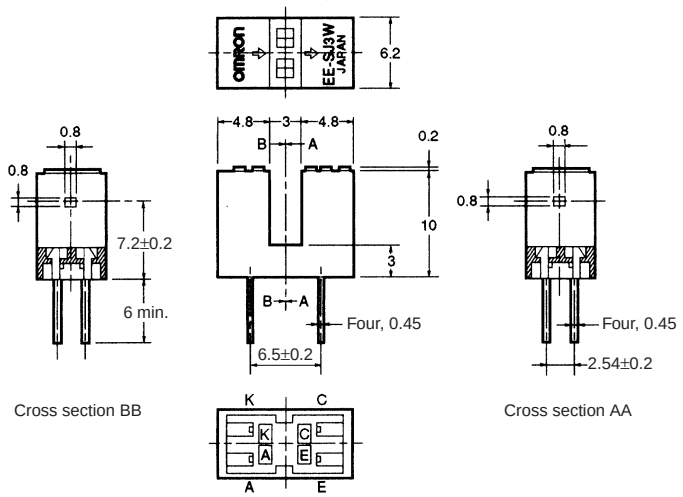
Photomicrosensor (Transmissive)
EE-SJ3W-B

■ Dimensions

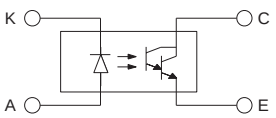
Note: All units are in millimeters unless otherwise indicated.



Cross section BB

Cross section AA

Internal Circuit



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

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

■ Features

- General-purpose model with a 3-mm-wide slot.
- PCB mounting type.
- With a red LED as an emitter element and a Photo-Darlington transistor as a detector element.

■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rated value
Emitter	**Forward current**	I_F	15 mA (see note 1)
	Pulse forward current	I_{FP}	---
	Reverse voltage	V_R	4 V
Detector	**Collector–Emitter voltage**	V_{CEO}	24 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	–20°C to 60°C
	Storage	Tstg	–20°C to 80°C
Soldering temperature		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.

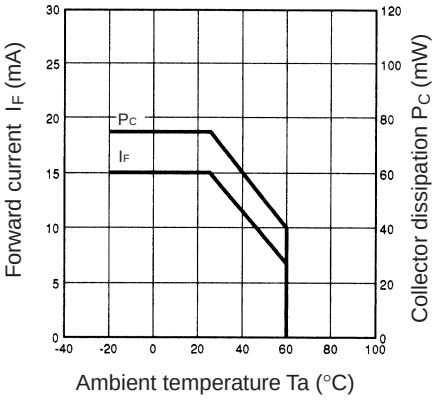
3. Complete soldering within 10 seconds.

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

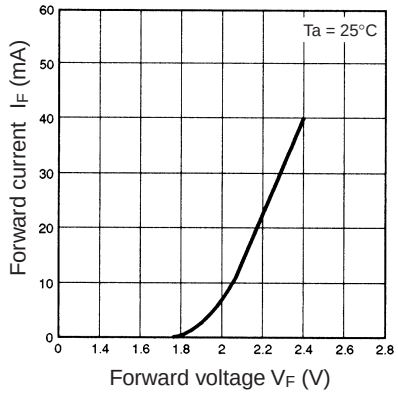
Item		Symbol	Value	Condition
Emitter	**Forward voltage**	V_F	2.0 V typ., 2.6 V max.	I_F = 15 mA
	Reverse current	I_R	0.01 μA typ., 5 μA max.	V_R = 4 V
	Peak emission wavelength	λ_P	700 nm typ.	I_F = 3 mA
Detector	**Light current**	I_L	1.5 mA min., 120 mA max.	I_F = 3 mA, V_{CE} = 10 V
	Dark current	I_D	20 nA typ., 250 nA max.	V_{CE} = 10 V, 0 ℓx
	Leakage current	I_{LEAK}	---	---
	Collector–Emitter saturated voltage	V_{CE} (sat)	0.9 V typ.	I_F = 3 mA, I_L = 0.5 mA
	Peak spectral sensitivity wavelength	λ_P	800 nm typ.	V_{CE} = 10 V
Rising time		tr	180 μs typ.	V_{CC} = 5 V, R_L = 100 Ω, I_L = 10 mA
Falling time		tf	60 μs typ.	V_{CC} = 5 V, R_L = 100 Ω, I_L = 10 mA

■ Engineering Data

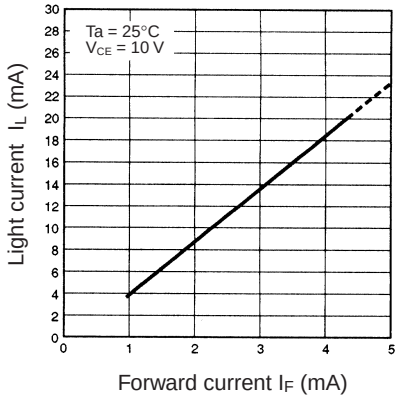
Forward Current vs. Collector Dissipation Temperature Rating



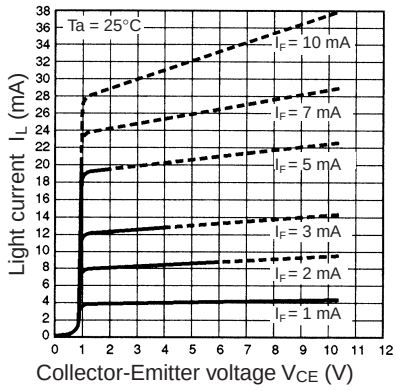
Forward Current vs. Forward Voltage Characteristics (Typical)



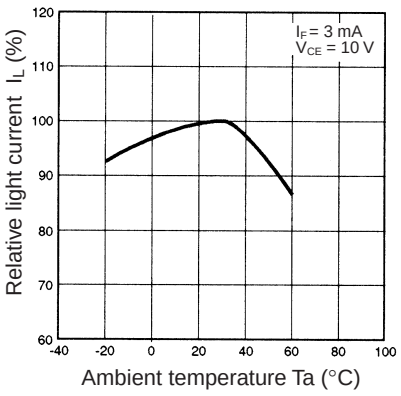
Light Current vs. Forward Current Characteristics (Typical)



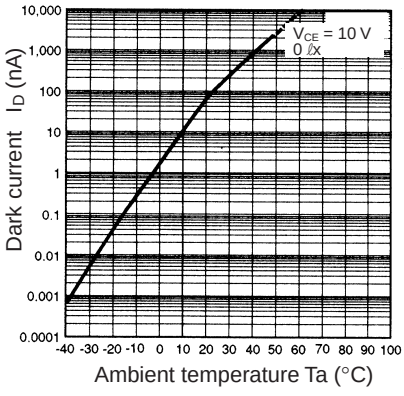
Light Current vs. Collector-Emitter Voltage Characteristics (Typical)



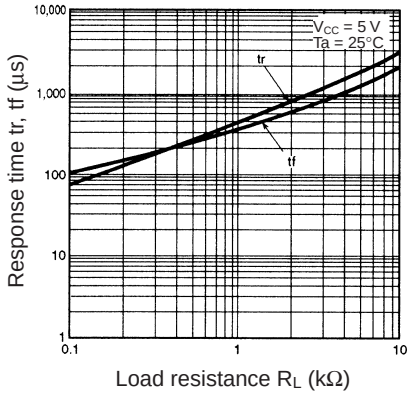
Relative Light Current vs. Ambient Temperature Characteristics (Typical)



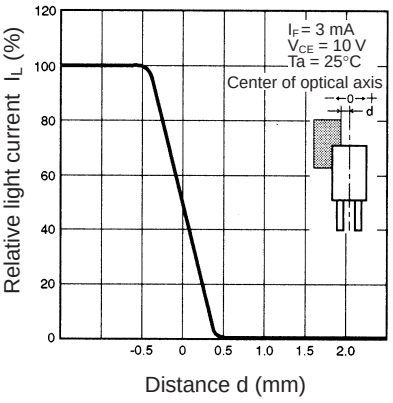
Dark Current vs. Ambient Temperature Characteristics (Typical)



Response Time vs. Load Resistance Characteristics (Typical)



Sensing Position Characteristics (Typical)



Response Time Measurement Circuit