



**THE DATASHEET OF  
EE-SX3009-P1**

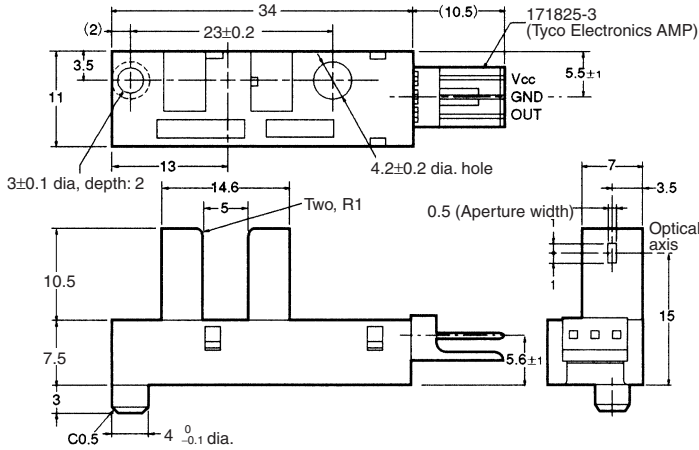


## Photomicrosensor (Transmissive) EE-SX3009-P1/-SX4009-P1

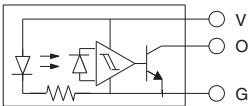
**⚠ Be sure to read *Precautions* on page 24.**

### ■ 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 <sub>CC</sub> )
O	Output (OUT)
G	Ground (GND)

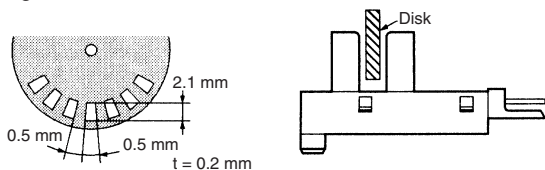
Dimensions	Tolerance
4 mm max.	±0.2
4 < mm ≤ 16	±0.3
16 < mm ≤ 63	±0.5

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<sub>CC</sub> = 5 V ±10%)

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

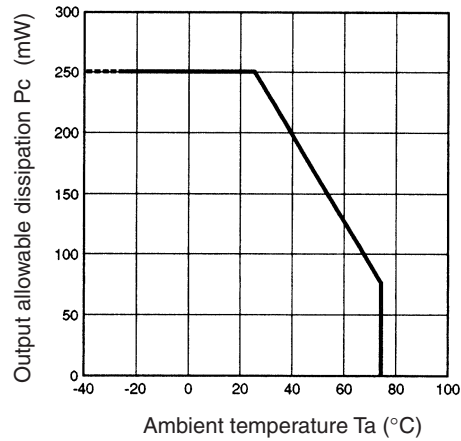
Item	Symbol	Rated value
Power supply voltage	V <sub>CC</sub>	10 V
Output voltage	V <sub>OUT</sub>	28 V
Output current	I <sub>OUT</sub>	16 mA
Permissible output dissipation	P <sub>OUT</sub>	250 mW (see note)
Ambient temperature	Operating	T <sub>opr</sub> -25°C to 75°C
	Storage	T <sub>stg</sub> -40°C to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

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

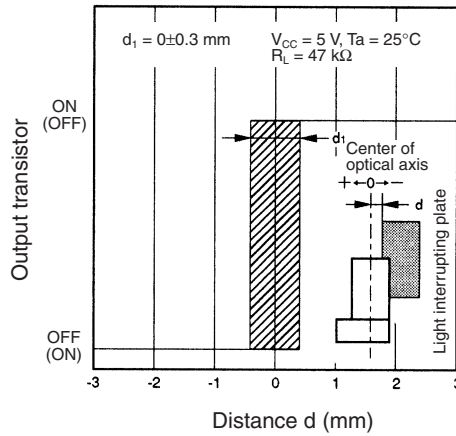
## Engineering Data

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

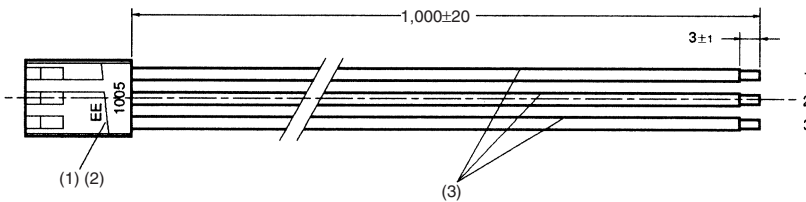
### Output Allowable Dissipation vs. Ambient Temperature Characteristics



### 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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