure to read *Precautions* on page 24.

■ Dimensions

Note: All units are in millimeters unless otherwise indicated.



Internal Circuit



Unless otherwise specified, the tolerances are as shown below.

| Terminal No. | Name |
|--------------|---------------------------------|
| V | Power supply (V _{CC}) |
| O | Output (OUT) |
| G | Ground (GND) |

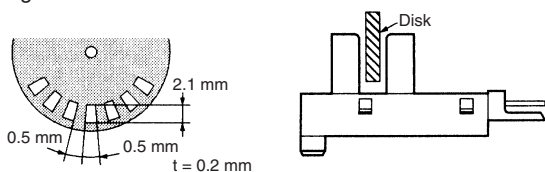
| Dimensions | Tolerance |
|--------------|-----------|
| 4 mm max. | ±0.2 |
| 4 < mm ≤ 16 | ±0.3 |
| 16 < mm ≤ 63 | ±0.5 |

Recommended Mating Connectors:
 Tyco Electronics AMP 171822-3 (crimp connector)
 172142-3 (crimp connector)
 OMRON EE-1005 (with harness)

■ Electrical and Optical Characteristics (Ta = 25°C, V_{CC} = 5 V ±10%)

| Item | Symbol | Value | Condition |
|---------------------------|-----------------|--------------------------------|---|
| Current consumption | I _{CC} | 30 mA max. | With and without incident |
| Low-level output voltage | V _{OL} | 0.3 V max. | I _{OUT} = 16 mA Without incident (EE-SX3009-P1) With incident (EE-SX4009-P1) |
| High-level output voltage | V _{OH} | (V _{CC} × 0.9) V min. | V _{OUT} = V _{CC} With incident (EE-SX3009-P1) Without incident (EE-SX4009-P1), R _L = 47 kΩ |
| Response frequency | f | 3 kHz min. | V _{OUT} = V _{CC} , R _L = 47 kΩ (see note) |

Note: The value of the response frequency is measured by rotating the disk as shown below.



■ Features

- Screw-mounting model.
- High resolution with a 0.5-mm-wide sensing aperture.
- With a 5-mm-wide groove.
- Photo IC output signals directly connect with C-MOS and TTL.
- Connects to Tyco Electronics AMP's EI-series connectors.
- Dark ON model (EE-SX3009-P1)
- Light ON model (EE-SX4009-P1)

■ Absolute Maximum Ratings (Ta = 25°C)

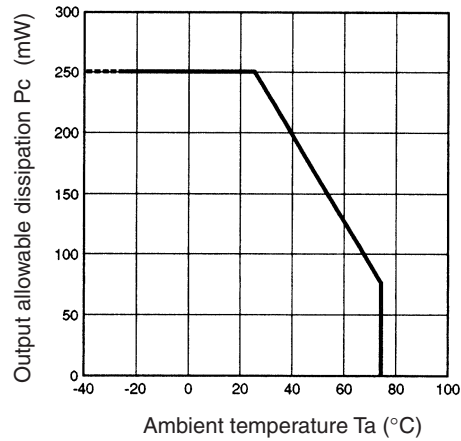
| Item | Symbol | Rated value |
|--------------------------------|------------------|--------------------------------|
| Power supply voltage | V _{CC} | 10 V |
| Output voltage | V _{OUT} | 28 V |
| Output current | I _{OUT} | 16 mA |
| Permissible output dissipation | P _{OUT} | 250 mW (see note) |
| Ambient temperature | Operating | T _{opr} -25°C to 75°C |
| | Storage | T _{stg} -40°C to 85°C |
| Soldering temperature | T _{sol} | --- |

Note: Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

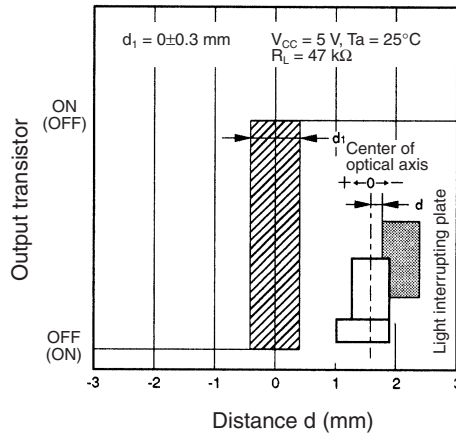
Engineering Data

Note: The values in the parentheses apply to the EE-SX4009-P1.

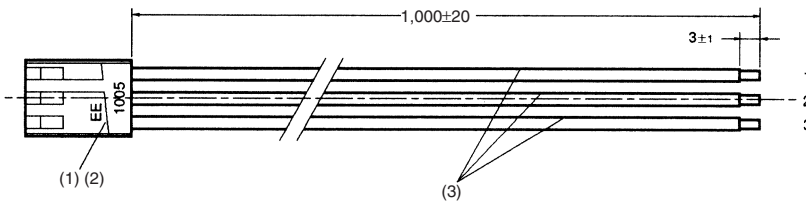
Output Allowable Dissipation vs. Ambient Temperature Characteristics



Sensing Position Characteristics (Typical)



EE-1005 Connector



| No. | Name | Model | Quantity | Maker |
|-----|--------------------|--------------|----------|----------------------|
| 1 | Receptacle housing | 171822-3 | 1 | Tyco Electronics AMP |
| 2 | Receptacle contact | 170262-1 | 3 | Tyco Electronics AMP |
| 3 | Lead wire | UL1007 AWG24 | 3 | --- |

Wiring

| Connector circuit no. | Lead wire color | Output when connected to EE-SX4009-P1/EE-SX3009-P1 |
|-----------------------|-----------------|--|
| 1 | Red | V_{CC} |
| 2 | Orange | GND |
| 3 | Yellow | OUT |

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