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OMRON

Photomicrosensor (Transmissive) EE-SX1107

Dimensions

Note: All units are in millimeters unless otherwise indicated.





Terminal No.	o. Name	
A	Anode	
К	Cathode	
С	Collector	
E	Emitter	

Recommended Soldering Pattern



Unless otherwise specified, the tolerances are ± 0.15 mm.

Features

- Ultra-compact with a 3.4-mm-wide sensor and a 1-mm-wide slot.
- PCB surface mounting type.
- High resolution with a 0.15-mm-wide aperture.

	Item	Symbol	Rated value
Emitter	Forward current	I _F	25 mA (see note 1)
	Pulse forward cur- rent	I _{FP}	100 mA (see note 2)
	Reverse voltage	V _R	5 V
Detector	Collector–Emitter voltage	V _{CEO}	20 V
	Emitter–Collector voltage	V _{ECO}	5 V
	Collector current	I _c	20 mA
	Collector dissipa- tion	P _c	75 mW (see note 1)
Ambient tem-	Operating	Topr	–30°C to 85°C
perature	Storage	Tstg	–40°C to 90°C
	Reflow soldering	Tsol	255°C (see note 3)
	Manual soldering	Tsol	350°C (see note 3)

Note: 1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

- 2. Duty: 1/100; Pulse width: 0.1 ms
- **3.** Complete soldering within 10 seconds for reflow soldering and within 3 seconds for manual soldering.

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

	Item	Symbol	Value	Condition
Emitter	Forward voltage	V _F	1.1 V typ., 1.3 V max.	I _F = 5 mA
	Reverse current	I _R	10 μA max.	V _R = 5 V
	Peak emission wavelength	λ _P	940 nm typ.	I _F = 20 mA
Detector	Light current	IL.	50 μA min., 150 μA typ., 500 μA max.	I _F = 5 mA, V _{CE} = 5 V
	Dark current	I _D	100 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.	$I_{\rm F} = 20 \text{ mA}, I_{\rm L} = 50 \ \mu \text{A}$
	Peak spectral sensitivity wavelength	λ _P	900 nm typ.	
Rising time		tr	10 μs typ.	$\label{eq:V_CC} \begin{split} V_{CC} &= 5 \ V, \ R_L = 1 \ k\Omega, \\ I_L &= 100 \ \mu A \end{split}$
Falling time		tf	10 μs typ.	$V_{\rm CC} = 5 \text{ V}, $

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Forward Current vs. Forward

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Engineering Data

Forward Current vs. Collector **Dissipation Temperature Rating**



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



Response Time vs. Load Resistance Characteristics (Typical)



Load resistance R_L (k Ω) **Response Time Measurement** Circuit





10 Forward voltage V_F (V)

Relative Light Current vs. Ambient



Sensing Position Characteristics (Typical)



Distance d (mm)

Light Current vs. Forward Current **Characteristics (Typical)**



Dark Current vs. Ambient Tem-Temperature Characteristics (Typical) perature Characteristics (Typical)



Sensing Position Character-istics (Typical)



Distance d (mm)

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Unit: mm (inch)

■ Tape and Reel

Reel



Таре



Tape configuration



Tape quantity

2,500 pcs./reel

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Precautions

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Soldering Information

Reflow soldering

- The following soldering paste is recommended:
 - Melting temperature: 216 to 220°C
 - Composition: Sn 3.5 Ag 0.75 Cu
- The recommended thickness of the metal mask for screen printing is between 0.2 and 0.25 mm.
- Set the reflow oven so that the temperature profile shown in the following chart is obtained for the upper surface of the product being soldered.



Manual soldering

- Use "Sn 60" (60% tin and 40% lead) or solder with silver content.
- Use a soldering iron of less than 25 W, and keep the temperature of the iron tip at 350°C or below.
- Solder each point for a maximum of three seconds.
- After soldering, allow the product to return to room temperature before handling it.

Storage

To protect the product from the effects of humidity until the package is opened, dry-box storage is recommended. If this is not possible, store the product under the following conditions:

- Temperature: 10 to 30°C
- Humidity: 60% max.

The product is packed in a humidity-proof envelope. Reflow soldering must be done within 48 hours after opening the envelope, during which time the product must be stored under 30°C at 80% maximum humidity.

If it is necessary to store the product after opening the envelope, use dry-box storage or reseal the envelope.

Baking

If a product has remained packed in a humidity-proof envelope for six months or more, or if more than 48 hours have lapsed since the envelope was opened, bake the product under the following conditions before use:

Reel: 60°C for 24 hours or more

Bulk: 80°C for 4 hours or more