

Slot/Pre-wired, Wide-width Type (Slot Width: 9.5 mm)

- Featuring enhanced maintainability thanks to a removable dedicated connector
- Mounted with M3 screws
- Wire length 610 mm min. (AWG28)
- Enhanced reliability thanks to solder-less lead wire installation

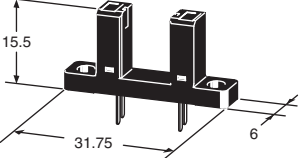


⚠ Be sure to read *Safety Precautions* on Page 3.

RoHS Compliant

Ordering Information

Photomicrosensor

Appearance	Sensing method	Connecting method	Sensing distance	Aperture size (H x W) (mm)	Output type	Model	Minimum packing unit (Unit: pcs)
	Transmissive (slot type)	Pre-wired type	 9.5 mm (Slot width)	Both emitting side and detecting side 1.9 x 1.1	Phototransistor	EE-SX1160-W11	1

Note: Order in multiples of minimum packing unit.

Ratings, Characteristics and Exterior Specifications

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rated value	Unit
Emitter			
Forward current	I _F	50*1	mA
Pulse forward current	I _{FP}	1*2	A
Reverse voltage	V _R	4	V
Detector			
Collector-Emitter voltage	V _{CEO}	30	V
Emitter-Collector voltage	V _{ECO}	5	V
Collector current	I _C	20	mA
Collector dissipation	P _C	100*1	mW
Operating temperature	T _{opr}	-25 to 80	°C
Storage temperature	T _{stg}	-25 to 85	°C

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

*2. Pulse width ≤ 10 μs, Repeated 100 Hz

Note: 1. When screw mounting, use an M3 screw, spring washer, and plain washer and tighten with a torque of 0.5 N·m.
2. Do not use the lead wire with stress applied.

Exterior Specifications

Connecting method	Weight (g)	Material	
		Case	Wire insulator
Pre-wired type	5.1	Polycarbonate	Non-lead PVC

Electrical and Optical Characteristics (Ta = 25°C)

Item	Symbol	Value			Unit	Condition	
		MIN.	TYP.	MAX.			
Emitter							
	Forward voltage	V _F	—	1.2	1.5	V	I _F = 30 mA
	Reverse current	I _R	—	0.01	10	μA	V _R = 4 V
	Peak emission wavelength	λ _P	—	920	—	nm	I _F = 20 mA
Detector							
	Light current	I _L	3.5	—	16	mA	I _F = 20 mA, V _{CE} = 10 V
	Dark current	I _D	—	2	200	nA	V _{CE} = 10 V, 0 lx
	Leakage current	I _{LEAK}	—	—	—	μA	—
	Collector-Emitter saturated voltage	V _{CE} (sat)	—	0.15	0.4	V	I _F = 20 mA, I _L = 0.1 mA
	Peak spectral sensitivity wavelength	λ _P	—	850	—	nm	V _{CE} = 10 V
Rising time		t _r	—	4	—	μs	V _{CC} = 5 V, R _L = 100 Ω I _L = 5 mA
Falling time		t _f	—	4	—	μs	V _{CC} = 5 V, R _L = 100 Ω I _L = 5 mA

Engineering Data (Reference Value)

Fig 1. Forward Current vs. Collector Dissipation Temperature Rating

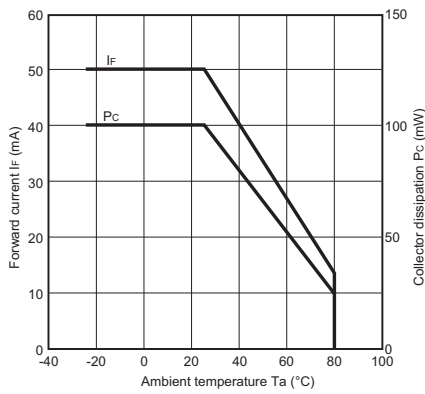


Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)

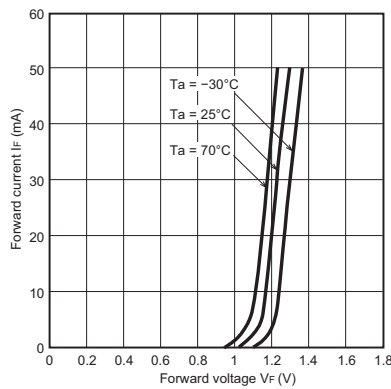


Fig 3. Light Current vs. Forward Current Characteristics (Typical)

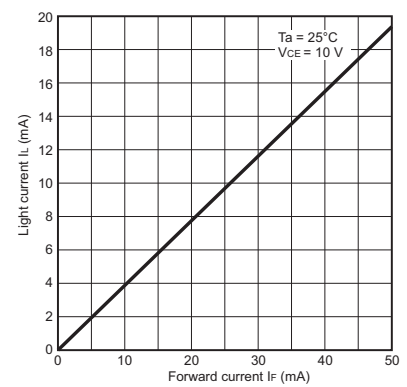


Fig 4. Light Current vs. Collector-Emitter Voltage Characteristics (Typical)

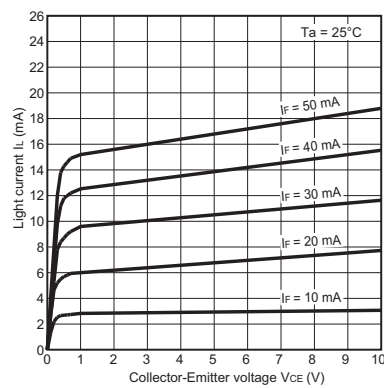


Fig 5. Relative Light Current vs. Ambient Temperature Characteristics (Typical)

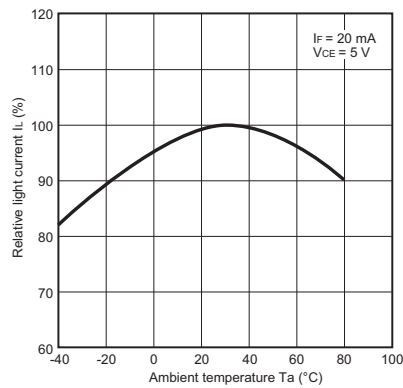


Fig 6. Dark Current vs. Ambient Temperature Characteristics (Typical)

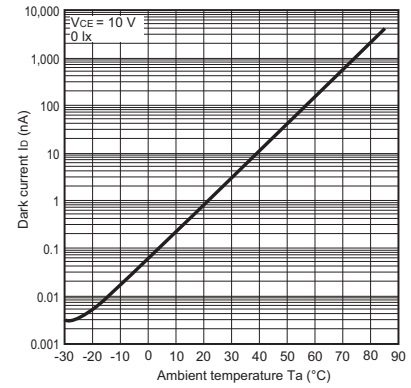


Fig 7. Response Time vs. Load Resistance Characteristics (Typical)

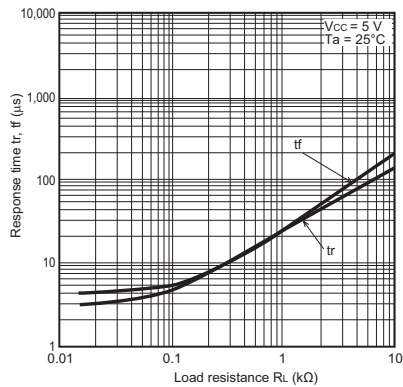


Fig 8. Sensing Position Characteristics (Typical)

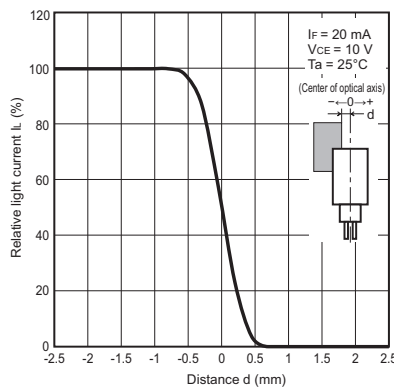


Fig 9. Sensing Position Characteristics (Typical)

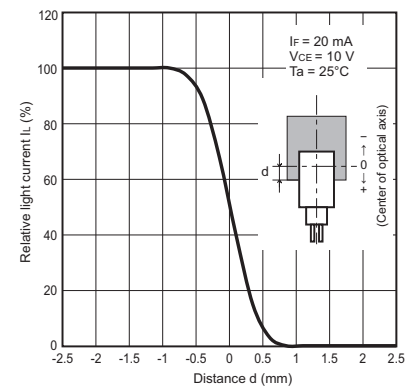
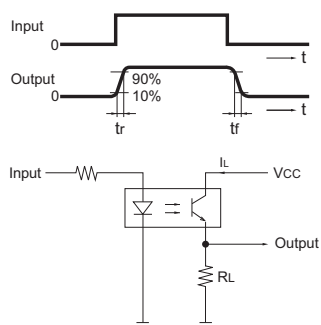


Fig 10. Response Time Measurement Circuit



Safety Precautions

To ensure safe operation, be sure to read and follow the Instruction Manual provided with the Sensor.

CAUTION

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



Precautions for Safe Use

Do not use the product with a voltage or current that exceeds the rated range.

Applying a voltage or current that is higher than the rated range may result in explosion or fire.

Do not miswire such as the polarity of the power supply voltage.

Otherwise the product may be damaged or it may burn.

This product does not resist water. Do not use the product in places where water or oil may be sprayed onto the product.

Precautions for Correct Use

Do not use the product in atmospheres or environments that exceed product ratings. When using the sensor on moving parts, secure the pull out portion of the cord so that it is not subjected to direct stress.

Do not perform cord wiring when power supply voltage is applied. Doing so may result in breakage.

Dispose of this product as industrial waste.

Dimensions and Internal Circuit

(Unit: mm)

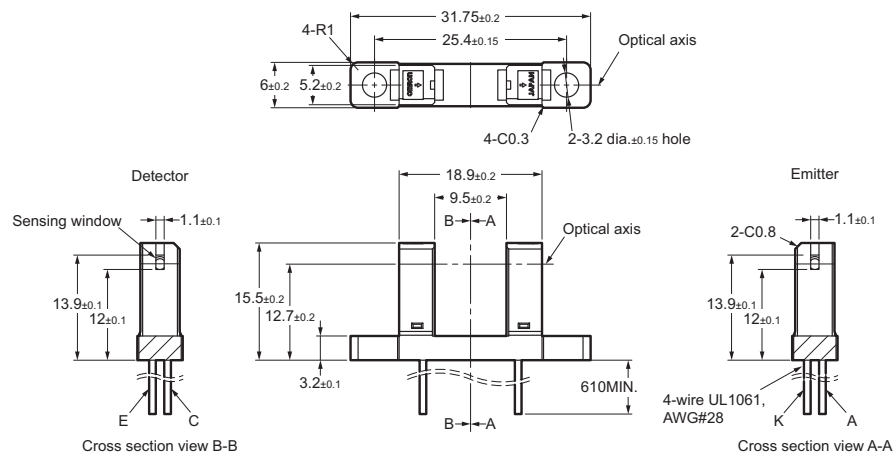
Photomicrosensor

EE-SX1160-W11

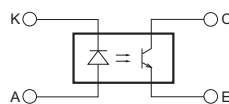


Aperture size (H × W)

Emitter	Detector
1.9 × 1.1	1.9 × 1.1



Internal circuit



Terminal No.	Color	Name
A	Red	Anode
K	Black	Cathode
C	White	Collector
E	Green	Emitter

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

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