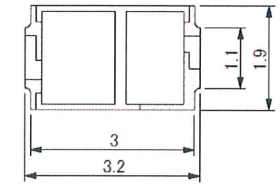
OMRON

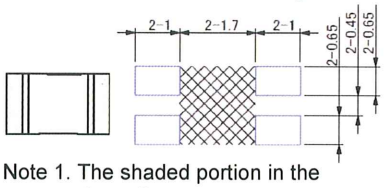
EE-SY1200

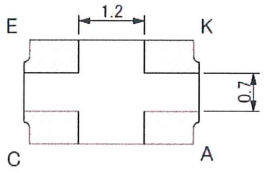
Photomicrosensor(Reflective)

■ Dimensions



Recommended Soldering Pattern

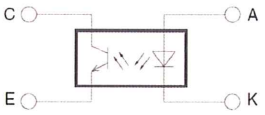




Note 1. The shaded portion in the above figure may cause shorting. Do not wire in this portion.
2. The dimensional tolerance for the recommended soldering pattern is ±0.1 mm.

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

Internal Circuit



Unless otherwise specified, the dimensional tolerance is ±0.15 mm.

■ Features

- Ultra-compact model.
- PCB surface mounting type.
- High S/N ratio
  (High light current / Low leakage current)

■ Absolute Maximum Ratings (Ta=25°C)

Item		Symbol	Rated value	Unit
Emitter	Forward current	IF	50 *1	mA
	Pulse forward current	IFP	500 *2	mA
	Reverse Voltage	VR	4	V
Detector	Collector-Emitter Voltage	VCEO	30	V
	Emitter-Collector Voltage	VECO	5	V
	Collector current	IC	20	mA
	Collector dissipation	PC	50 *1	mW
Operating temperature		Topr	-25～+85	°C
Storage temperature		Tstg	-40～+100	°C
Reflow soldering temperature		Tsol	240 *3	°C

*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 for reflow soldering.

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

Item		Symbol	Value			Unit	Condition
			MIN.	TYP.	MAX.		
Emitter	Forward current	VF	–	1.2	1.4	V	IF=20mA
	Reverse voltage	IR	–	–	10	μA	VR=4V
	Peak emission wave length	λP	–	940	–	nm	—
Detector	Light current1	IL1	200	–	1000	μA	IF=10mA,VCE=2V, Aluminum-deposited surface, d=4mm*
	Light current2	IL2	150	–	–	μA	IF=4mA,VCE=2V, Aluminum-deposited surface, d=1mm*
	Dark current	ID	–	2	200	nA	VCE = 10V, 0lx
	Leakage current 1	ILEAK 1	–	–	500	nA	IF=10mA,VCE=2V, with no reflection
	Leakage current 2	ILEAK 2	–	–	200	nA	IF=4mA,VCE=2V, with no reflection
	Collector-Emitter saturated voltage	VCE(sat)	–	–	–	V	—
	Peak spectral sensitivity wavelength	λP	–	850	–	nm	—
Rising time		tr	–	30	–	μs	VCE = 2 V, RL = 1 kΩ, IL = 100 μA, d = 1 mm*
Falling time		tf	–	30	–	μs	VCE = 2 V, RL = 1 kΩ, IL = 100 μA, d = 1 mm*

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

■Engineering Data

Fig.1 Forward Current vs. Collector Dissipation Temperature Rating

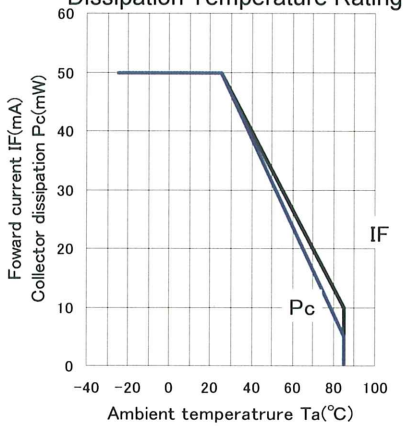


Fig.2 Forward Current vs. Forward Voltage Characteristics (Typical)

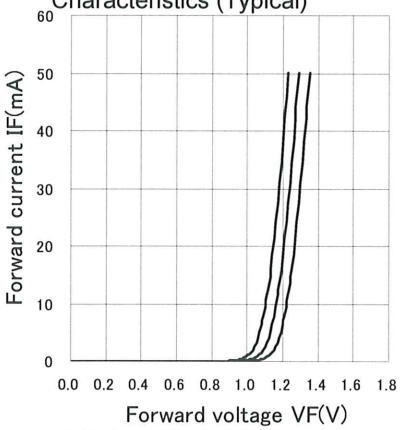


Fig.3 Light Current vs. Forward Current Characteristics (Typical)

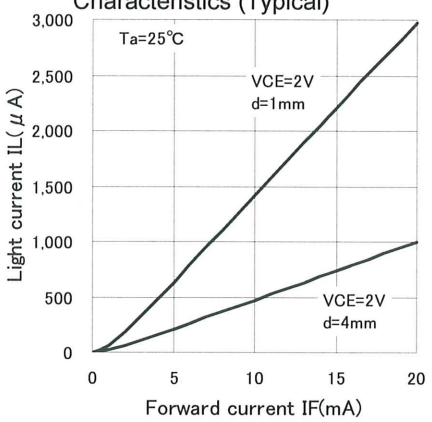


Fig.4 Light Current vs. Collector-Emitter Voltage Characteristics (Typical)

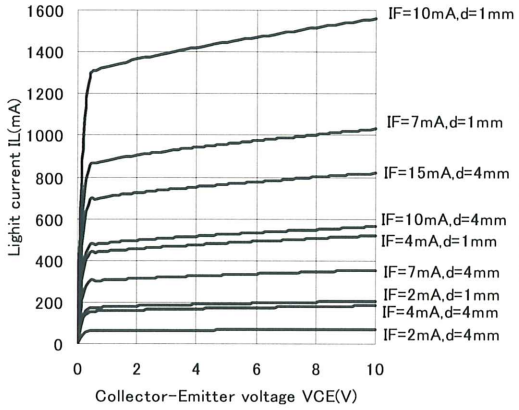


Fig.5 Relative Light Current vs. Ambient Temperature Characteristics (Typical)

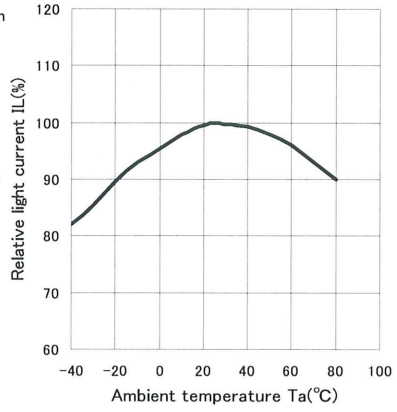


Fig.6 Dark Current vs. Ambient Temperature Characteristics (Typical)

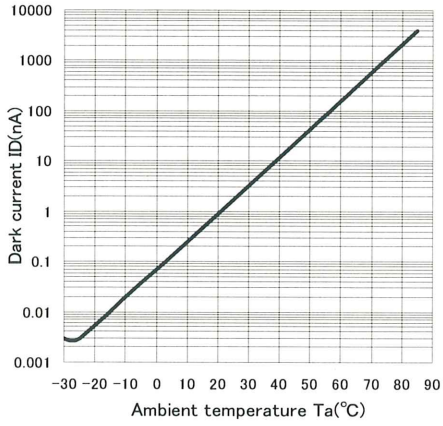


Fig.7 Response Time vs. Load Resistance Characteristics (Typical)

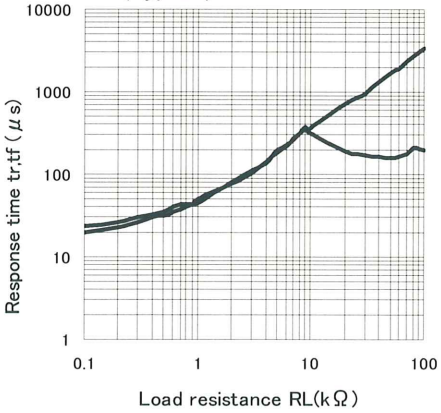


Fig.8 Sensing Distance Characteristics (Typical)

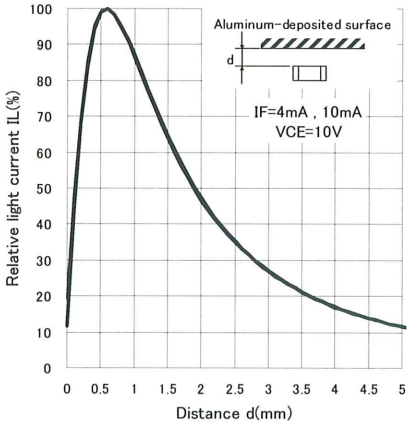


Fig.9 Sensing Position Characteristics (Typical)

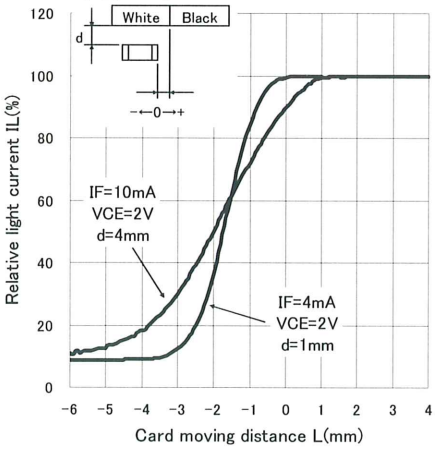


Fig.10 Sensing Position Characteristics (Typical)

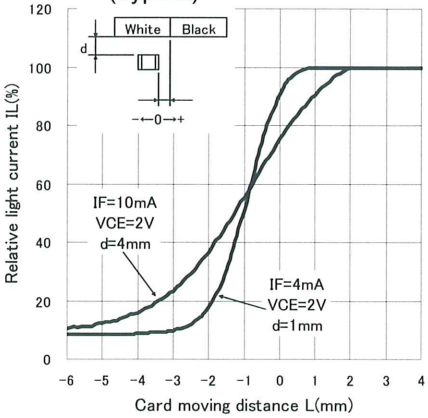


Fig.11 Response Time Measurement Circuit

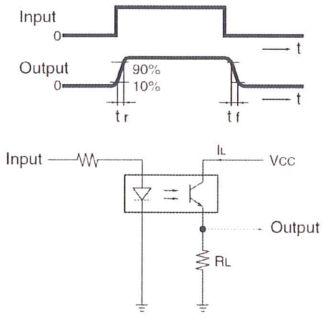


Fig.12 Light Current Measurement Setup Diagram