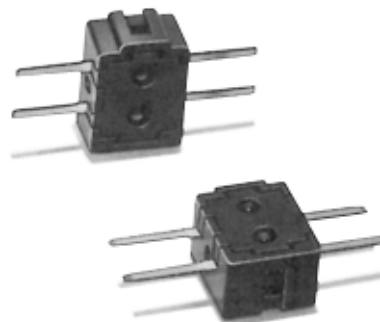


EE-SY201

Low-cost Reflective Photodarlington
Output Requires Low Driving Input

- Only 5-mA forward current required by the LED
- Best suited to drive CMOS IC
- Incorporates an LED emitter and a Photodarlington transistor receiver



Ordering Information

Appearance	Sensing method	Sensing distance	Sensing object	Output configuration	Weight	Part number
	Reflective	4 mm	White paper with reflection factor of 90%	Photodarlington transistor	Approx. 0.2 g	EE-SY201

Specifications

■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Item		Symbol	Rated value
Input	Forward current	I_F	15 mA*
	Reverse voltage	V_R	4 V
Output	Collector-emitter voltage	V_{CEO}	24 V
	Collector current	I_C	20 mA
	Collector dissipation	P_C	50 mW*
Ambient temperature	Operating	T_{opr}	-20°C to 60°C (-4°F to 140°F)
	Storage	T_{stg}	-20°C to 80°C (-4°F to 176°F)

*Refer to Engineering Data if the ambient temperature is not within the normal room temperature range.

CHARACTERISTICS (T_A = 25°C)

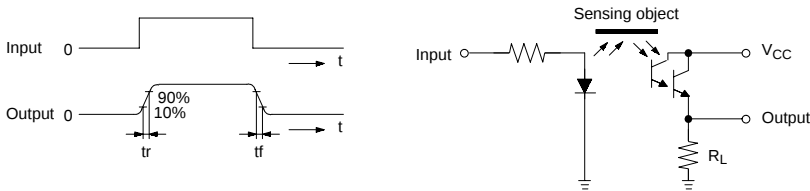
The following electrical characteristics are under the condition that the photomicrosensor is mounted on a standard flat board.

Item		Symbol	EE-SY201	
			Value	Condition
Input	Forward voltage	V _F	2 V typ., 2.6 V max.	I _F = 15 mA
	Reverse current	I _R	5 μA max.	V _R = 4 V
	Peak emission wavelength	λ _p (L)	700 nm typ.	I _F = 10 mA
Output	Dark current	I _D	2 nA typ.; 250 nA max.	V _{CE} = 10 V 0k
	Peak spectral sensitivity wavelength	λ _p (P)	725 nm typ.	V _{CE} = 10 V
Combination	Light current (collector current)	I _L	0.3 to 8 mA min.	I _F = 5 mA* V _{CE} = 10 V
	Rising time***	t _r	180 μs typ.	V _{CC} = 5 V** R _L = 0.1 kΩ
	Falling time***	t _f	60 μs typ.	I _L = 1 mA

*The sensing object is white paper with a reflection factor of 90% at a sensing distance of 4 mm.

**The sensing object reflects no light.

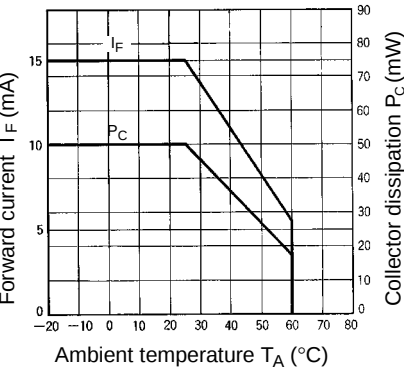
***The following illustrations show the rising time, t_r, and the falling time, t_f.



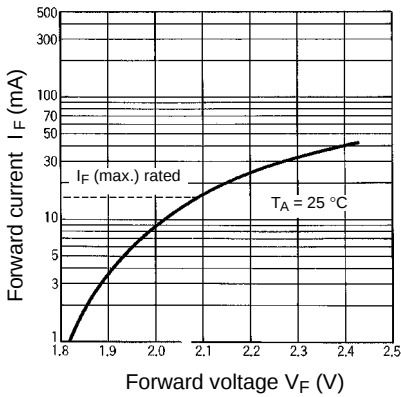
Engineering Data

Note: The operating conditions of the photomicrosensor must be within the absolute maximum rating ranges.

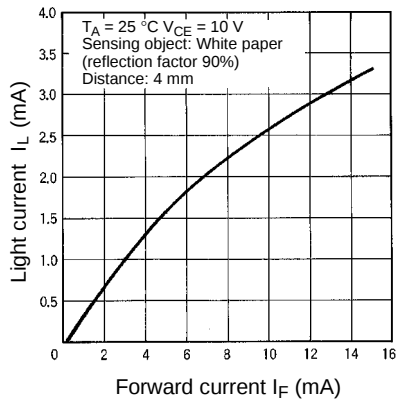
TEMPERATURE CHARACTERISTICS



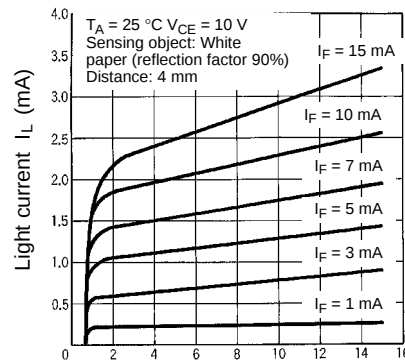
INPUT CHARACTERISTICS (TYPICAL)



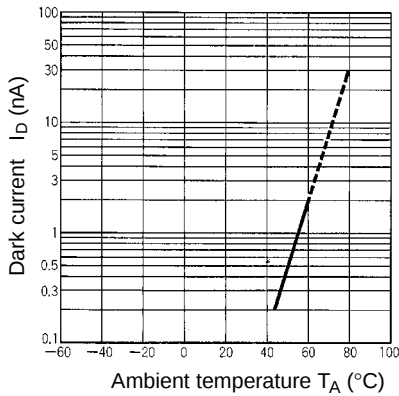
INPUT/OUTPUT CHARACTERISTICS (TYPICAL)



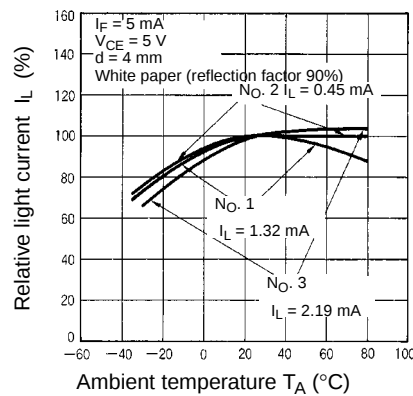
OUTPUT CHARACTERISTICS (TYPICAL)



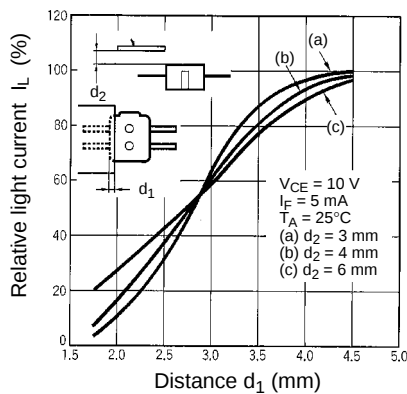
DARK CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



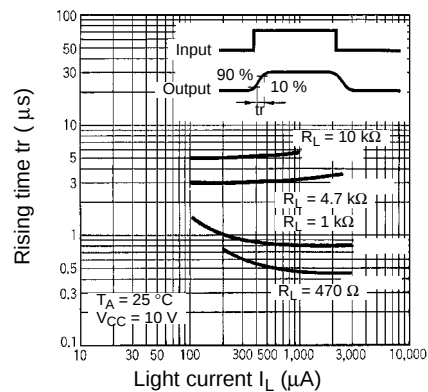
LIGHT CURRENT TEMPERATURE DEPENDENCY (TYPICAL)



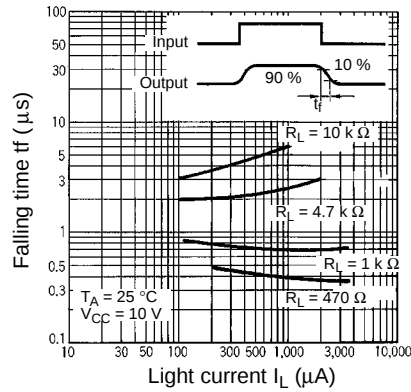
SENSING POSITION CHARACTERISTICS (TYPICAL)



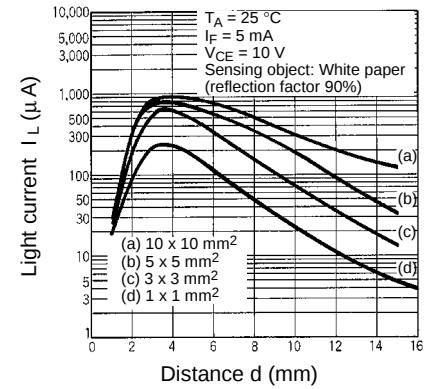
SWITCHING CHARACTERISTICS (TYPICAL)



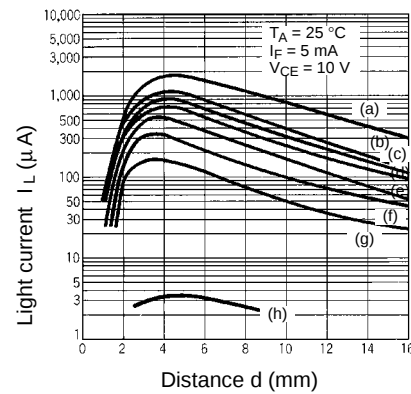
SWITCHING CHARACTERISTICS (TYPICAL)



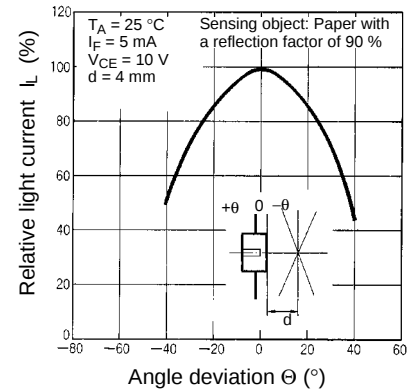
SENSING DISTANCE CHARACTERISTICS TYPE 1 (TYPICAL)



SENSING DISTANCE CHARACTERISTICS TYPE 2 (TYPICAL)



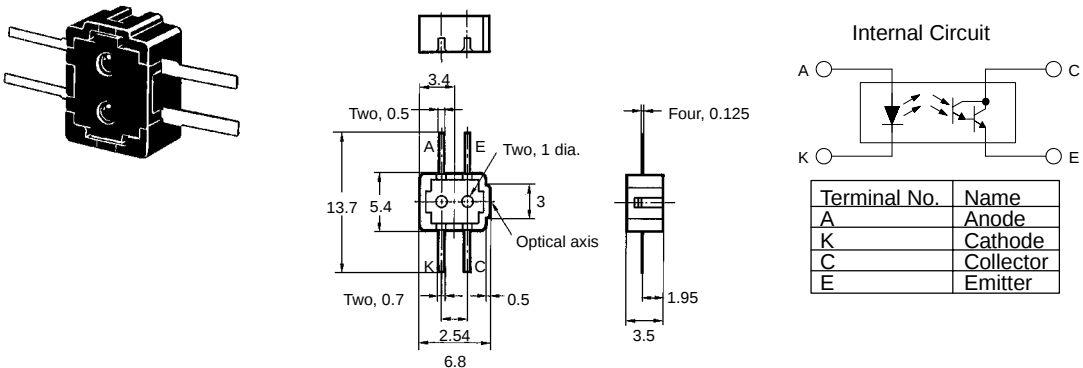
SENSING ANGLE CHARACTERISTICS (TYPICAL)



- a: Aluminum
- b: White paper with a reflection factor of 90%
- c: Pink paper, yellow paper, red paper
- d: Green paper
- e: Blue paper
- f: OHP sheet
- g: Tracing paper
- h: Black sponge

Dimensions

Unit: mm (inch)



Precautions

Refer to the Technical Information Section for general precautions.

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

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