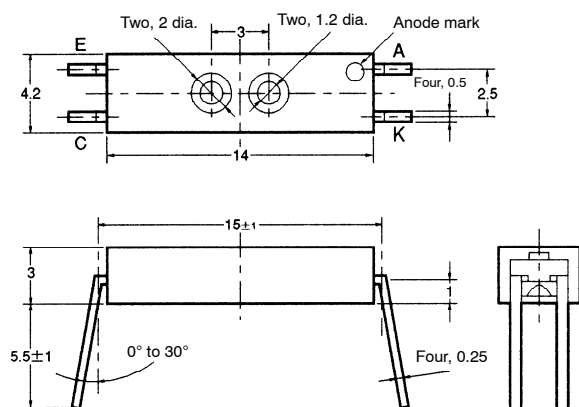
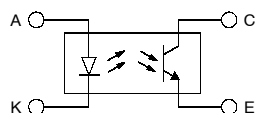


■ Dimensions

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.	±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
K	Cathode
C	Collector
E	Emitter

■ Features

- 3 mm tall, thin model with 3.5 mm sensing distance.

■ 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}	---
	Collector current	I _C	20 mA
	Collector dissipation	P _C	100 mW (see note 1)
Ambient temperature	Operating	T _{opr}	-40°C to 85°C
	Storage	T _{stg}	-40°C to 85°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 μs maximum with a frequency of 100 Hz.
 3. Complete soldering within 10 seconds.

■ Ordering Information

Description	Part number
Photomicrosensor (Reflective)	EE-SY171

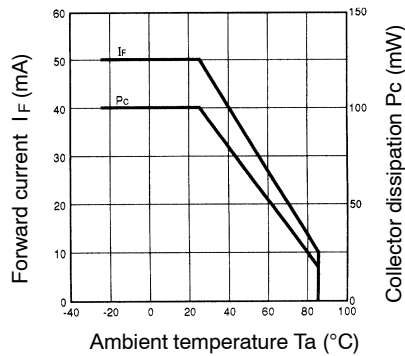
■ Electrical and Optical Characteristics (Ta = 25°C)

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 μA typ., 10 μA max.	V _R = 4 V
	Peak emission wavelength	λ _P	940 nm typ.	I _F = 20 mA
Detector	Light current	I _L	50 μA min., 500 μA max.	I _F = 20 mA, V _{CE} = 10 V White paper with a reflection ratio of 90%, d = 3.5 mm (see note)
	Dark current	I _D	2 nA typ., 200 nA max.	V _{CE} = 10 V, 0 lx
	Leakage current	I _{LEAK}	2 μA max.	I _F = 20 mA, V _{CE} = 10 V with no reflection
	Collector-Emitter saturated voltage	V _{CE} (sat)	---	---
	Peak spectral sensitivity wavelength	λ _P	850 nm typ.	V _{CE} = 10 V
Rising time		t _r	30 μs typ.	V _{CC} = 5 V, R _L = 1 kΩ, I _L = 1 mA
Falling time		t _f	30 μs typ.	V _{CC} = 5 V, R _L = 1 kΩ, I _L = 1 mA

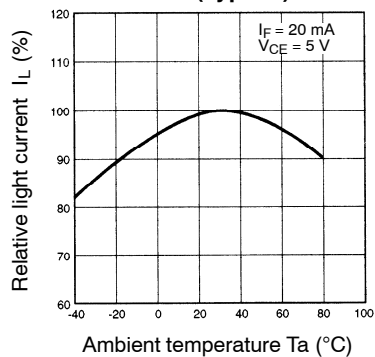
Note: The letter "d" indicates the distance between the top surface of the sensor and the sensing object.

Engineering Data

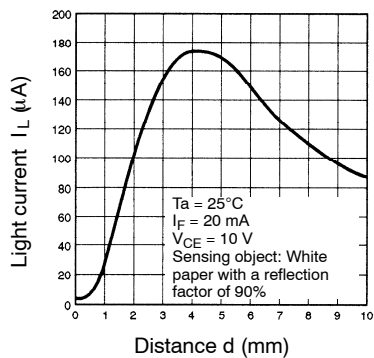
Forward Current vs. Collector Dissipation Temperature Rating



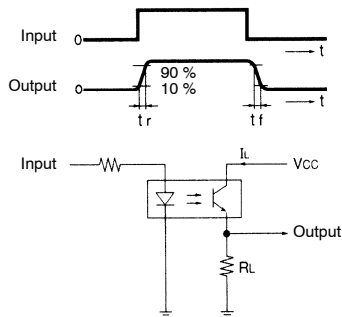
Relative Light Current vs. Ambient Temperature Characteristics (Typical)



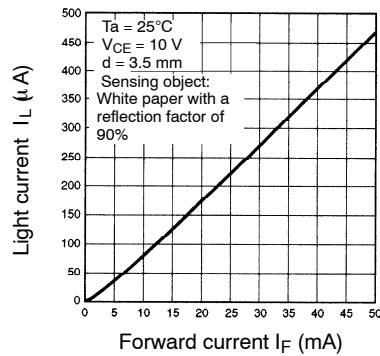
Sensing Distance Characteristics (Typical)



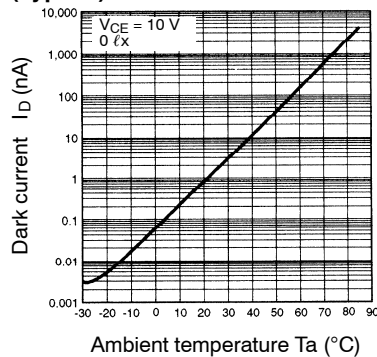
Response Time Measurement Circuit



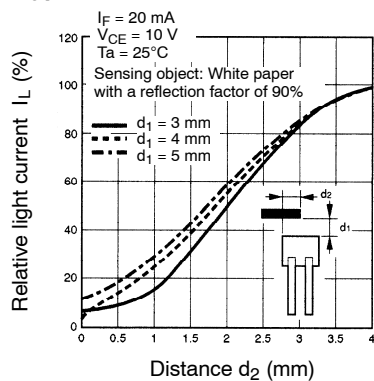
Light Current vs. Forward Current Characteristics (Typical)



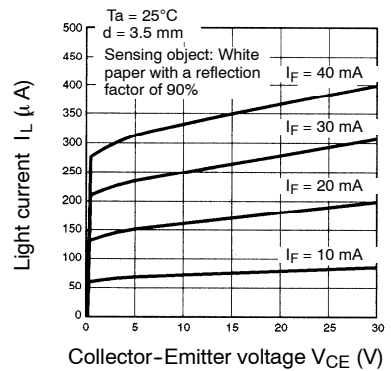
Dark Current vs. Ambient Temperature Characteristics (Typical)



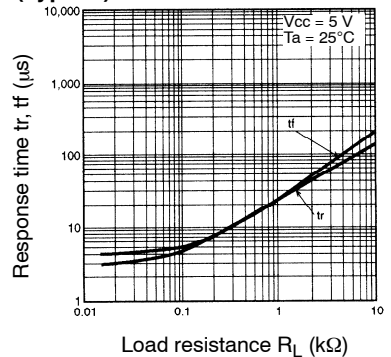
Sensing Position Characteristics (Typical)



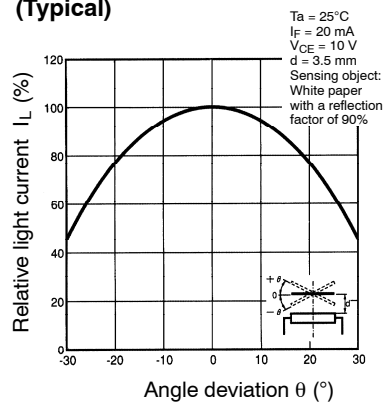
Light Current vs. Collector-Emitter Voltage Characteristics (Typical)



Response Time vs. Load Resistance Characteristics (Typical)



Sensing Angle Characteristics (Typical)



NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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