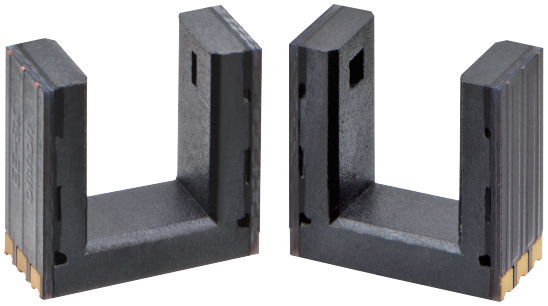
Photomicrosensor (Transmissive)

EE-SX3350/EE-SX4350

Compact Slot / SMD Type (Slot width: 5 mm)

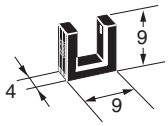
- Unique 5 mm Slot width.
- PCB surface mounting type.
- High resolution with a 0.5-mm-wide aperture.
- Choice of 2 types of Photo-IC output (EE-SX3350: Dark ON, EE-SX4350: Light ON).



⚠ **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	**5 mm** (Slot width)	Emitter 1.4 × 1.4 Detector 1.4 × 0.5	Photo IC	**EE-SX3350** (Dark-ON) **EE-SX4350** (Light-ON)

Ratings, Characteristics and Exterior Specifications

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rated value	Unit	Remarks
Emitter				
Forward current	I_F	30	mA	--- ✻1
Reverse voltage	V_R	4	V	---
Detector				
Power supply voltage	V_{CC}	16	V	---
Output voltage	V_{OUT}	28	V	---
Output current	I_{OUT}	16	mA	---
Permissible output dissipation	P_{OUT}	80	mW	--- ✻1
Operating temperature	T_{opr}	-30 to +85	°C	--- ✻1
Storage temperature	T_{stg}	-40 to +100	°C	--- ✻1
Reflow soldering temperature	T_{sol}	255	°C	10 sec. max. ✻2

✻1. Continuous Forward Current and Collector Power Dissipation must be derated complying. The product should be used without freezing or condensation.

✻2. In case of reflow soldering, conditions which are shown at the temperature profile should be kept.

Exterior Specifications

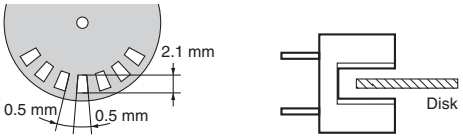
Connecting method	Weight (g)	Material
		Case
SMT	0.3	PPS

Electrical and Optical Characteristics (Ta = 25°C)

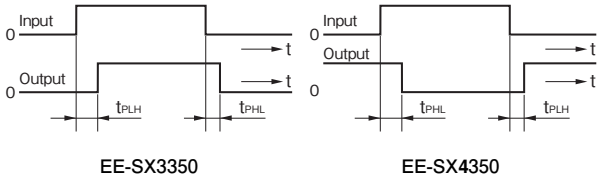
Item	Symbol	Value			Unit	Condition
		MIN.	TYP.	MAX.		
Emitter						
Forward voltage	V_F	---	1.2	1.5	V	I_F = 20 mA
Reverse current	I_R	---	0.01	10	μA	V_R = 4 V
Peak emission wavelength	λ_P	---	940	---	nm	I_F = 20 mA
Detector						
Power supply voltage	V_{CC}	4.5	---	16	V	---
Low-level output voltage	V_{OL}	---	0.12	0.4	V	V_{CC} = 4.5 to 16 V I_F = 0 mA (EE-SX3350) I_F = 10 mA (EE-SX4350) I_{OL}=16 mA
High-level output voltage	I_{OH}	---	---	100	μA	V_{CC} = 4.5 to 16 V I_F = 10 mA (EE-SX3350) I_F = 0 mA (EE-SX4350) V_{OH} = 28 V
Current consumption	I_{CC}	---	4	10	mA	V_{CC} = 4.5 to 16 V
Peak spectral sensitivity wavelength	λ_P	---	870	---	nm	V_{CC} = 4.5 to 16 V
LED current when output is OFF (EE-SX3350) **LED current when output is ON (EE-SX4350)**	I_{FT}	---	---	10	mA	V_{CC} = 4.5 to 16 V
Hysteresis	△H	---	15	---	%	V_{CC} = 4.5 to 16 V ✻1
Response frequency	f	3	---	---	kHz	V_{CC} = 4.5 to 16 V I_F = 20 mA I_{OL} = 16 mA ✻2
Response delay time	t_{PLH}	---	6	---	μs	V_{CC} = 4.5 to 16 V I_F = 20 mA I_{OL} = 16 mA ✻3
Response delay time	t_{PHL}	---	10	---	μs	V_{CC} = 4.5 to 16 V I_F = 20 mA I_{OL}=16 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 in turned from ON to OFF and when the photo IC in 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. The value in the parentheses applies to the EE-SX4350.



Engineering Data (Reference value)

Fig 1. Forward Current vs. Collector Dissipation Temperature Rating

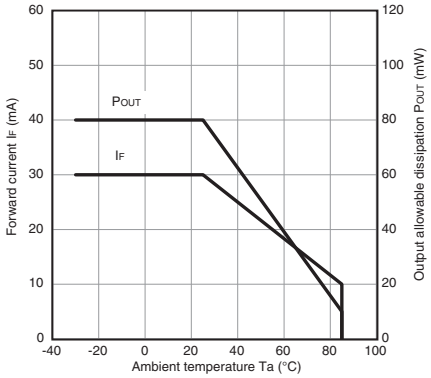


Fig 2. Forward Current vs. Forward Voltage Characteristics (Typical)

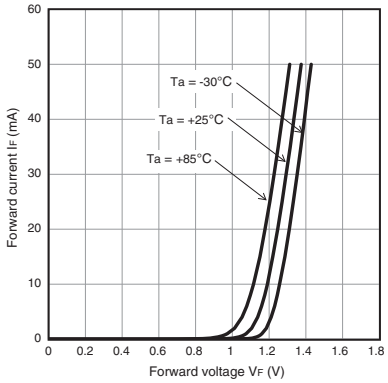


Fig 3. LED Current vs. Supply Voltage (Typical)

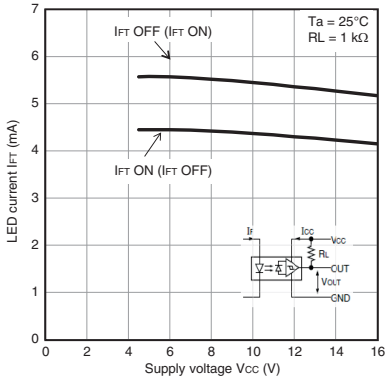


Fig 4.LED Current vs. Ambient Temperature Characteristics (Typical)

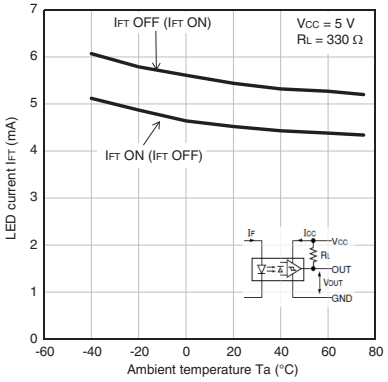


Fig 5. Low-level Output Voltage vs. Output Current (Typical)

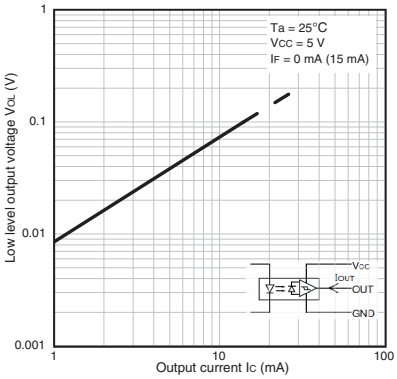


Fig 6. Low-level Output Voltage vs. Ambient Temperature Characteristics (Typical)

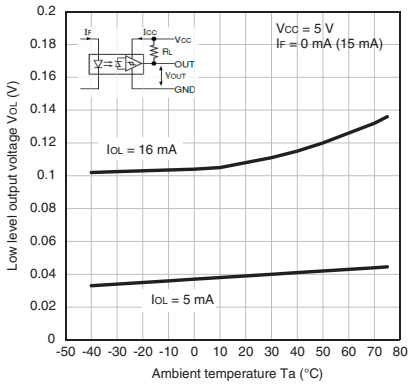


Fig 7. Current Consumption vs. Supply Voltage (Typical)

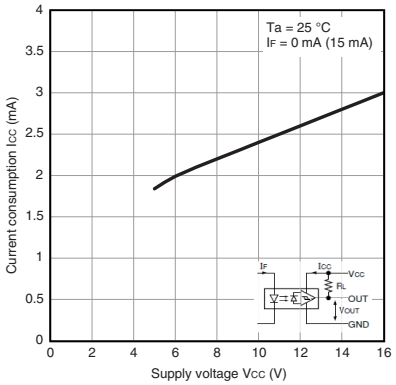


Fig 8. Response Delay Time vs. Forward Current (Typical)

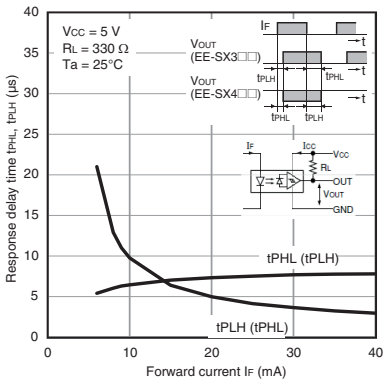
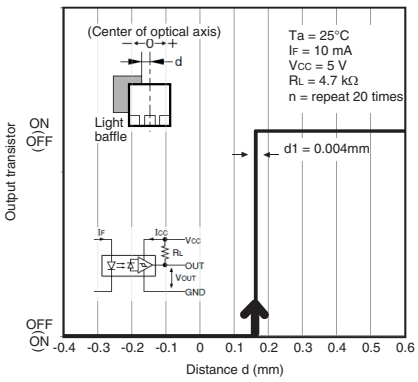



Fig 9. Repeat Sensing Position Characteristics (Typical)