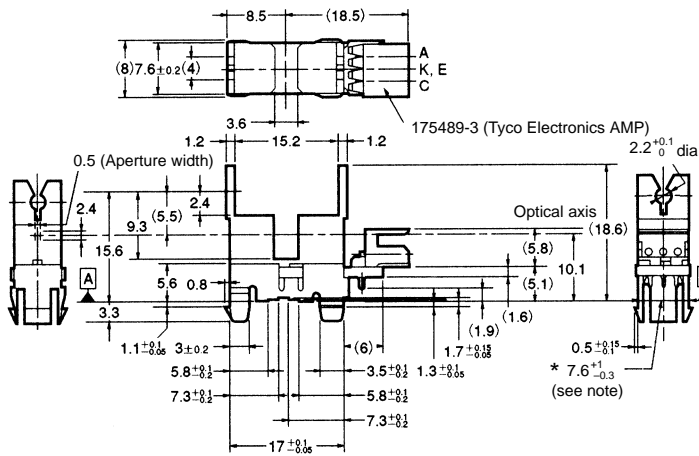


# EE-SA107-P2

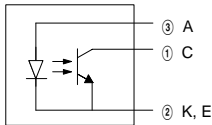
# Photomicrosensor (Actuator Mounted)

## ■ Dimensions

**Note:** All units are in millimeters unless otherwise indicated.



### Internal Circuit



**Note:** The asterisked dimension is specified by datum A only. 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

Terminal No.	Name
A	Anode
C	Collector
K, E	Cathode, Emitter

Recommended Mating Connectors:

- Tyco Electronics AMP 173977-3 (insulation displacement-type connector)
- 175778-3 (crimp-type connector)
- 179228-3 (crimp-type connector)

## ■ Features

- An actuator can be attached.
- Snap-in mounting model.
- Mountable to 1.0-, 1.2- and 1.6-mm-thick boards.
- Connects to Tyco Electronics AMP's CT-series connectors.

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

Item	Symbol	Rated value
Emitter	Forward current	$I_F$ 50 mA (see note)
	Pulse forward current	$I_{FP}$ ---
	Reverse voltage	$V_R$ 4 V
Detector	Collector-Emitter voltage	$V_{CEO}$ 30 V
	Emitter-Collector voltage	$V_{ECO}$ 5 V
	Collector current	$I_C$ 20 mA
	Collector dissipation	$P_C$ 100 mW (see note 1)
Ambient temperature	Operating	$T_{opr}$ -25°C to 85°C
	Storage	$T_{stg}$ -40°C to 85°C
Soldering temperature	$T_{sol}$	---

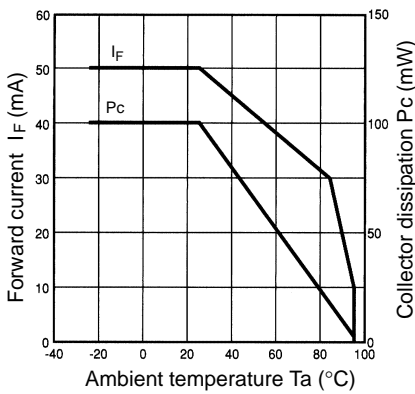
**Note:** Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

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

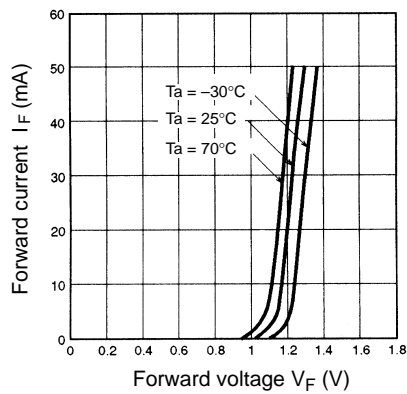
Item	Symbol	Value	Condition
Emitter	Forward voltage	$V_F$ 1.2 V typ., 1.5 V max.	$I_F = 30$ mA
	Reverse current	$I_R$ 0.01 $\mu$ A typ., 10 $\mu$ A max.	$V_R = 4$ V
	Peak emission wavelength	$\lambda_P$ 940 nm typ.	$I_F = 30$ mA
Detector	Light current	$I_L$ 0.5 mA min., 14 mA max.	$I_F = 20$ mA, $V_{CE} = 5$ V
	Dark current	$I_D$ 200 nA max.	$V_{CE} = 10$ V, 0 lx
	Leakage current	$I_{LEAK}$ ---	---
	Collector-Emitter saturated voltage	$V_{CE} (sat)$ 0.1 V typ., 0.4 V max.	$I_F = 20$ mA, $I_L = 0.3$ mA
	Peak spectral sensitivity wavelength	$\lambda_P$ 850 nm typ.	$V_{CE} = 5$ V
Rising time	$t_r$	8 $\mu$ s typ.	$V_{CC} = 5$ V, $R_L = 100 \Omega$ , $I_L = 1$ mA
Falling time	$t_f$	8 $\mu$ s typ.	$V_{CC} = 5$ V, $R_L = 100 \Omega$ , $I_L = 1$ mA

■ Engineering Data

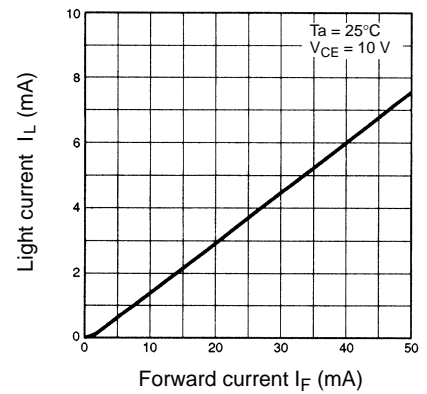
**Forward Current vs. Collector Dissipation Temperature Rating**



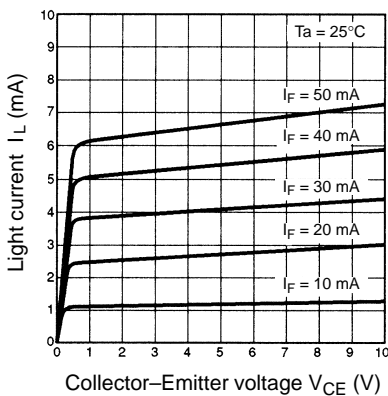
**Forward Current vs. Forward Voltage Characteristics (Typical)**



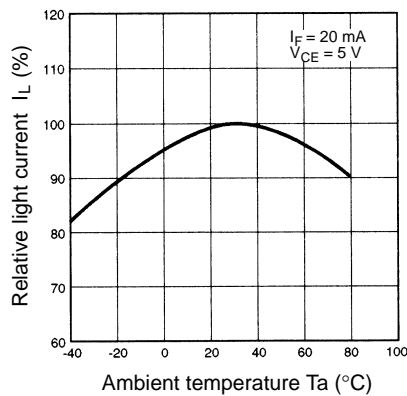
**Light Current vs. Forward Current Characteristics (Typical)**



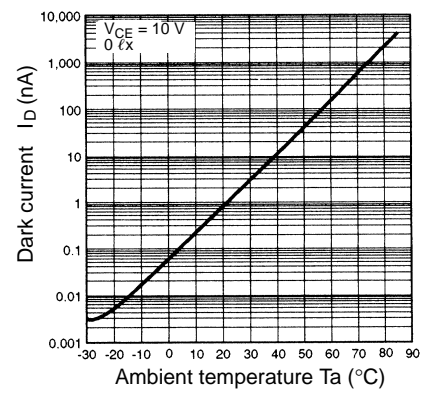
**Light Current vs. Collector-Emitter Voltage Characteristics (Typical)**



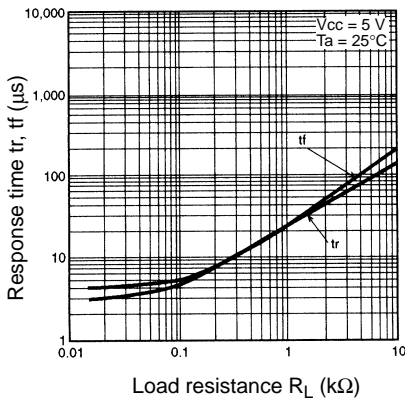
**Relative Light Current vs. Ambient Temperature Characteristics (Typical)**



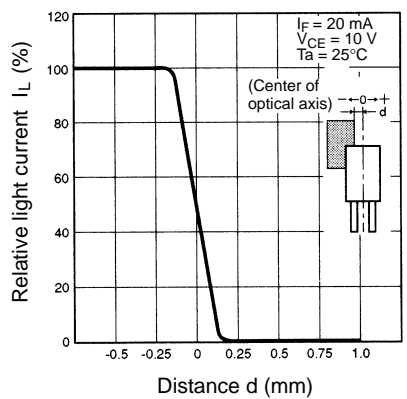
**Dark Current vs. Ambient Temperature Characteristics (Typical)**



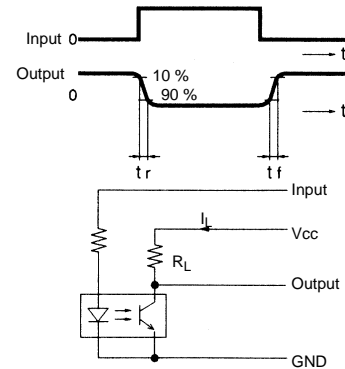
**Response Time vs. Load Resistance Characteristics (Typical)**



**Sensing Position Characteristics (Typical)**



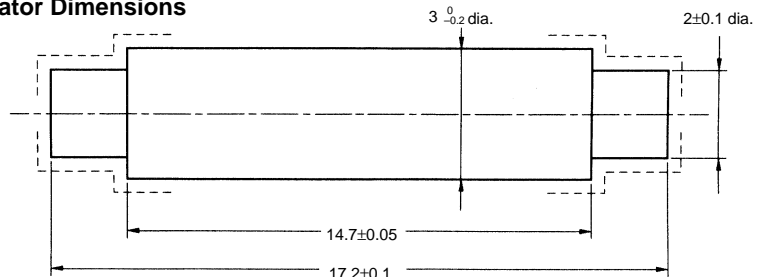
**Response Time Measurement Circuit**



**Recommended Mounting Holes**

Refer to EE-SA407-P2 on page 192.

**Actuator Dimensions**



- Note:**
1. Make sure that the portions marked with dotted lines have no burrs.
  2. The material of the actuator must be selected by considering the infrared permeability of the actuator.