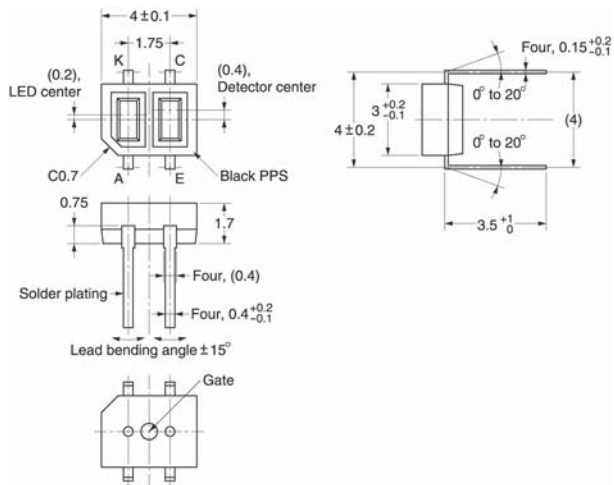


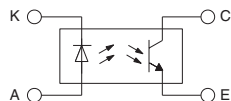
# Photomicrosensor (Reflective) EE-SY124

## ■ Dimensions

Note: All units are in millimeters unless otherwise indicated.



### Internal Circuit



Unless otherwise specified, the tolerances are  $\pm 0.15$  mm.

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

## ■ Features

- Ultra-compact model.

## ■ Absolute Maximum Ratings (Ta = 25°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	$V_{ECO}$	5 V
	Collector current	$I_C$	20 mA
	Collector dissipation	$P_C$	75 mW (see note 1)
Ambient temperature	Operating	$T_{opr}$	-25°C to 85°C
	Storage	$T_{stg}$	-40°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  $\mu$ s maximum with a frequency of 100 Hz.  
 3. Complete soldering within 10 seconds.

## ■ Ordering Information

Description	Model
Photomicrosensor (reflective)	EE-SY124

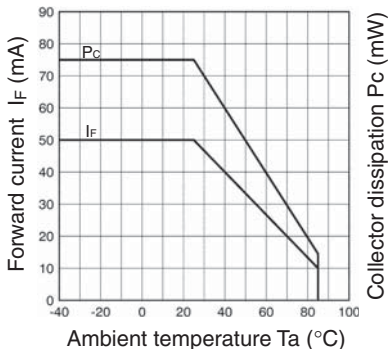
## ■ Electrical and Optical Characteristics (Ta = 25°C)

Item	Symbol	Value	Condition
Emitter	Forward voltage	$V_F$	1.2 V typ., 1.4 V max.
	Reverse current	$I_R$	0.01 $\mu$ A typ., 10 $\mu$ A max.
	Peak emission wavelength	$\lambda_P$	950 nm typ.
Detector	Light current	$I_L$	50 $\mu$ A min., 300 $\mu$ A max.
	Dark current	$I_D$	2 nA typ., 200 nA max.
	Leakage current	$I_{LEAK}$	200 nA max.
	Collector–Emitter saturated voltage	$V_{CE(sat)}$	---
	Peak spectral sensitivity wavelength	$\lambda_P$	930 nm typ.
Rising time	$t_r$	35 $\mu$ s typ.	$V_{CC} = 2$ V, $R_L = 1$ k $\Omega$ , $I_L = 100$ $\mu$ A
Falling time	$t_f$	25 $\mu$ s typ.	$V_{CC} = 2$ V, $R_L = 1$ k $\Omega$ , $I_L = 100$ $\mu$ A

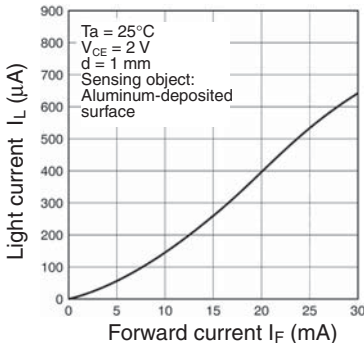
Note: The letter “d” indicates the distance between the top surface of the sensor and the sensing object.

■ Engineering Data

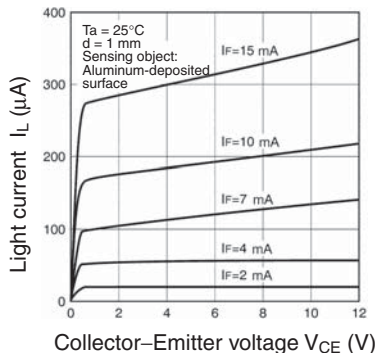
Forward Current vs. Collector Dissipation Temperature Rating



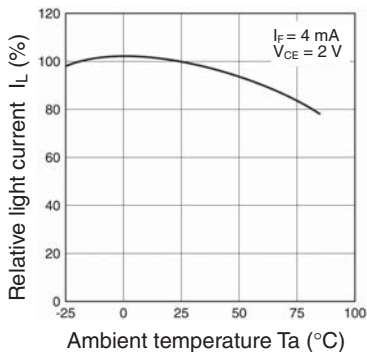
Light Current vs. Forward Current Characteristics (Typical)



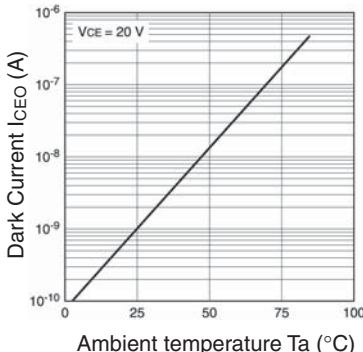
Light Current vs. Collector-Emitter Voltage Characteristics (Typical)



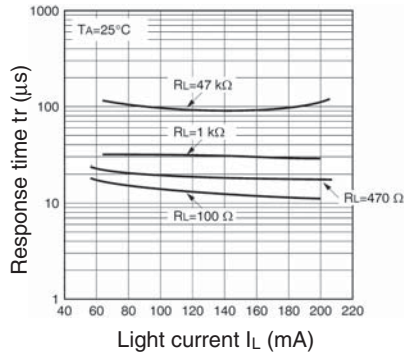
Relative Light Current vs. Ambient Temperature Characteristics (Typical)



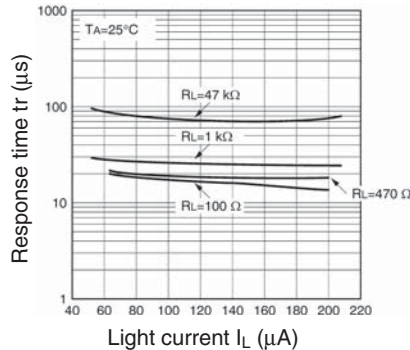
Dark Current vs. Ambient Temperature Characteristics (Typical)



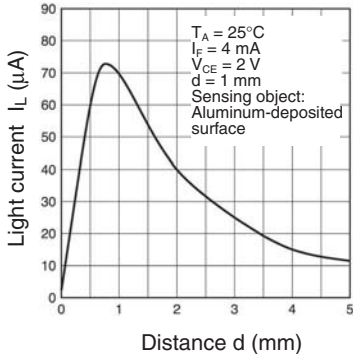
Response Time vs. Load Resistance Characteristics (Typical)



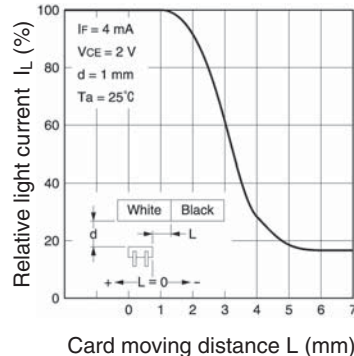
Response Time vs. Load Resistance Characteristics (Typical)



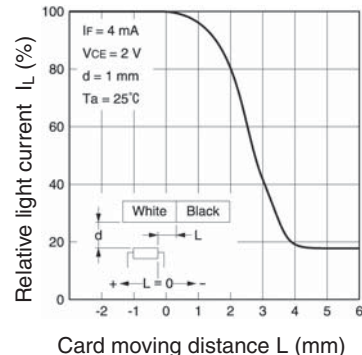
Sensing Distance Characteristics (Typical)



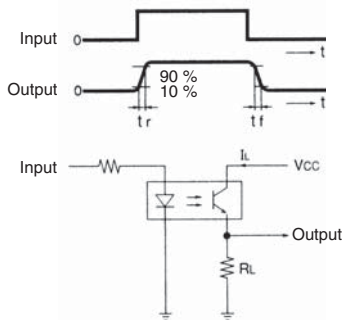
Relative Light Current vs. Card Moving Distance (1)



Relative Collector Current vs. Card Moving Distance (2)



Response Time Measurement Circuit



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