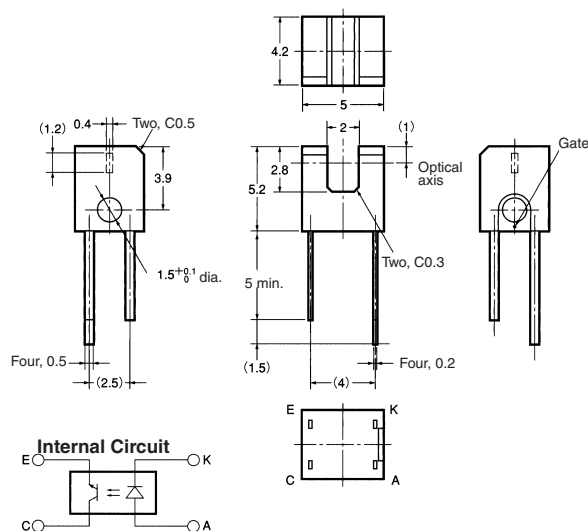


# Photomicrosensor (Transmissive) EE-SX1103

## ■ Dimensions

Note: All units are in millimeters unless otherwise indicated.



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

Unless otherwise specified, the tolerances are  $\pm 0.2$  mm.

## ■ Features

- Ultra-compact with a sensor width of 5 mm and a slot width of 2 mm.
- PCB mounting type.
- High resolution with a 0.4-mm-wide aperture.
- 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     | $I_{FP}$ ---             |
|                       | Reverse voltage           | $V_R$ 5 V                |
| Detector              | Collector–Emitter voltage | $V_{CEO}$ 30 V           |
|                       | Emitter–Collector voltage | $V_{ECO}$ 4.5 V          |
|                       | Collector current         | $I_C$ 30 mA              |
|                       | Collector dissipation     | $P_C$ 80 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 2)       |

- Note: 1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.  
2. Complete soldering within 3 seconds.

## ■ Ordering Information

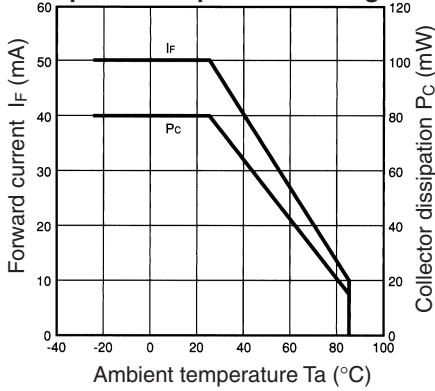
| Description                     | Model     |
|---------------------------------|-----------|
| Photomicrosensor (transmissive) | EE-SX1103 |

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

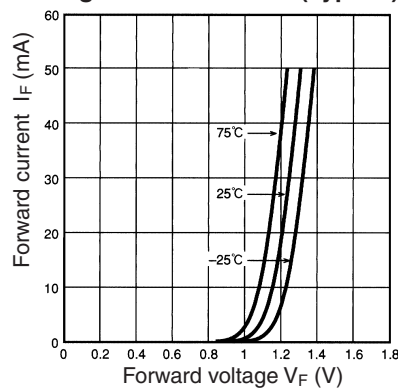
| Item         | Symbol                               | Value  | Condition  |
|--------------|--------------------------------------|--|--|
| Emitter      | Forward voltage                      | $V_F$ 1.3 V typ., 1.6 V max.                       | $I_F = 50$ mA                                      |
|              | Reverse current                      | $I_R$ 10 $\mu$ A max.                              | $V_R = 5$ V  |
|              | Peak emission wavelength             | $\lambda_P$ 950 nm typ.                            | $I_F = 50$ mA                                      |
| Detector     | Light current                        | $I_L$ 0.5 mA min.                                  | $I_F = 20$ mA, $V_{CE} = 5$ V                      |
|              | Dark current                         | $I_D$ 500 nA max.                                  | $V_{CE} = 10$ V, 0 lx                              |
|              | Leakage current                      | $I_{LEAK}$ ---                                     | ---  |
|              | Collector–Emitter saturated voltage  | $V_{CE(sat)}$ 0.4 V max.                           | $I_F = 20$ mA, $I_L = 0.3$ mA                      |
|              | Peak spectral sensitivity wavelength | $\lambda_P$ 800 nm typ.                            | $V_{CE} = 5$ V                                     |
|              | Rising time                          | $t_r$ 10 $\mu$ s typ.                              | $V_{CC} = 5$ V, $R_L = 100 \Omega$ , $I_F = 20$ mA |
| Falling time | $t_f$ 10 $\mu$ s typ.                | $V_{CC} = 5$ V, $R_L = 100 \Omega$ , $I_F = 20$ mA |  |

■ Engineering Data

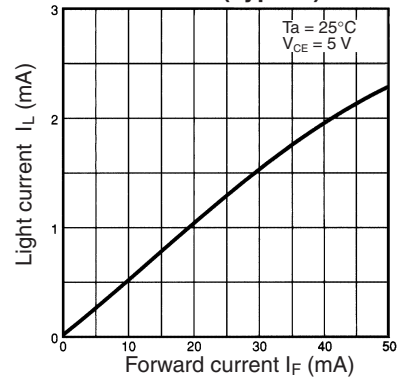
Forward Current vs. Collector Dissipation Temperature Rating



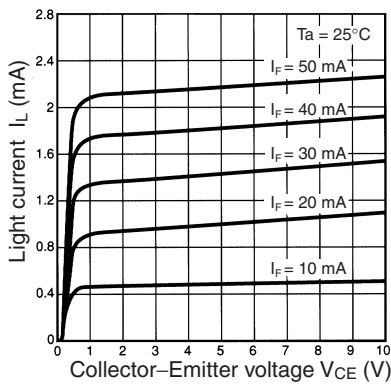
Forward Current vs. Forward Voltage Characteristics (Typical)



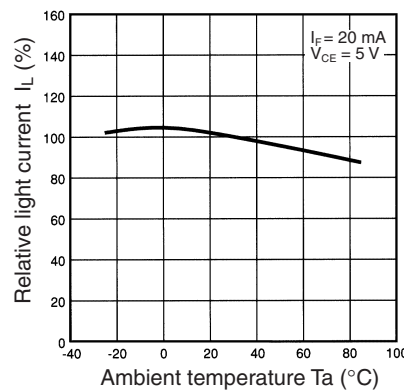
Light Current vs. Forward Current Characteristics (Typical)



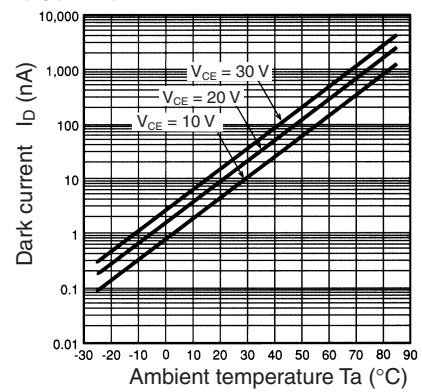
Light Current vs. Collector-Emitter Voltage Characteristics (Typical)



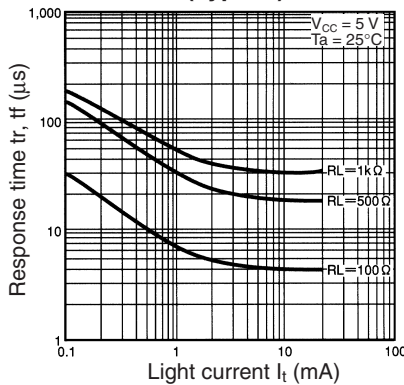
Relative Light Current vs. Ambient Temperature Characteristics (Typical)



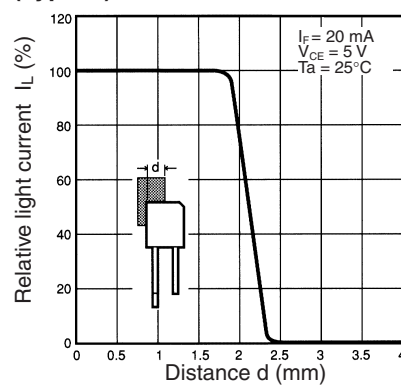
Dark Current vs. Ambient Temperature Characteristics (Typical)



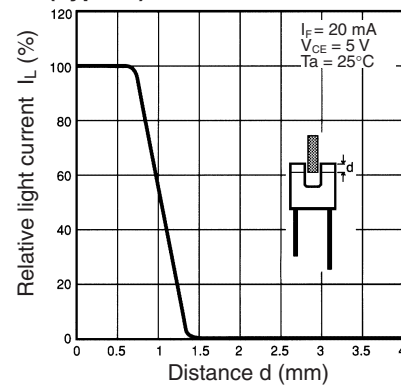
Response Time vs. Light Current Characteristics (Typical)



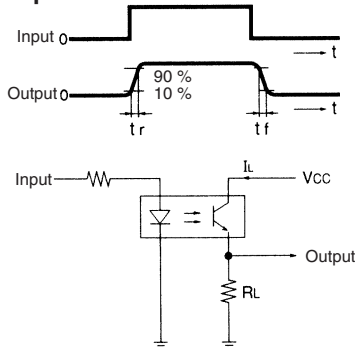
Sensing Position Characteristics (Typical)



Sensing Position Characteristics (Typical)



Response Time Measurement Circuit



A large grid of 20 columns and 30 rows of small squares, intended for handwritten notes.

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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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