

Photomicrosensor (Transmissive)

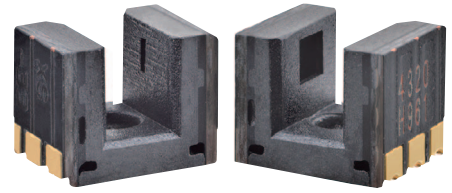
EE-SX4320

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

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

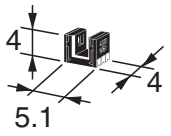


Be sure to read *Safety Precautions* on page 3.



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	Photo IC	EE-SX4320

Ratings, Characteristics and Exterior Specifications

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rated value	Unit
Emitter			
Forward current	I _F	25 *1	mA
Reverse voltage	V _R	5	V
Detector			
Power supply voltage	V _{CC}	9	V
Output voltage	V _{OUT}	17	V
Output current	I _{OUT}	8	mA
Permissible output dissipation	P _{OUT}	80 *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 *2	°C

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

*2. Complete soldering within 10 seconds for reflow soldering.

Exterior Specifications

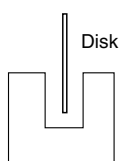
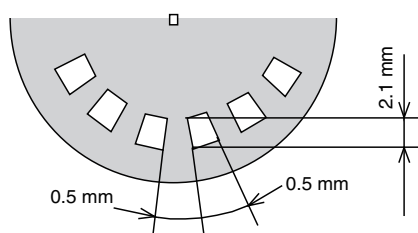
Connecting method	Weight (g)	Material
		Case
SMT	0.1	PPS

Electrical and Optical Characteristics (Ta = 25°C)

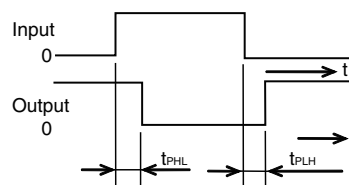
Item	Symbol	Value			Unit	Condition
		MIN.	TYP.	MAX.		
Emitter						
Forward voltage	V _F	---	1.2	1.4	V	I _F = 20 mA
Reverse current	I _R	---	0.01	10	μA	V _R = 5 V
Peak emission wavelength	λ _P	---	940	---	nm	I _F = 20 mA
Detector						
Power supply voltage	V _{CC}	2.2	---	7	V	---
Low-level output voltage	V _{OL}	---	0.12	0.4	V	V _{CC} = 2.2 to 7 V, I _F = 7 mA, I _{OL} = 8 mA
High-level output voltage	I _{OH}	---	---	10	μA	V _{CC} = 2.2 to 7 V, I _F = 0 mA, V _{OH} = 17 V
Current consumption	I _{CC}	---	2.8	4	mA	V _{CC} = 7 V
Peak spectral sensitivity wavelength	λ _P	---	870	---	nm	V _{CC} = 2.2 to 7 V
LED current when output is OFF	I _{FT}	---	---	3.5	mA	V _{CC} = 2.2 to 7 V
Hysteresis	ΔH	---	21	---	%	V _{CC} = 2.2 to 7 V *1
Response frequency	f	3	---	---	kHz	V _{CC} = 2.2 to 7 V, I _F = 5 mA, I _{OL} = 8 mA *2
Response delay time	t _{PLH}	---	8	---	μs	V _{CC} = 2.2 to 7 V, I _F = 5 mA, I _{OL} = 8 mA *3
	t _{PHL}	---	20	---	μs	V _{CC} = 2.2 to 7 V, I _F = 5 mA, I _{OL} = 8 mA *3

*1. Hysteresis denotes the difference in forward LED current value, expressed in percentage, calculated from the respective forward LED currents when the photo IC is turned from ON to OFF and when the photo IC is turned from OFF to ON.

*2. The value of the response frequency is measured by rotating the disk as shown below.



*3. The following illustrations show the definition of response delay time.



Engineering Data (Reference value)

Fig 1. Forward Current vs. Collector Dissipation Temperature Rating

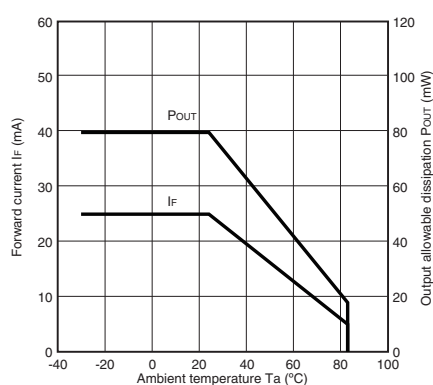


Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)

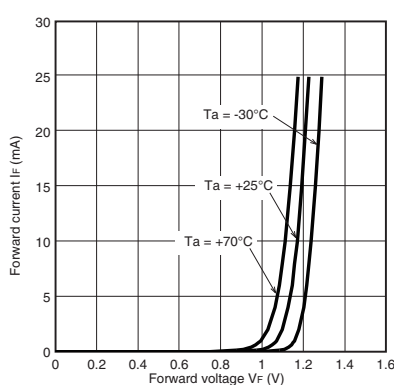


Fig 3. LED Current vs. Supply Voltage (Typical)

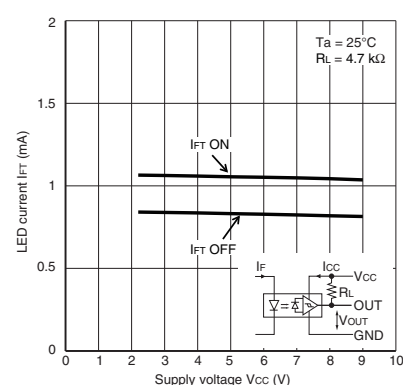


Fig 4. LED Current vs. Ambient Temperature Characteristics (Typical)

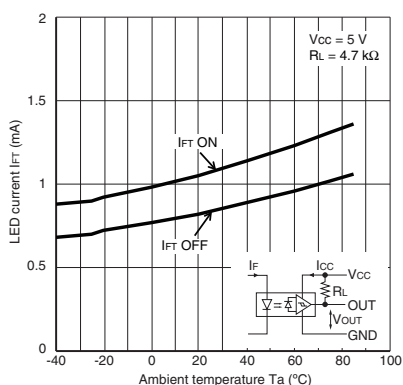


Fig 5. Low-level Output Voltage vs. Output Current (Typical)

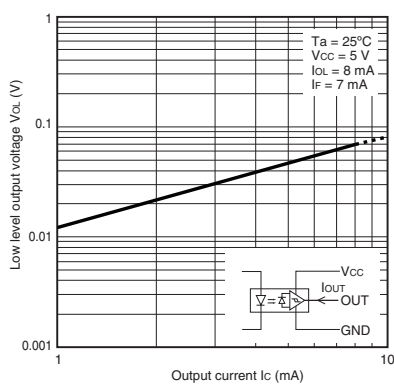


Fig 6. Low-level Output Voltage vs. Ambient Temperature Characteristics (Typical)

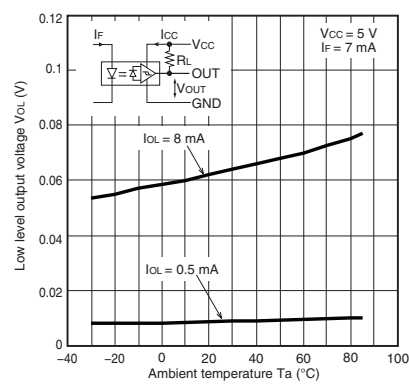


Fig 7. Current Consumption vs. Supply Voltage (Typical)

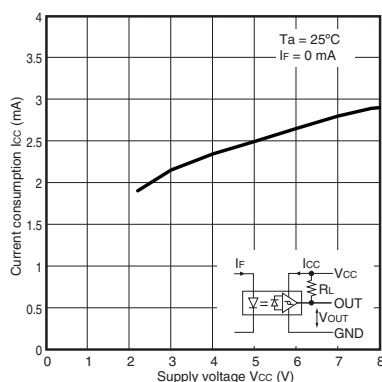


Fig 8. Response Delay Time vs. Forward Current (Typical)

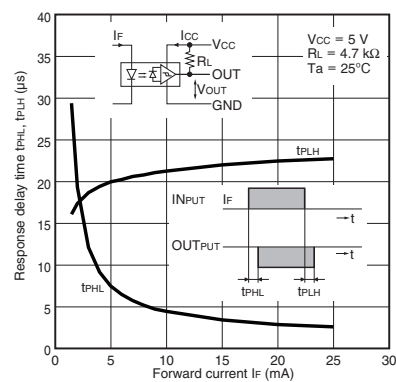


Fig 9. Repeat Sensing Position Characteristics (Typical)

