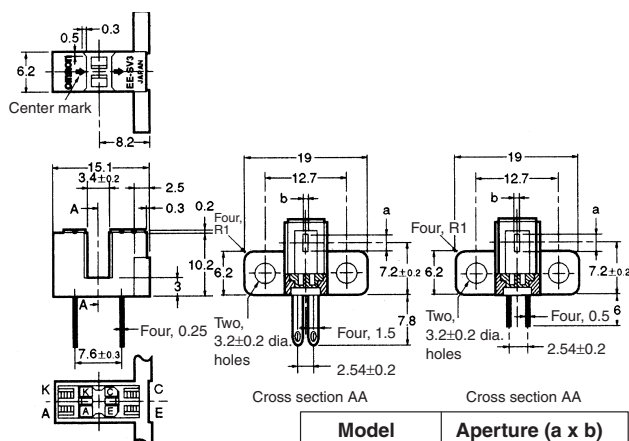


Photomicrosensor (Transmissive) EE-SV3 Series

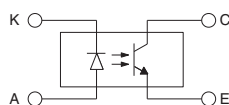
■ Dimensions

Note: All units are in millimeters unless otherwise indicated.



| Model | Aperture (a x b) |
|-------------|------------------|
| EE-SV3(-B) | 2.1 x 0.5 |
| EE-SV3-C(S) | 2.1 x 1.0 |
| EE-SV3-D(S) | 2.1 x 0.2 |
| EE-SV3-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

- High-resolution model with a 0.2-mm-wide or 0.5-mm-wide sensing aperture, high-sensitivity model with a 1-mm-wide sensing aperture, and model with a horizontal sensing aperture are available.
- Solder terminal models EE-SV3/-SV3-CS/-SV3-DS/-SV3-GS
- PCB terminal models EE-SV3-B/-SV3-C/-SV3-D/-SV3-G
- RoHS Compliant.

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

■ Ordering Information

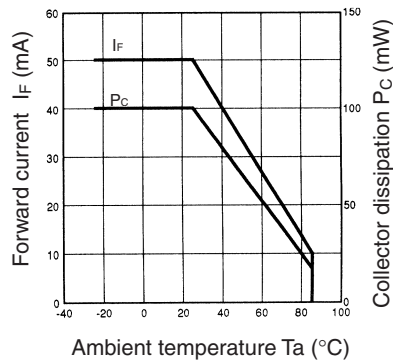
| Description | Aperture (a x b) | Model |
|---------------------------------|------------------|-------------|
| Photomicrosensor (transmissive) | 2.1 x 0.5 | EE-SV3(-B) |
| | 2.1 x 1.0 | EE-SV3-C(S) |
| | 2.1 x 0.2 | EE-SV3-D(S) |
| | 0.5 x 2.1 | EE-SV3-G(S) |

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

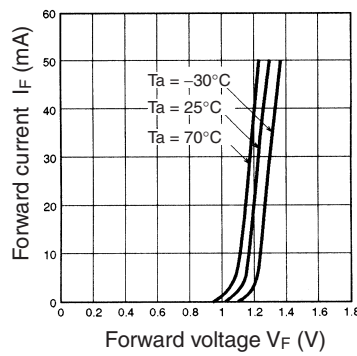
| Item | Symbol | Value | | | | Condition | |
|--------------|--------------------------------------|----------------|------------------------------------|-------------|-------------|---|-----------------------------------|
| | | EE-SV3(-B) | EE-SV3-C(S) | EE-SV3-D(S) | EE-SV3-G(S) | | |
| Emitter | 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 | 1 to 28 mA | 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, $R_L = 100 \Omega$, $I_L = 5$ mA | |
| Falling time | t_f | 4 μ s typ. | | | | | |

■ Engineering Data

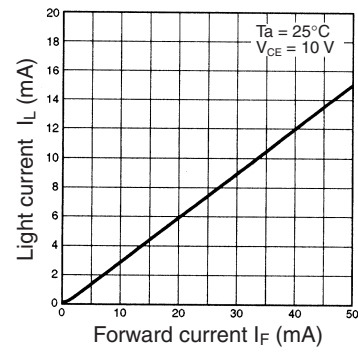
Forward Current vs. Collector Dissipation Temperature Rating



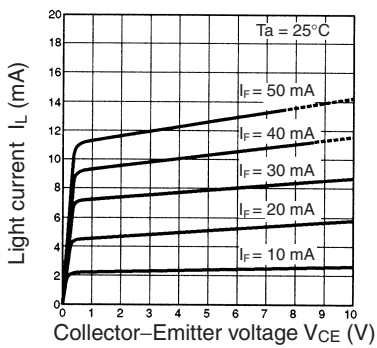
Forward Current vs. Forward Voltage Characteristics (Typical)



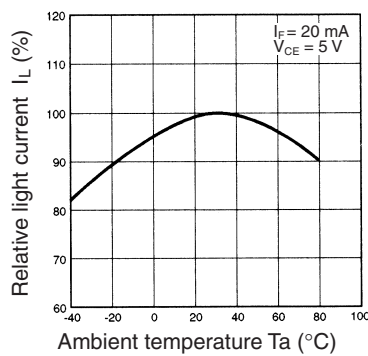
Light Current vs. Forward Current Characteristics (Typical)



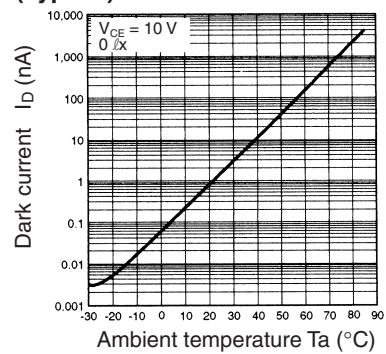
Light Current vs. Collector–Emitter Voltage Characteristics (EE-SV3(-B))



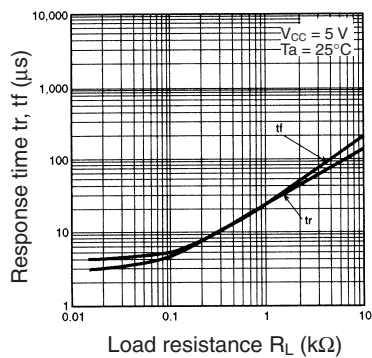
Relative Light Current vs. Ambient Temperature Characteristics (Typical)



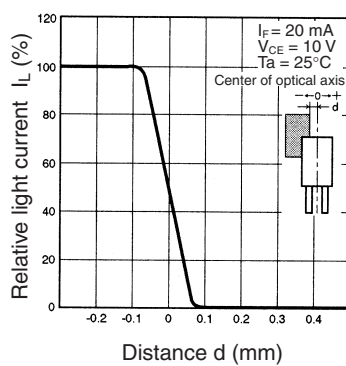
Dark Current vs. Ambient Temperature Characteristics (Typical)



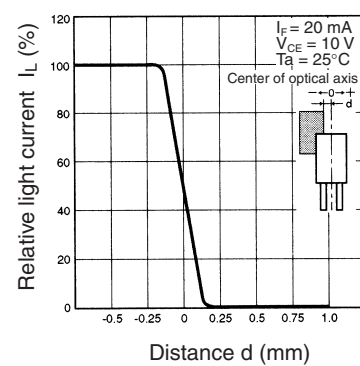
Response Time vs. Load Resistance Characteristics (Typical)



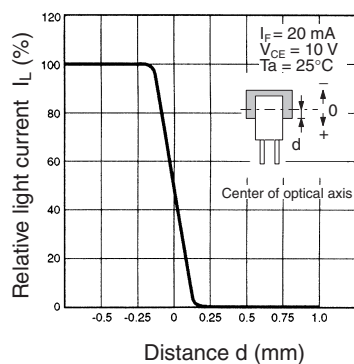
Sensing Position Characteristics (EE-SV3-D(S))



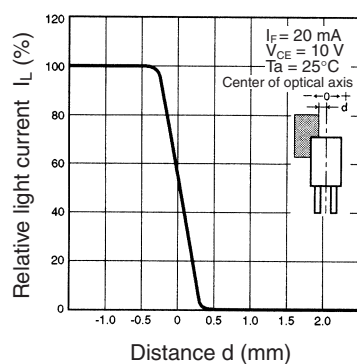
Sensing Position Characteristics (EE-SV3(-B))



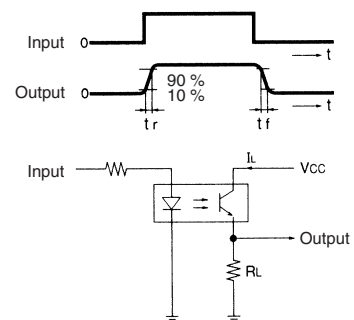
Sensing Position Characteristics (EE-SV3-G(S))



Sensing Position Characteristics (EE-SV3-C(S))



Response Time Measurement Circuit



A large grid of 20 columns and 30 rows of small squares, intended for taking notes or drawing diagrams. The grid is composed of thin, light gray lines forming a uniform pattern across the page.

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