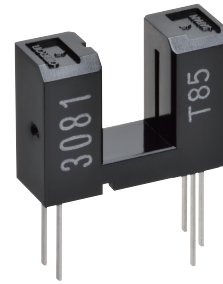


Photomicrosensor (Transmissive)

EE-SX3081/EE-SX4081

Slot/Terminal Type (Slot Width: 5 mm)

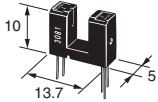
- Photo IC output (Two types available: Dark-ON (EE-SX3081)/ Light ON (EE-SX4081))
- For use with power supply voltage of 4.5 to 16 VDC
- Directly connectable to C-MOS



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

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)	Terminal for PCB mounting	5 mm (Slot width)	Both emitting side and detecting side 2 x 0.5	Photo IC	EE-SX3081 (Dark-ON) EE-SX4081 (Light-ON)	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	IF	50*1	mA
Reverse voltage	VR	4	V
Detector			
Power supply voltage	VCC	16	V
Output voltage	VOUT	28	V
Output current	IOUT	16	mA
Permissible output dissipation	POUT	250*1	mW
Operating temperature	Topr	-40 to 75	°C
Storage temperature	Tstg	-40 to 85	°C
Soldering temperature	Tsol	260*2	°C

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

*2. Complete soldering within 10 seconds.

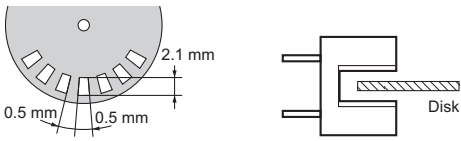
Exterior Specifications

Connecting method	Weight (g)	Material
		Case
Terminal for PCB mounting	0.5	Polycarbonate

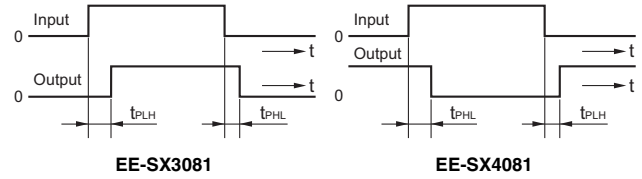
Electrical and Optical Characteristics (Ta = 25°C)

Item	Symbol	Value			Unit	Condition
		MIN.	TYP.	MAX.		
Emitter						
Forward voltage	VF	—	1.2	1.5	V	IF = 20 mA
Reverse current	IR	—	0.01	10	µA	VR = 4 V
Peak emission wavelength	λP	—	940	—	nm	IF = 20 mA
Detector						
Low-level output voltage	VOL	—	0.12	0.4	V	VCC = 4.5 to 16 V, IOL = 16 mA IF = 0 mA (EE-SX3081) IF = 8 mA (EE-SX4081)
High-level output voltage	VOH	15	—	—	V	VCC = 16 V, RL = 1 kΩ IF = 8 mA (EE-SX3081) IF = 0 mA (EE-SX4081)
Current consumption	ICC	—	3.2	10	mA	VCC = 16 V
Peak spectral sensitivity wavelength	λP	—	870	—	nm	VCC = 4.5 to 16 V
LED current when output OFF (EE-SX3081)	IFT	—	—	8	mA	VCC = 4.5 to 16 V
LED current when output ON (EE-SX4081)						
Hysteresis	ΔH	—	15	—	%	VCC = 4.5 to 16 V*
Response frequency	f	3	—	—	kHz	VCC = 4.5 to 16 V*2 IF = 20 mA, IOL = 16 mA
Response delay time	tPLH (tPHL)	—	3	—	µs	VCC = 4.5 to 16 V*3 IF = 20 mA, IOL = 16 mA
Response delay time	tPHL (tPLH)	—	20	—	µs	VCC = 4.5 to 16 V*3 IF = 20 mA, IOL = 16 mA

- *1. Hysteresis is the difference in LED current between two states when the output state is inverted and expressed as a percentage.
- *2. The value of the response frequency is measured by rotating the disk as shown below.



- *3. Refer to the following diagrams for definitions of response delay time. (t_{PHL} and t_{PLH}) are applicable to EE-SX4081



Engineering Data (Reference Value) Note: Values in parentheses are for EE-SX4081

Fig 1. Forward Current vs. Temperature

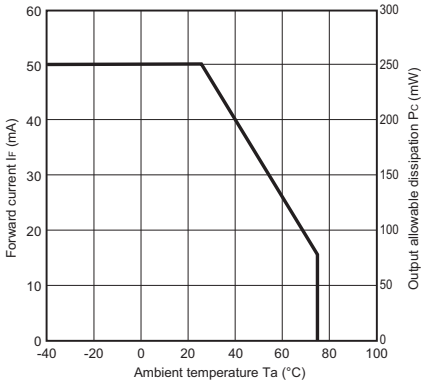


Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)

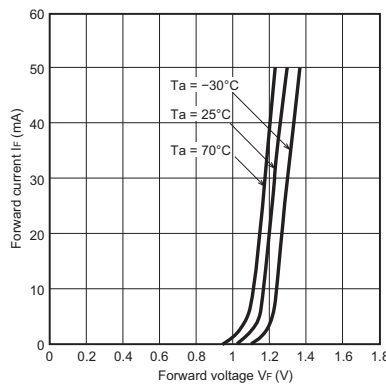


Fig 3. LED Current When Output ON (OFF) vs. Power Supply Voltage Characteristics (Typical)

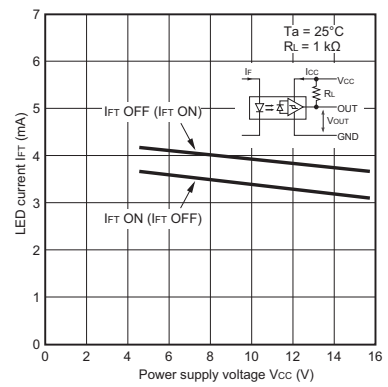


Fig 4. LED Current When Output ON (OFF) vs. Ambient Temperature Characteristics (Typical)

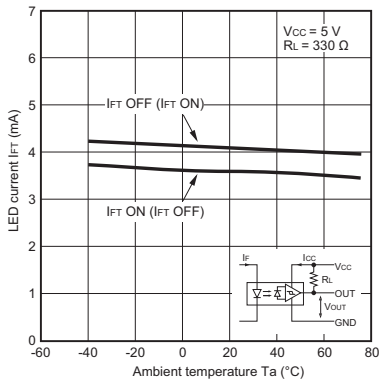


Fig 5. Low-level Output Voltage vs. Output Current Characteristics (Typical)

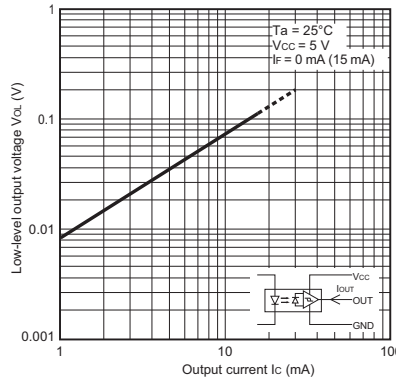


Fig 6. Low-level Output Voltage vs. Ambient Temperature Characteristics (Typical)

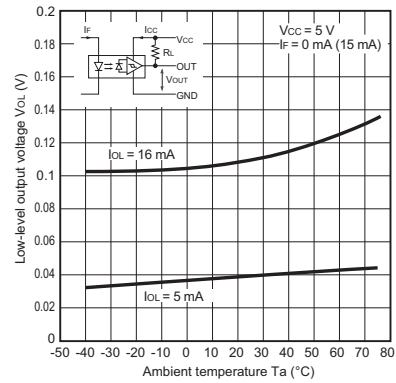


Fig 7. Current Consumption vs. Power Supply Voltage Characteristics (Typical)

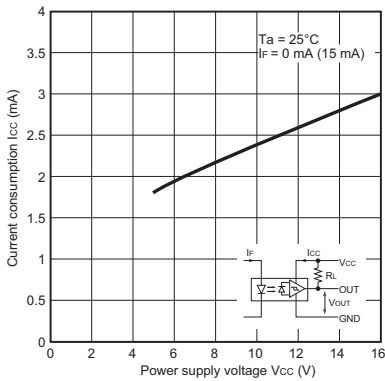


Fig 8. Response Delay Time vs. Forward Current Characteristics (Typical)

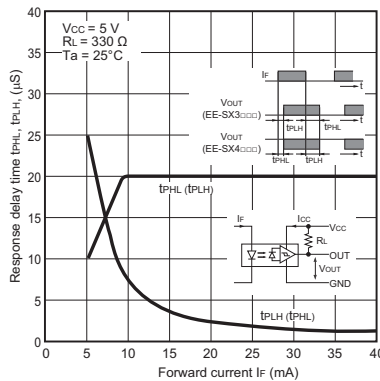
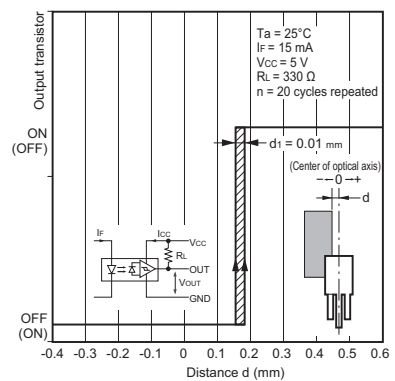


Fig 9. Repeated Sensing Position Characteristics (Typical)



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 Correct Use

Do not use the product in atmospheres or environments that exceed product ratings. Dispose of this product as industrial waste.

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.

Do not short-circuit the load.

Otherwise explosion or burning may occur.

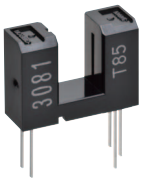
This product does not resist water. Do not use the product in places where water or oil may be sprayed onto the product.

Dimensions and Internal Circuit

(Unit: mm)

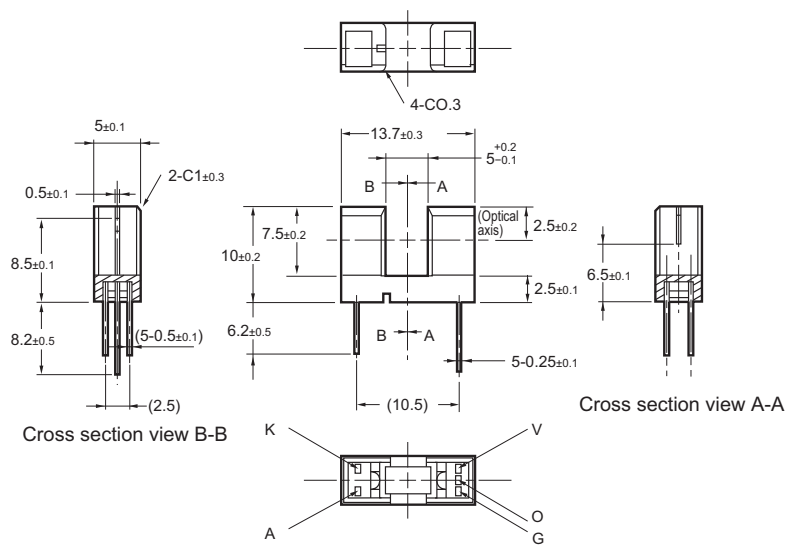
Photomicrosensor

EE-SX3081
EE-SX4081

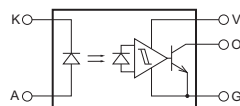


Aperture size (H x W)

Emitter	Detector
2 x 0.5	2 x 0.5



Internal circuit



Terminal No.	Name
A	Anode
K	Cathode
V	Power supply (Vcc)
O	Output (OUT)
G	Ground (GND)

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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