



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

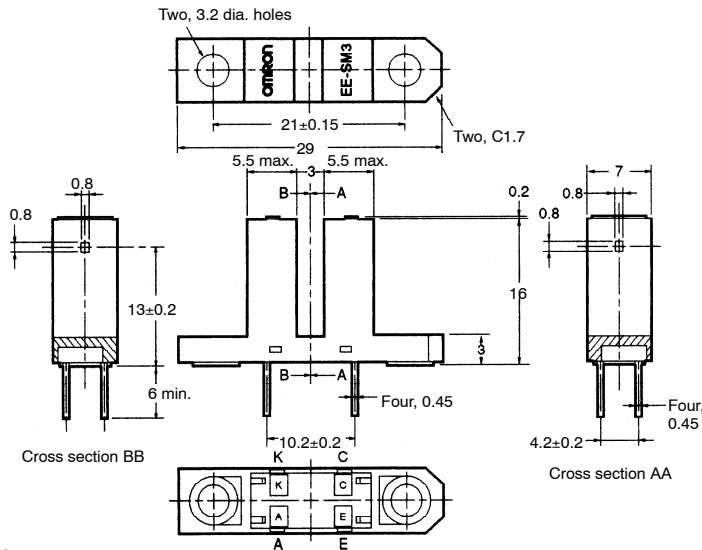
Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

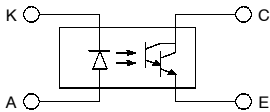


■ **Dimensions**

**Note:** All units are in millimeters unless otherwise indicated.



**Internal Circuit**



Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	±0.3
3 < mm ≤ 6	±0.375
6 < mm ≤ 10	±0.45
10 < mm ≤ 18	±0.55
18 < mm ≤ 30	±0.65

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

■ **Features**

- General-purpose model with a 3-mm-wide slot.
- PCB mounting type.
- With a red LED as an emitter element and a Photo-Darlington transistor as a detector element.

■ **Absolute Maximum Ratings  
(Ta = 25°C)**

Item	Symbol	Rated value
<b>Emitter</b>	Forward current	I <sub>F</sub> 15 mA (see note 1)
	Pulse forward current	I <sub>FP</sub> ---
	Reverse voltage	V <sub>R</sub> 4 V
<b>Detector</b>	Collector-Emitter voltage	V <sub>CEO</sub> 24 V
	Emitter-Collector voltage	V <sub>ECO</sub> ---
	Collector current	I <sub>C</sub> 20 mA
	Collector dissipation	P <sub>C</sub> 75 mW (see note 1)
<b>Ambient temperature</b>	Operating	T <sub>opr</sub> -20°C to 60°C
	Storage	T <sub>stg</sub> -20°C to 80°C
<b>Soldering temperature</b>	T <sub>sol</sub>	260°C (see note 2)

- Note:**
1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.
  2. Complete soldering within 10 seconds.

■ **Ordering Information**

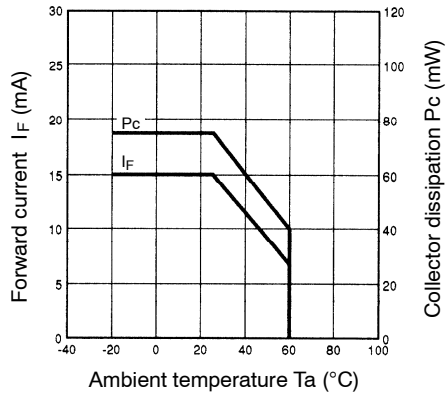
Description	Part number
Photomicrosensor (Transmissive)	EE-SM3

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

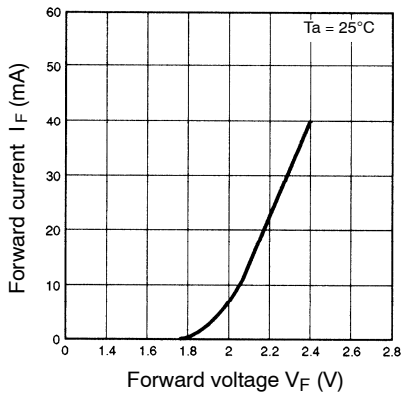
Item	Symbol	Value	Condition
<b>Emitter</b>	Forward voltage	V <sub>F</sub> 2.0 V typ., 2.6 V max.	I <sub>F</sub> = 15 mA
	Reverse current	I <sub>R</sub> 0.01 μA typ., 5 μA max.	V <sub>R</sub> = 4 V
	Peak emission wavelength	λ <sub>p</sub> 700 nm typ.	I <sub>F</sub> = 3 mA
<b>Detector</b>	Light current	I <sub>L</sub> 1.5 mA min., 120 mA max.	I <sub>F</sub> = 3 mA, V <sub>CE</sub> = 10 V
	Dark current	I <sub>D</sub> 2 nA typ., 250 nA max.	V <sub>CE</sub> = 10 V, 0 lx
	Leakage current	I <sub>LEAK</sub> ---	---
	Collector-Emitter saturated voltage	V <sub>CE (sat)</sub> 0.9 V typ.	I <sub>F</sub> = 3 mA, I <sub>L</sub> = 0.5 mA
	Peak spectral sensitivity wavelength	λ <sub>p</sub> 750 nm typ.	V <sub>CE</sub> = 10 V
<b>Rising time</b>	t <sub>r</sub>	180 μs typ.	V <sub>CC</sub> = 5 V, R <sub>L</sub> = 100 Ω, I <sub>L</sub> = 10 mA
<b>Falling time</b>	t <sub>f</sub>	60 μs typ.	V <sub>CC</sub> = 5 V, R <sub>L</sub> = 100 Ω, I <sub>L</sub> = 10 mA

■ Engineering Data

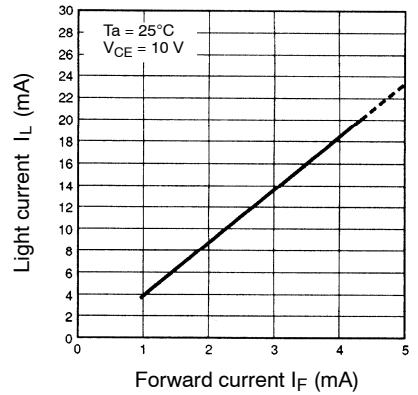
**Forward Current vs. Collector Dissipation Temperature Rating**



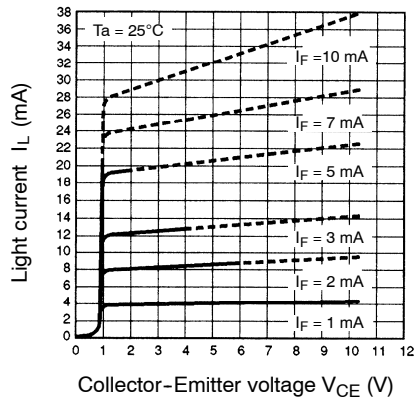
**Forward Current vs. Forward Voltage Characteristics (Typical)**



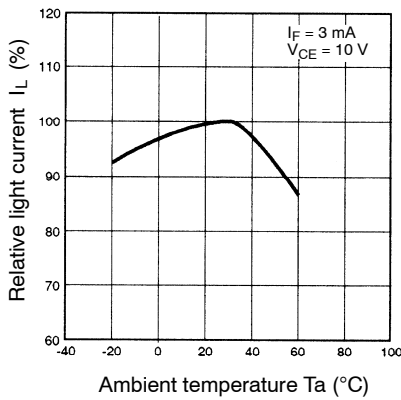
**Light Current vs. Forward Current Characteristics (Typical)**



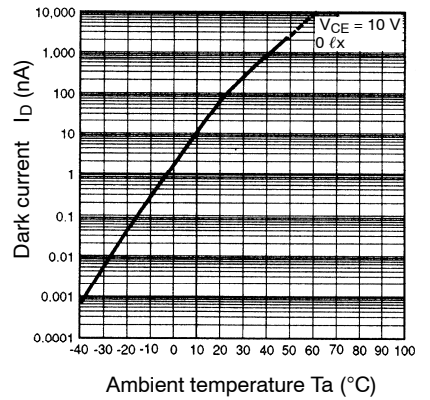
**Light Current vs. Collector-Emitter Voltage Characteristics (Typical)**



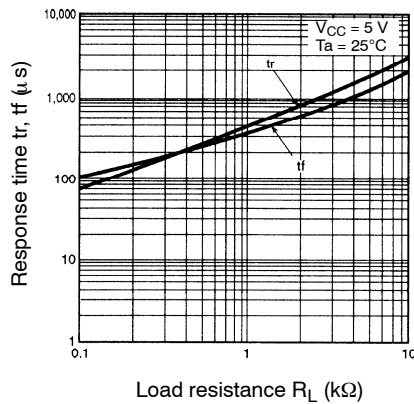
**Relative Light Current vs. Ambient Temperature Characteristics (Typical)**



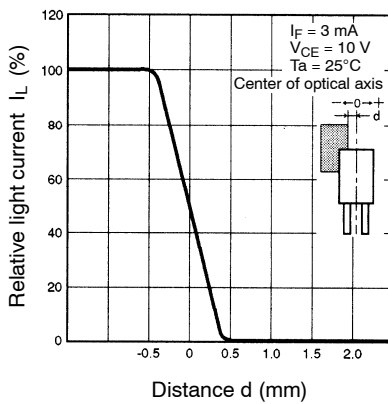
**Dark Current vs. Ambient Temperature Characteristics (Typical)**



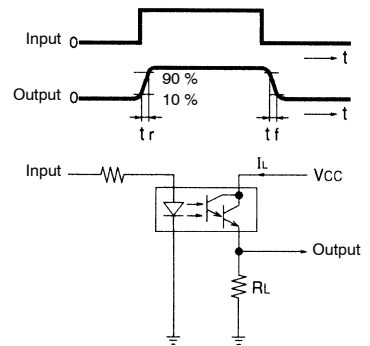
**Response Time vs. Load Resistance Characteristics (Typical)**



**Sensing Position Characteristics (Typical)**



**Response Time Measurement Circuit**



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

---

**OMRON**<sup>®</sup>

**OMRON ELECTRONICS LLC**

One East Commerce Drive  
Schaumburg, IL 60173

**847-882-2288**

**OMRON CANADA, INC.**

885 Milner Avenue  
Toronto, Ontario M1B 5V8

**416-286-6465**

**OMRON ON-LINE**

Global – <http://www.omron.com>

USA – <http://www.omron.com/oei>

Canada – <http://www.omron.com/oci>