

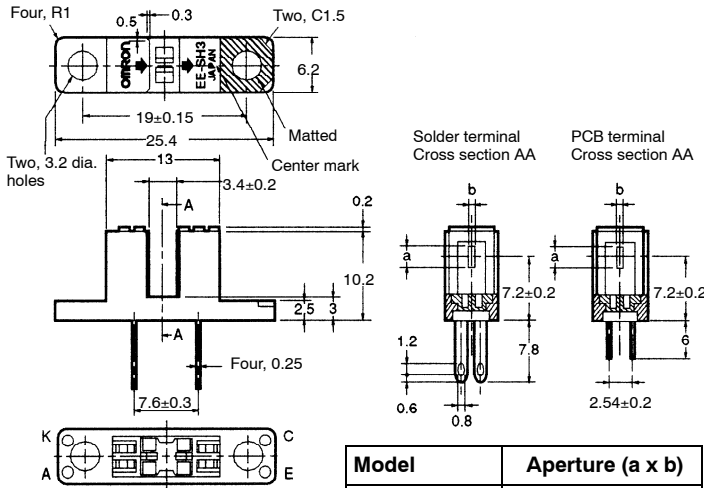
OMRON

EE-SH3 Series

Photomicrosensor (Transmissive)

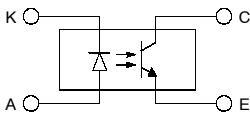
■ Dimensions

Note: All units are in millimeters unless otherwise indicated.



Model	Aperture (a x b)
EE-SH3(-B)	2.1 x 0.5
EE-SH3-C(S)	2.1 x 1.0
EE-SH3-D(S)	2.1 x 0.2
EE-SH3-G(S)	0.5 x 2.1

Internal Circuit



Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	±0.2
3 < mm ≤ 6	±0.24
6 < mm ≤ 10	±0.29
10 < mm ≤ 18	±0.35
18 < mm ≤ 30	±0.42

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

■ Features

- All models have 3.4 mm wide slot.
- Solder terminal models:
EE-SH3/-SH3-CS/-SH3-DS/-SH3-GS
- PCB terminal models:
EE-SH3-B/-SH3-C/-SH3-D/-SH3-G

■ 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} -25°C to 85°C
	Storage	T_{stg} -30°C to 100°C
Soldering temperature	T_{sol}	260°C (see note 3)

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

■ Ordering Information

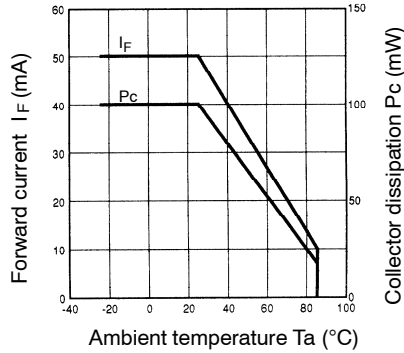
Description	Part number
Photomicrosensor (Transmissive)	EE-SH3(-B)
	EE-SH3-C(S)
	EE-SH3-D(S)
	EE-SH3-G(S)

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

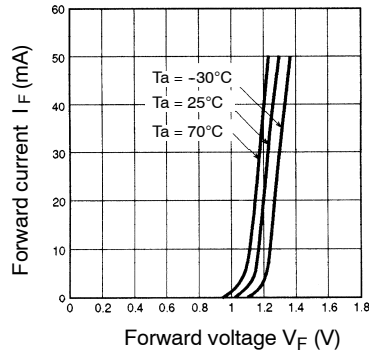
Item	Symbol	Value				Condition	
		EE-SH3(-B)	EE-SH3-C(S)	EE-SH3-D(S)	EE-SH3-G(S)		
Emitter	Forward voltage	V_F	1.2 V typ., 1.5 V max.			$I_F = 30$ mA	
	Reverse current	I_R	0.01 μ A typ., 10 μ A max.			$V_R = 4$ V	
	Peak emission wavelength	λ_p	940 nm typ.			$I_F = 20$ mA	
Detector	Light current	I_L	0.5 to 14 mA typ.	1 to 28 mA typ.	0.1 mA min.	0.5 to 14 mA	$I_F = 20$ mA, $V_{CE} = 10$ V
	Dark current	I_D	2 nA typ., 200 nA max.			$V_{CE} = 10$ V, 0 lx	
	Leakage current	I_{LEAK}	---			---	
	Collector-Emitter saturated voltage	$V_{CE(sat)}$	0.1 V typ., 0.4 V max.		---	0.1 V typ., 0.4 V max.	$I_F = 20$ mA, $I_L = 0.1$ mA
	Peak spectral sensitivity wavelength	λ_p	850 nm typ.			$V_{CE} = 10$ V	
Rising time	t_r	4 μ s typ.				$V_{CC} = 5$ V, $R_L = 100$ Ω , $I_L = 5$ mA	
Falling time	t_f	4 μ s typ.					

■ Engineering Data

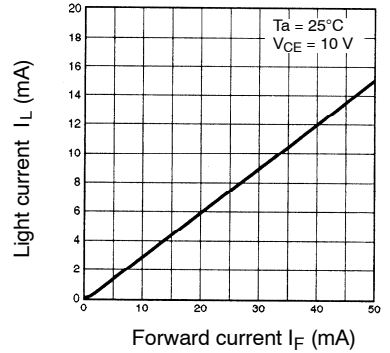
Forward Current vs. Collector Dissipation Temperature Rating



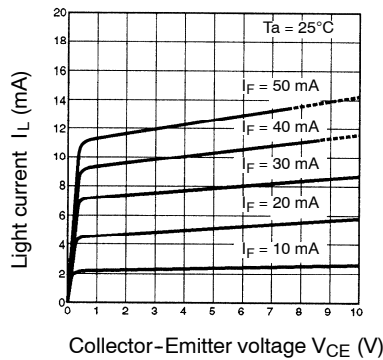
Forward Current vs. Forward Voltage Characteristics (Typical)



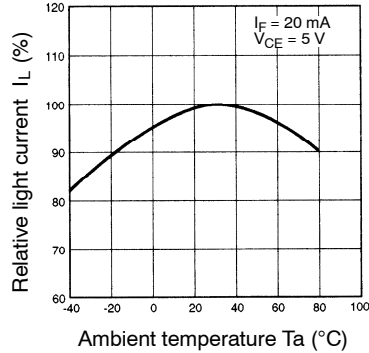
Light Current vs. Forward Current Characteristics (Typical)



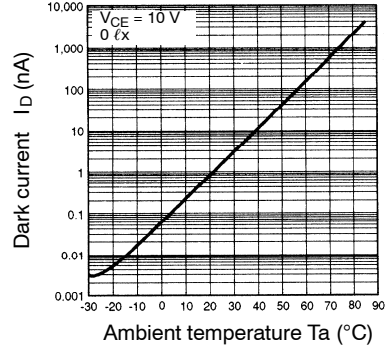
Light Current vs. Collector-Emitter Voltage Characteristics (EE-SH3(-B))



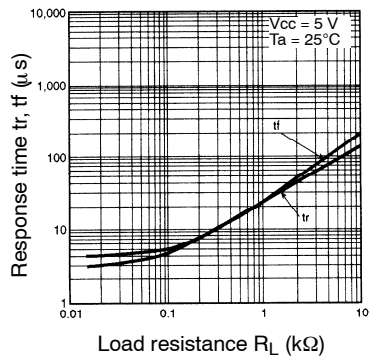
Relative Light Current vs. Ambient Temperature Characteristics (Typical)



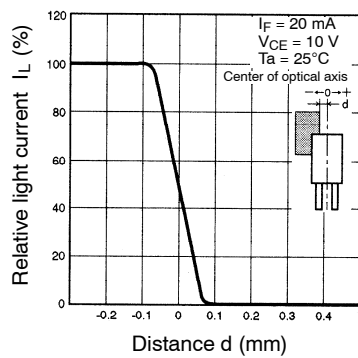
Dark Current vs. Ambient Temperature Characteristics (Typical)



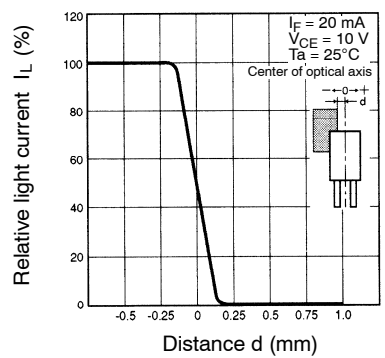
Response Time vs. Load Resistance Characteristics (Typical)



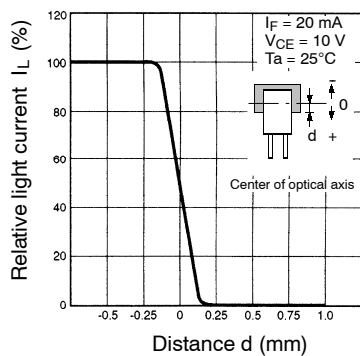
Sensing Position Characteristics (EE-SH3-D(S))



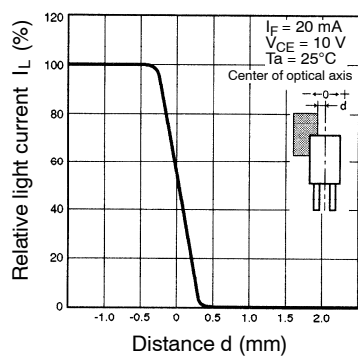
Sensing Position Characteristics (EE-SH3(-B))



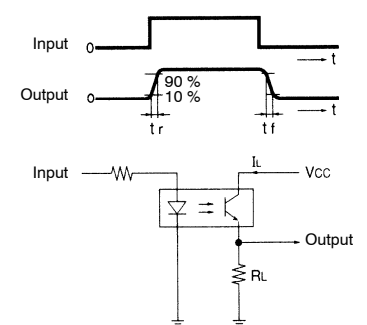
Sensing Position Characteristics (EE-SH3-G(S))



Sensing Position Characteristics (EE-SH3-C(S))



Response Time Measurement Circuit



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

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