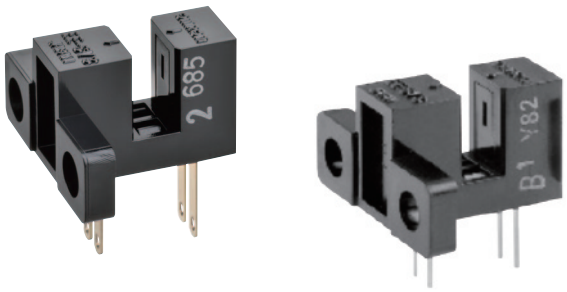
Photomicrosensor (Transmissive)
EE-SV3 Series

Slot/Terminal Type with Screw Mounted Tab (Slot Width: 3.4 mm)

- Four aperture types
- Two types of terminals (terminal for cord soldering, terminal for PCB mounting)

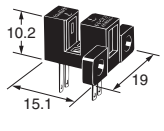
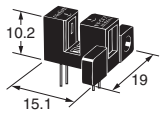


⚠ **Be sure to read *Safety Precautions* on Page 3.**

RoHS Compliant

Ordering Information

Photomicrosensor

Appearance	Sensing method	Connecting method	Sensing distance	Aperture size (H × W) (mm) (Both emitting side and detecting side)	Output type	Model	Minimum packing unit (Unit: pcs)
	Transmissive (slot type)	Terminal for cord soldering	3.4 mm (Slot width)	2.1 × 0.5	Phototransistor	**EE-SV3**	1
				2.1 × 1		**EE-SV3-CS**	
				2.1 × 0.2		**EE-SV3-DS**	
				0.5 × 2.1		**EE-SV3-GS**	
		Terminal for PCB mounting		2.1 × 0.5		**EE-SV3-B**	
				2.1 × 1		**EE-SV3-C**	
				2.1 × 0.2		**EE-SV3-D**	
				0.5 × 2.1		**EE-SV3-G**	

Note: Order in multiples of minimum packing unit.

Ratings, Characteristics and Exterior Specifications

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rated value	Unit
Emitter				
	Forward current	I_F	50*1	mA
	Pulse forward current	I_{FP}	1*2	A
	Reverse voltage	V_R	4	V
Detector				
	Collector-Emitter voltage	V_{CEO}	30	V
	Emitter-Collector voltage	V_{ECO}	—	V
	Collector current	I_C	20	mA
	Collector dissipation	P_C	100*1	mW
Operating temperature		T_{opr}	-25 to 85	°C
Storage temperature		T_{stg}	-30 to 100	°C
Soldering temperature		T_{sol}	260*3	°C

*1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.
*2. Pulse width ≤ 10 μs, Repeated 100 Hz
*3. Complete soldering within 10 seconds.

Exterior Specifications

Connecting method	Model	Weight (g)	Material	
			Case	Bottom plate
Terminal for cord soldering	**EE-SV3**	1	Polycarbonate	Polycarbonate
	EE-SV3-CS			
	EE-SV3-DS			
	EE-SV3-GS			
Terminal for PCB mounting	**EE-SV3-B**			
	EE-SV3-C			
	EE-SV3-D			
	EE-SV3-G			

Electrical and Optical Characteristics (Ta = 25°C)

Item		Symbol	Value				Unit	Condition
			EE-SV3 EE-SV3-B	EE-SV3-C EE-SV3-CS	EE-SV3-D EE-SV3-DS	EE-SV3-G EE-SV3-GS		
Emitter								
	Forward voltage	V_F	1.2 (TYP.) 1.5 (MAX.)				V	I_F = 30 mA
	Reverse current	I_R	0.01 (TYP.) 10 (MAX.)				μA	V_R = 4 V
	Peak emission wavelength	λ_P	940 (TYP.)				nm	I_F = 20 mA
Detector								
	Light current	I_L	0.5 to 14	1 to 28	0.1 (MIN.)	0.5 to 14	mA	I_F = 20 mA, V_{CE} = 10 V
	Dark current	I_D	2 (TYP.) 200 (MAX.)				nA	V_{CE} = 10 V, 0 lx
	Leakage current	I_{LEAK}	—				μA	—
	Collector-Emitter saturated voltage	V_{CE} (sat)	0.1 (TYP.) 0.4 (MAX.)		—	0.1 (TYP.) 0.4 (MAX.)	V	I_F = 20 mA, I_L = 0.1 mA
	Peak spectral sensitivity wavelength	λ_P	850 (TYP.)				nm	V_{CE} = 10 V
Rising time		tr	4 (TYP.)				μs	V_{CC} = 5 V, R_L = 100 Ω I_L = 5 mA
Falling time		tf	4 (TYP.)				μs	

Engineering Data (Reference Value)

Fig 1. Forward Current vs. Collector Dissipation Temperature Rating

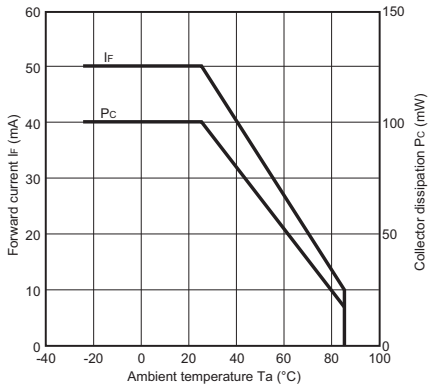


Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)

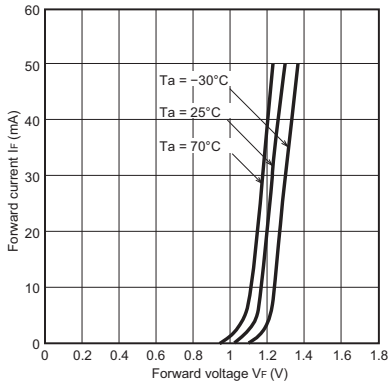


Fig 3. Light Current vs. Forward Current Characteristics (Typical) EE-SV3(-B)

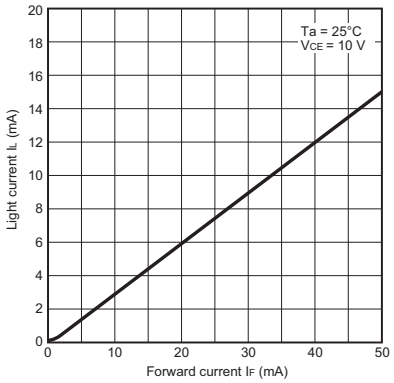


Fig 4. Light Current vs. Collector-Emitter Voltage Characteristics (Typical) EE-SV3(-B)

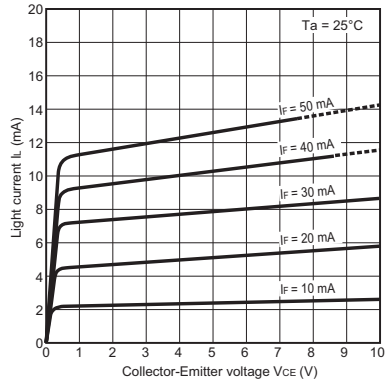


Fig 5. Relative Light Current vs. Ambient Temperature Characteristics (Typical)

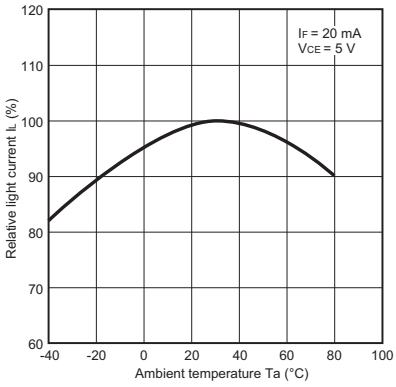


Fig 6. Dark Current vs. Ambient Temperature Characteristics (Typical)

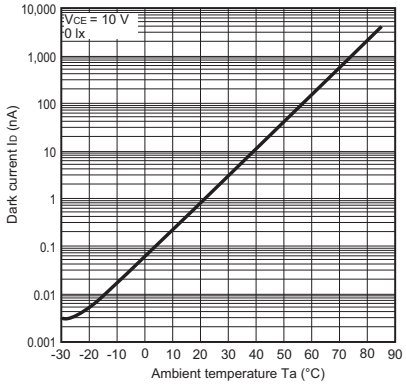


Fig 7. Response Time vs. Load Resistance Characteristics (Typical)

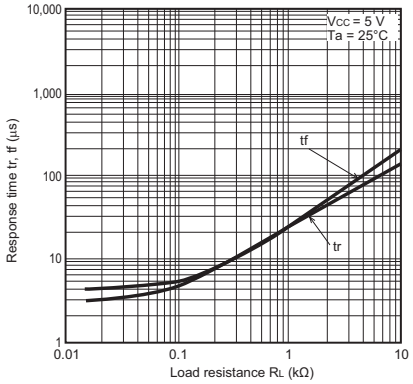


Fig 8. Sensing Position Characteristics (Typical) EE-SV3-D(S)

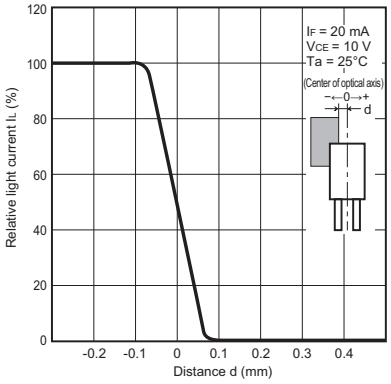


Fig 9. Sensing Position Characteristics (Typical) EE-SV3(-B)

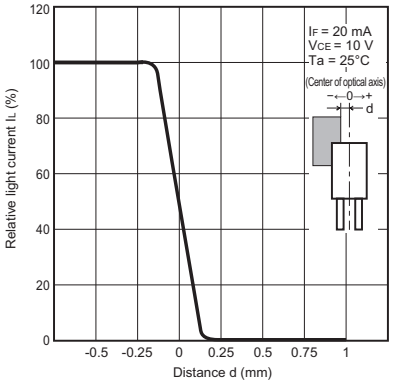


Fig 10. Sensing Position Characteristics (Typical) EE-SV3-G(S)

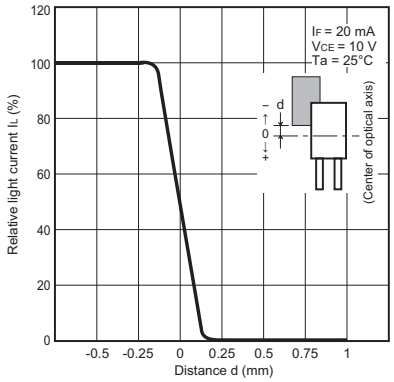


Fig 11. Sensing Position Characteristics (Typical) EE-SV3-C(S)

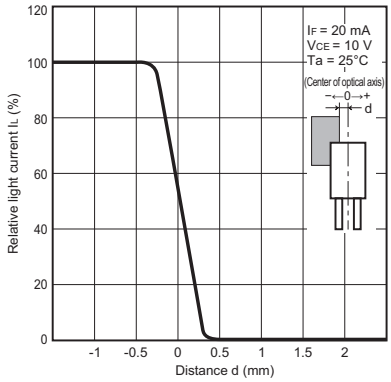
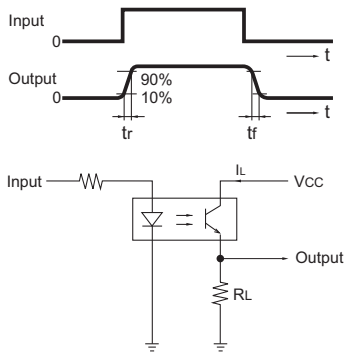


Fig 12. Response Time Measurement Circuit



Safety Precautions

To ensure safe operation, be sure to read and follow the Instruction Manual provided with the Sensor.

⚠ CAUTION

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.

Precautions for Correct Use

Do not use the product in atmospheres or environments that exceed product ratings.

Precautions for Safe Use

Do not use the product with a voltage or current that exceeds the rated range.

Applying a voltage or current that is higher than the rated range may result in explosion or fire.

Do not miswire such as the polarity of the power supply voltage.

Otherwise the product may be damaged or it may burn.

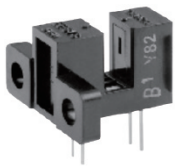
This product does not resist water. Do not use the product in places where water or oil may be sprayed onto the product.

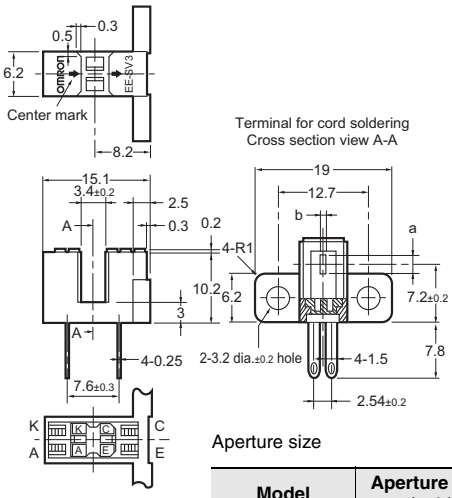
Dimensions and Internal Circuit

(Unit: mm)

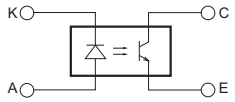
Photomicrosensor

EE-SV3 Series





Internal circuit



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

Aperture size

Model	Aperture hole (a×b)
EE-SV3	2.1 × 0.5
EE-SV3-CS	2.1 × 1
EE-SV3-DS	2.1 × 0.2
EE-SV3-GS	0.5 × 2.1

Aperture size

Model	Aperture hole (a×b)
EE-SV3-B	2.1 × 0.5
EE-SV3-C	2.1 × 1
EE-SV3-D	2.1 × 0.2
EE-SV3-G	0.5 × 2.1

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

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