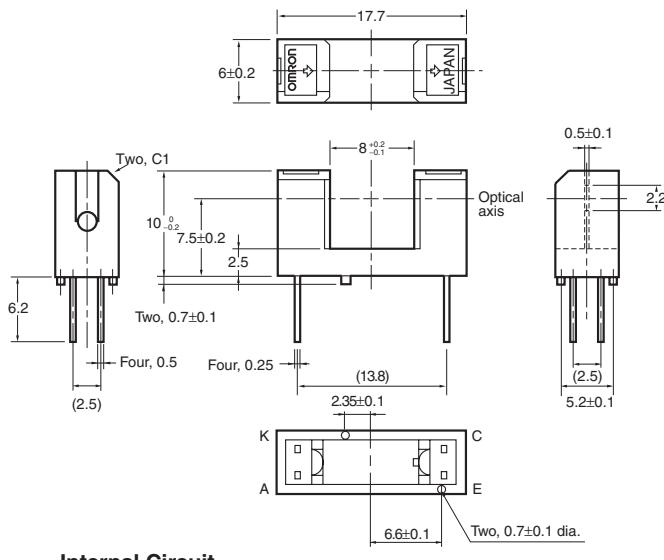


# Photomicrosensor (Transmissive) EE-SX1070

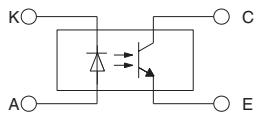
**⚠ Be sure to read *Precautions* on page 25.**

## Dimensions

Note: All units are in millimeters unless otherwise indicated.



Internal Circuit



Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	$\pm 0.3$
$3 < \text{mm} \leq 6$	$\pm 0.375$
$6 < \text{mm} \leq 10$	$\pm 0.45$
$10 < \text{mm} \leq 18$	$\pm 0.55$
$18 < \text{mm} \leq 30$	$\pm 0.65$

## Features

- Wide model with a 8-mm-wide slot.
- PCB mounting type.
- High resolution with a 0.5-mm-wide aperture.

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

	Item	Symbol	Rated value
Emitter	Forward current	$I_F$	50 mA (see note 1)
	Pulse forward current	$I_{FP}$	1 A (see note 2)
	Reverse voltage	$V_R$	4 V
Detector	Collector-Emitter voltage	$V_{CEO}$	30 V
	Emitter-Collector voltage	$V_{ECO}$	---
	Collector current	$I_C$	20 mA
	Collector dissipation	$P_C$	100 mW (see note 1)
Ambient temperature	Operating	$T_{opr}$	-25°C to 95°C
	Storage	$T_{stg}$	-30°C to 100°C
Soldering temperature		$T_{sol}$	260°C (see note 3)

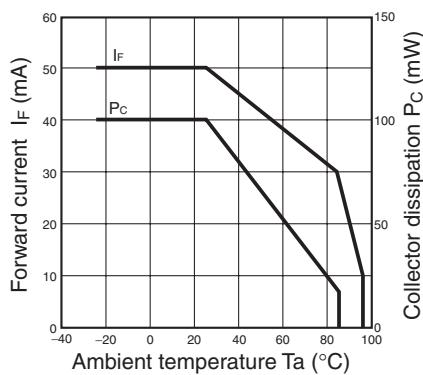
- Note: 1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.  
 2. The pulse width is 10  $\mu\text{s}$  maximum with a frequency of 100 Hz.  
 3. Complete soldering within 10 seconds.

## Electrical and Optical Characteristics ( $T_a = 25^\circ\text{C}$ )

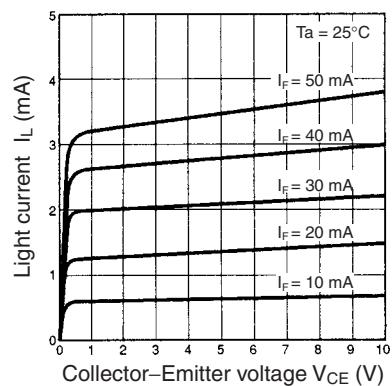
	Item	Symbol	Value	Condition
Emitter	Forward voltage	$V_F$	1.2 V typ., 1.5 V max.	$I_F = 30 \text{ mA}$
	Reverse current	$I_R$	0.01 $\mu\text{A}$ typ., 10 $\mu\text{A}$ max.	$V_R = 4 \text{ V}$
	Peak emission wavelength	$\lambda_P$	940 nm typ.	$I_F = 20 \text{ mA}$
Detector	Light current	$I_L$	0.5 mA min., 14 mA max.	$I_F = 20 \text{ mA}, V_{CE} = 10 \text{ V}$
	Dark current	$I_D$	2 nA typ., 200 nA max.	$V_{CE} = 10 \text{ V}, 0 \text{ lux}$
	Leakage current	$I_{LEAK}$	---	---
	Collector-Emitter saturated voltage	$V_{CE} (\text{sat})$	0.1 V typ., 0.4 V max.	$I_F = 20 \text{ mA}, I_L = 0.1 \text{ mA}$
	Peak spectral sensitivity wavelength	$\lambda_P$	850 nm typ.	$V_{CE} = 10 \text{ V}$
Rising time		$t_r$	4 $\mu\text{s}$ typ.	$V_{CC} = 5 \text{ V}, R_L = 100 \Omega, I_L = 5 \text{ mA}$
Falling time		$t_f$	4 $\mu\text{s}$ typ.	$V_{CC} = 5 \text{ V}, R_L = 100 \Omega, I_L = 5 \text{ mA}$

## ■ Engineering Data

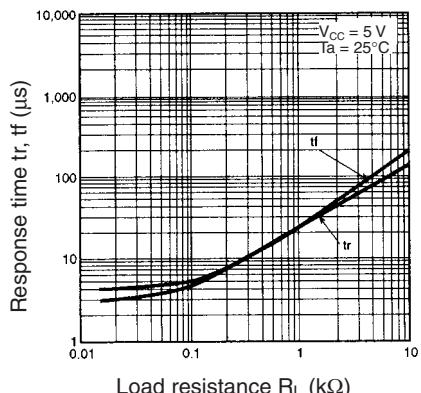
**Forward Current vs. Collector Dissipation Temperature Rating**



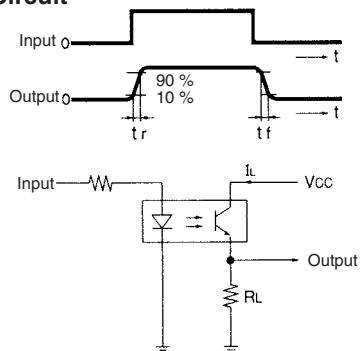
**Light Current vs. Collector-Emitter Voltage Characteristics (Typical)**



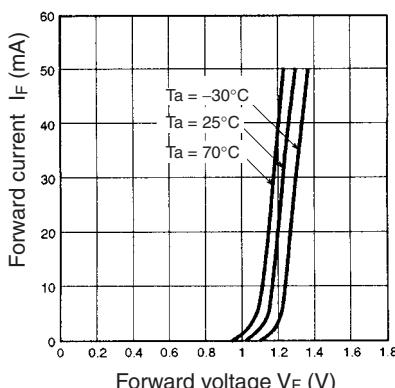
**Response Time vs. Load Resistance Characteristics (Typical)**



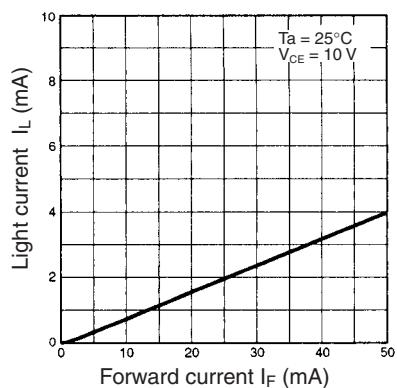
**Response Time Measurement Circuit**



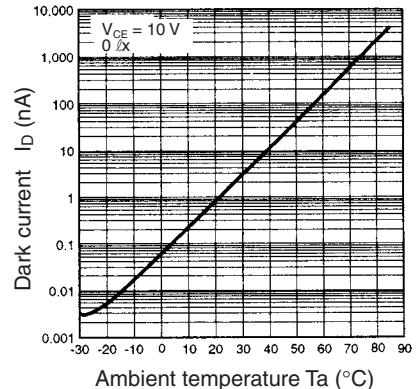
**Forward Current vs. Forward Voltage Characteristics (Typical)**



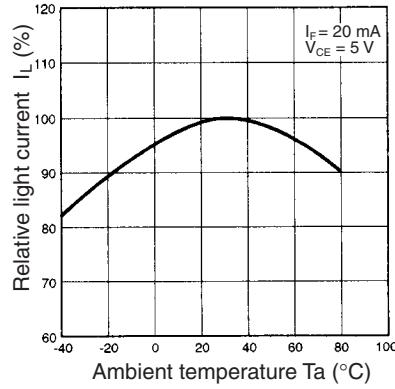
**Light Current vs. Forward Current Characteristics (Typical)**



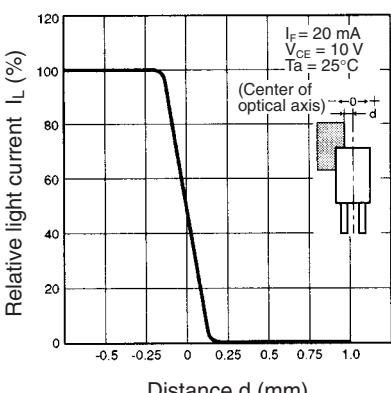
**Dark Current vs. Ambient Temperature Characteristics (Typical)**



**Relative Light Current vs. Ambient Temperature Characteristics (Typical)**



**Sensing Position Characteristics (Typical)**



**Sensing Position Characteristics (Typical)**

