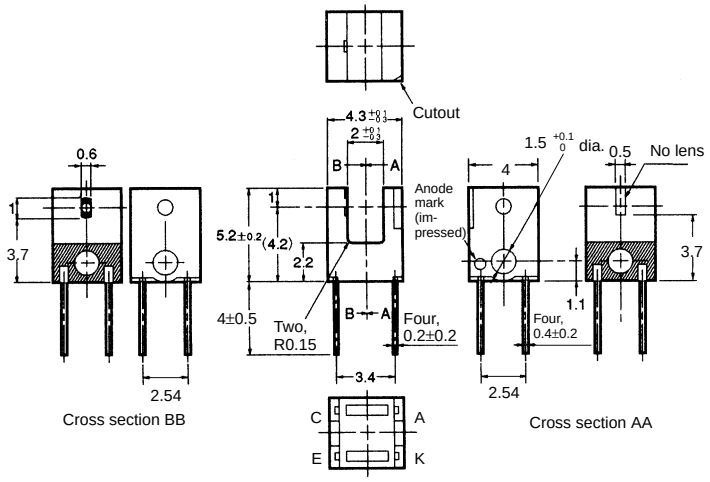
OMRON

EE-SX1139

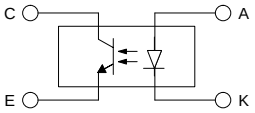
Photomicrosensor (Transmissive)

■ Dimensions

Note: All units are in millimeters unless otherwise indicated.



Internal Circuit



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

Unless otherwise specified, the tolerances are ±0.1 mm.

■ Features

- Ultra-compact with a 4.3-mm-wide sensor and a 2-mm-wide slot.
- PCB surface mounting type.
- High resolution with a 0.5-mm-wide aperture.
- A light current (I_L) of 0.4 mA minimum with a forward current (I_F) of 10 mA.

■ 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	75 mW (see note 1)
Ambient temperature	**Operating**	Topr	–40°C to 85°C
	Storage	Tstg	–40°C to 100°C
	Soldering	Tsol	260°C (see note 3)

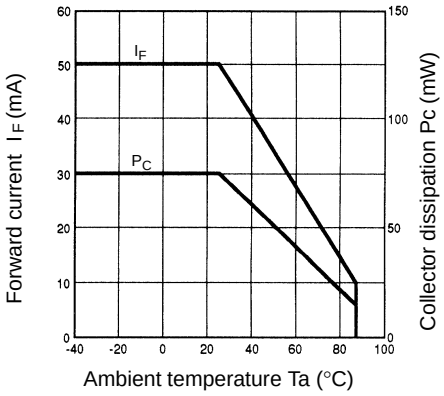
Note: 1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.
2. The pulse width is 10 μs maximum with a frequency of 100 Hz.
3. Complete soldering within 3 seconds.

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

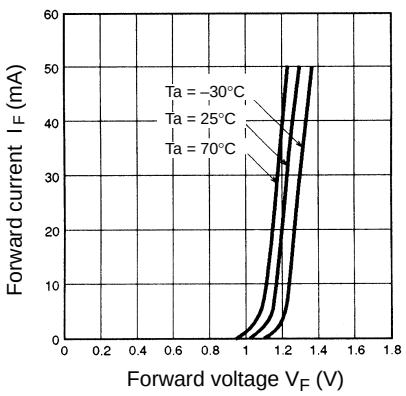
Item		Symbol	Value	Condition
Emitter	**Forward voltage**	V_F	1.2 V typ., 1.4 V max.	I_F = 20 mA
	Reverse current	I_R	0.01 μA typ., 10 μA max.	V_R = 4 V
	Peak emission wavelength	λ_P	940 nm typ.	I_F = 20 mA
Detector	**Light current**	I_L	0.4 mA min.	I_F = 10 mA, V_{CE} = 5 V
	Dark current	I_D	2 nA typ., 100 nA max.	V_{CE} = 20 V, 0 ℓx
	Leakage current	I_{LEAK}	---	---
	Collector–Emitter saturated voltage	V_{CE} (sat)	0.4 V max.	I_F = 20 mA, I_L = 0.1 mA
	Peak spectral sensitivity wavelength	λ_P	850 nm typ.	V_{CE} = 5 V
Rising time		tr	30 μs typ., 150 μs max.	V_{CC} = 5 V, R_L = 1 kΩ, I_L = 100 μA
Falling time		tf	30 μs typ., 150 μs max.	V_{CC} = 5 V, R_L = 1 kΩ, I_L = 100 μA

■ Engineering Data

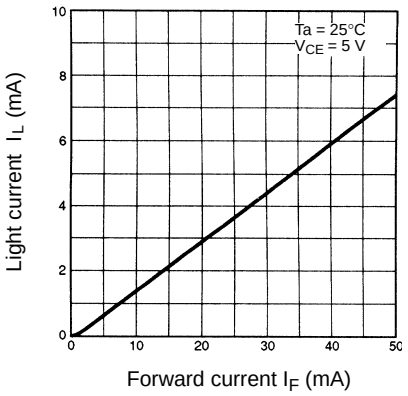
Forward Current vs. Collector Dissipation Temperature Rating



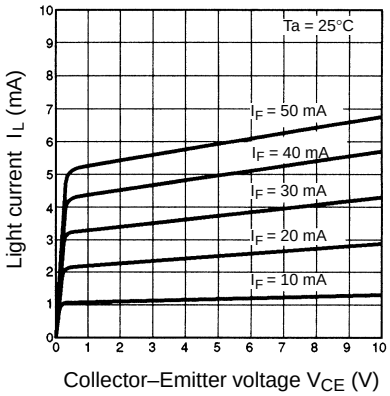
Forward Current vs. Forward Voltage Characteristics (Typical)



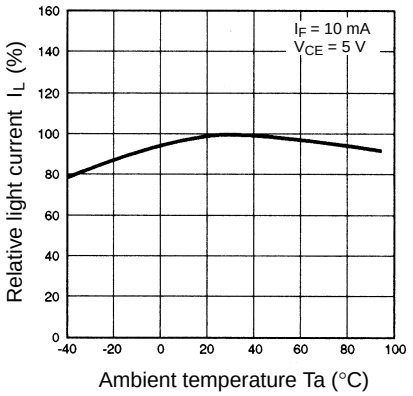
Light Current vs. Forward Current Characteristics (Typical)



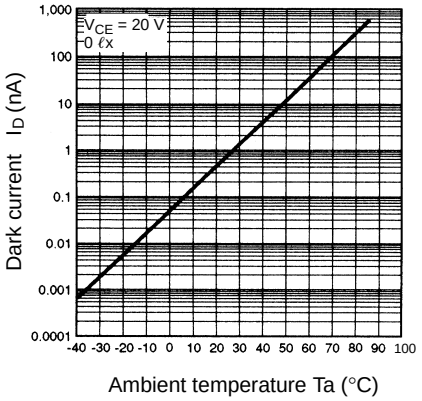
Light Current vs. Collector–Emitter Voltage Characteristics (Typical)



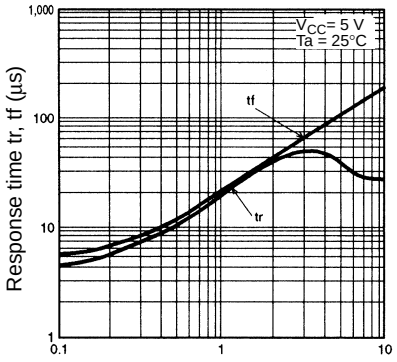
Relative Light Current vs. Ambient Temperature Characteristics (Typical)



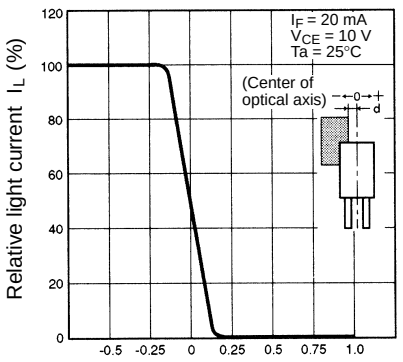
Dark Current vs. Ambient Temperature Characteristics (Typical)



Response Time vs. Load Resistance Characteristics (Typical)



Sensing Position Characteristics (Typical)



Response Time Measurement Circuit