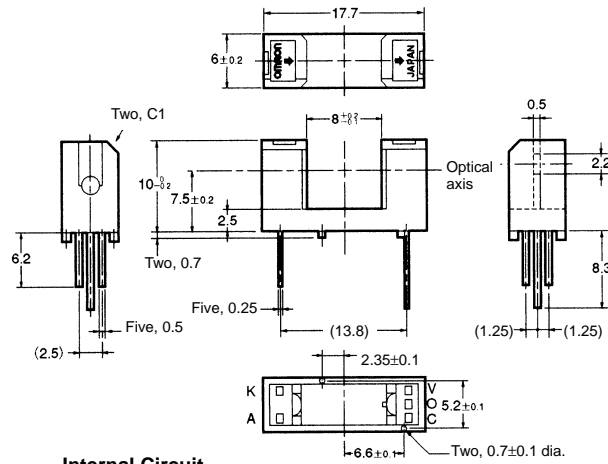


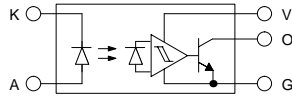
# EE-SX3070/-SX4070 Photomicrosensor (Transmissive)

## ■ Dimensions

Note: All units are in millimeters unless otherwise indicated.



Internal Circuit



Unless otherwise specified, the tolerances are as shown below.

Terminal No.	Name
A	Anode
K	Cathode
V	Power supply (Vcc)
O	Output (OUT)
G	Ground (GND)

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

## ■ Features

- Incorporates an IC chip with a built-in detector element and amplifier.
- Incorporates a detector element with a built-in temperature compensation circuit.
- A wide supply voltage range: 4.5 to 16 VDC
- Directly connects with C-MOS and TTL.
- High resolution with a 0.5-mm-wide sensing aperture.
- Dark ON model (EE-SX3070)
- Light ON model (EE-SX4070)

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

Item	Symbol	Rated value
Emitter	Forward current	$I_F$ 50 mA (see note 1)
	Reverse voltage	$V_R$ 4 V
Detector	Power supply voltage	$V_{CC}$ 16 V
	Output voltage	$V_{OUT}$ 28 V
	Output current	$I_{OUT}$ 16 mA
	Permissible output dissipation	$P_{OUT}$ 250 mW (see note 1)
Ambient temperature	Operating	$T_{opr}$ -40°C to 75°C
	Storage	$T_{stg}$ -40°C to 85°C
Soldering temperature		$T_{sol}$ 260°C (see note 2)

- Note: 1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.  
2. Complete soldering within 10 seconds.

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

Item	Symbol	Value	Condition
Emitter	Forward voltage	$V_F$ 1.2 V typ., 1.5 V max.	$I_F = 20$ mA
	Reverse current	$I_R$ 0.01 $\mu$ A typ., 10 $\mu$ A max.	$V_R = 4$ V
	Peak emission wavelength	$\lambda_P$ 940 nm typ.	$I_F = 20$ mA
Detector	Low-level output voltage	$V_{OL}$ 0.12 V typ., 0.4 V max.	$V_{CC} = 4.5$ to 16 V, $I_{OL} = 16$ mA, $I_F = 0$ mA (EE-SX3070), $I_F = 10$ mA (EE-SX4070)
	High-level output voltage	$V_{OH}$ 15 V min.	$V_{CC} = 16$ V, $R_L = 1$ k $\Omega$ , $I_F = 10$ mA (EE-SX3070), $I_F = 0$ mA (EE-SX4070)
	Current consumption	$I_{CC}$ 3.2 mA typ., 10 mA max.	$V_{CC} = 16$ V
	Peak spectral sensitivity wavelength	$\lambda_P$ 870 nm typ.	$V_{CC} = 4.5$ to 16 V
LED current when output is OFF	$I_{FT}$	10 mA max.	$V_{CC} = 4.5$ to 16 V
LED current when output is ON			
Hysteresis	$\Delta H$	15% typ.	$V_{CC} = 4.5$ to 16 V (see note 1)
Response frequency	$f$	3 kHz min.	$V_{CC} = 4.5$ to 16 V, $I_F = 20$ mA, $I_{OL} = 16$ mA (see note 2)
Response delay time	$t_{PLH}$ ( $t_{PHL}$ )	3 $\mu$ s typ.	$V_{CC} = 4.5$ to 16 V, $I_F = 20$ mA, $I_{OL} = 16$ mA (see note 3)
Response delay time	$t_{PHL}$ ( $t_{PLH}$ )	20 $\mu$ s typ.	$V_{CC} = 4.5$ to 16 V, $I_F = 20$ mA, $I_{OL} = 16$ mA (see note 3)