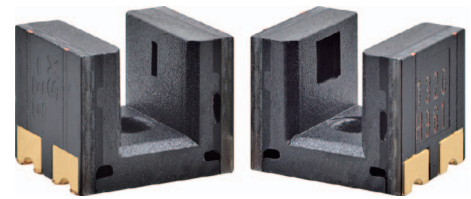


# EE-SX1320

## Ultra-Compact Slot / SMD Type (Slot width: 2 mm)

- PCB surface mounting type.
- High resolution with a 0.3-mm-wide aperture.



Be sure to read *Safety Precautions* on page 3.

## Ordering Information

### Photomicrosensor

Appearance	Sensing method	Connecting method	Sensing distance	Aperture size (H × W) (mm)	Output type	Model
	Transmissive (slot type)	SMT	2 mm (slot width)	Emitter 1.4 × 1.4  Detector 1 × 0.3	Phototransistor	EE-SX1320

## Ratings, Characteristics and Exterior Specifications

### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rated value	Unit
<b>Emitter</b>			
Forward current	$I_F$	25 *1	mA
Pulse forward current	$I_{FP}$	100 *2	mA
Reverse voltage	$V_R$	5	V
<b>Detector</b>			
Collector-Emitter voltage	$V_{CEO}$	12	V
Emitter-Collector voltage	$V_{ECO}$	5	V
Collector current	$I_C$	20	mA
Collector dissipation	$P_C$	75 *1	mW
Operating temperature	$T_{opr}$	-30 to +85 *1	°C
Storage temperature	$T_{stg}$	-40 to +90 *1	°C
Reflow soldering temperature	$T_{sol}$	255 *3	°C

\*1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

\*2. Duty ratio: 1%, Pulse width: 0.1 ms

\*3. Complete soldering within 10 seconds for reflow soldering.

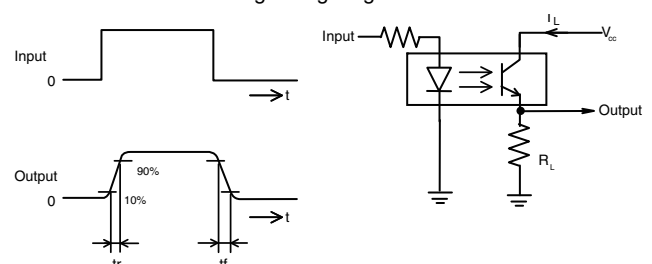
### Exterior Specifications

Connecting method	Weight (g)	Material
		Case
SMT	0.1	PPS

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

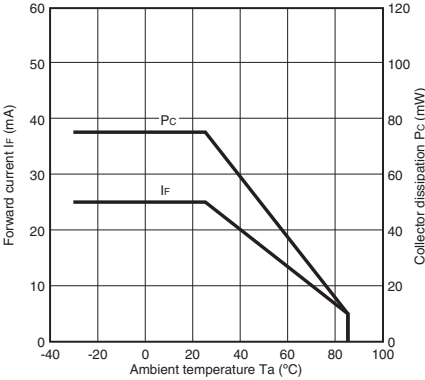
Item	Symbol	Value			Unit	Condition
		MIN.	TYP.	MAX.		
<b>Emitter</b>						
Forward voltage	$V_F$	---	1.1	1.3	V	$I_F = 5 \text{ mA}$
Reverse current	$I_R$	---	---	10	$\mu\text{A}$	$V_R = 5 \text{ V}$
Peak emission wavelength	$\lambda_P$	---	940	---	nm	$I_F = 20 \text{ mA}$
<b>Detector</b>						
Light current	$I_L$	150	---	1500	$\mu\text{A}$	$I_F = 5 \text{ mA}$ , $V_{CE} = 5 \text{ V}$
Dark current	$I_D$	---	10	100	nA	$V_{CE} = 10 \text{ V}$ , $I_L = 0$
Collector-Emitter saturated voltage	$V_{CE}(\text{sat})$	---	0.1	0.4	V	$I_F = 20 \text{ mA}$ , $I_L = 50 \mu\text{A}$
Peak spectral sensitivity wavelength	$\lambda_P$	---	900	---	nm	$V_{CE} = 5 \text{ V}$
Rising time	$t_r$	---	19	---	$\mu\text{s}$	$V_{CC} = 5 \text{ V}$ , $R_L = 100 \Omega$ , $I_L = 500 \mu\text{A}$
Falling time	$t_f$	---	26	---	$\mu\text{s}$	$V_{CC} = 5 \text{ V}$ , $R_L = 100 \Omega$ , $I_L = 500 \mu\text{A}$

Note: Refer to the following timing diagram for  $t_r$  and  $t_f$ .

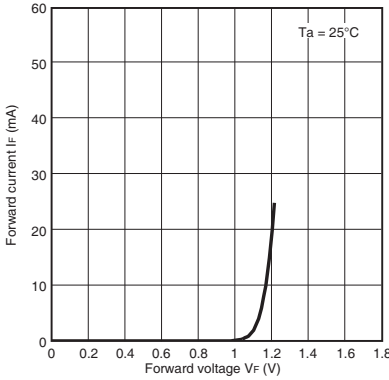


# Engineering Data (Reference value)

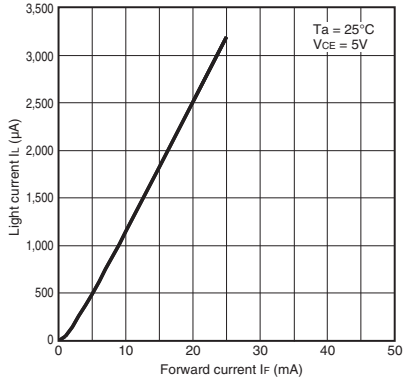
**Fig 1. Forward Current vs. Collector Dissipation Temperature Rating**



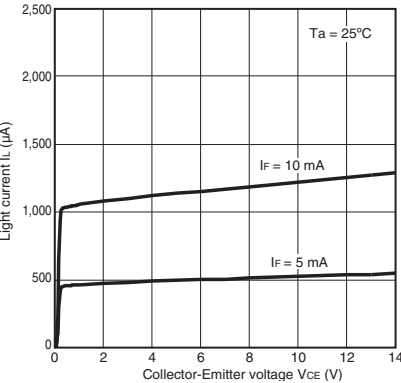
**Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)**



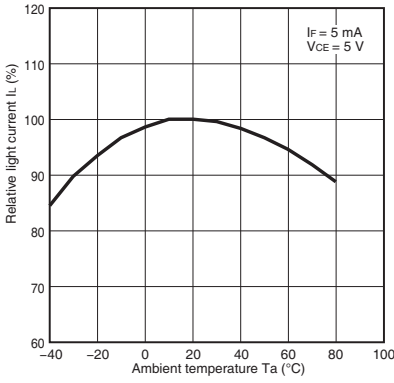
**Fig 3. Light Current vs. Forward Current Characteristics (Typical)**



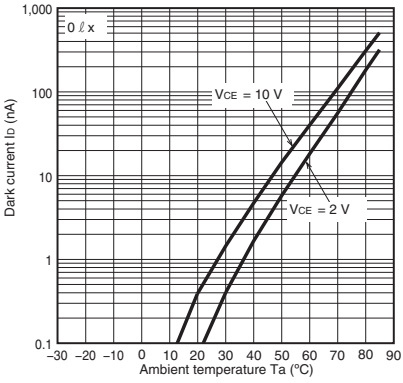
**Fig 4. Light Current vs. Collector-Emitter Voltage Characteristics (Typical)**



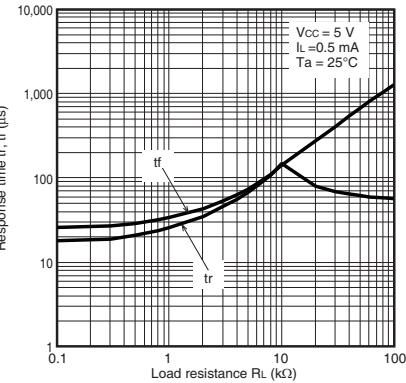
**Fig 5. Relative Light Current vs. Ambient Temperature Characteristics (Typical)**



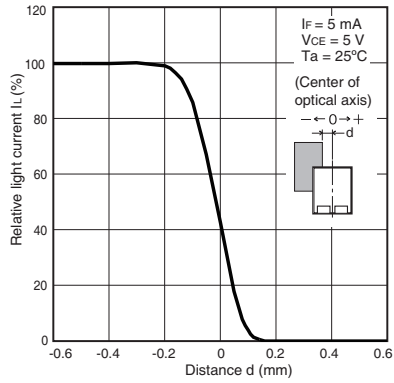
**Fig 6. Dark Current vs. Ambient Temperature Characteristics (Typical)**



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



**Fig 8. Sensing Position Characteristics (Typical)**



**Fig 9. Sensing Position Characteristics (Typical)**

