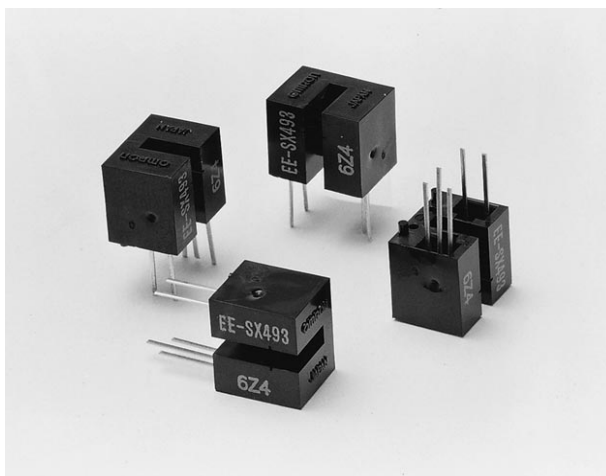
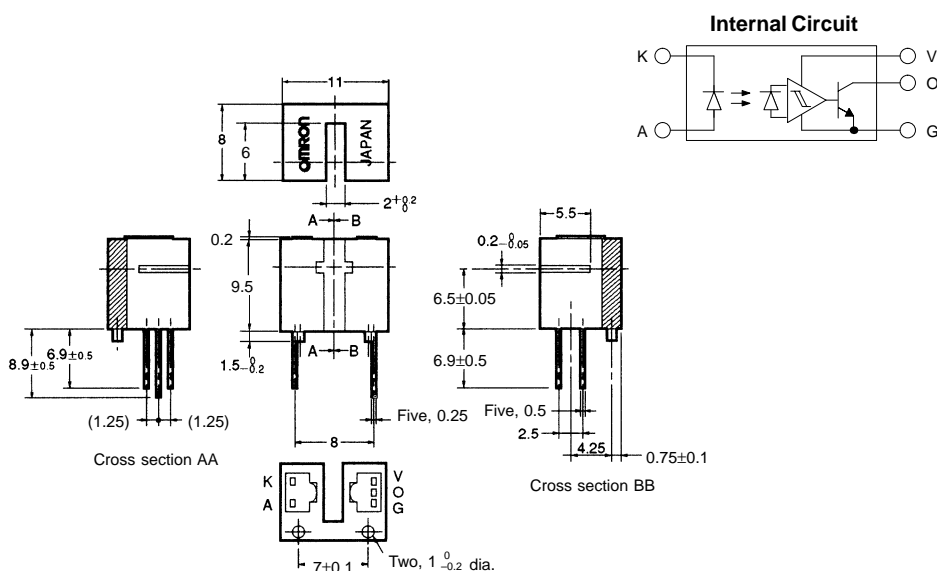


Transmissive

- Incorporates a photo-IC chip with a built-in detector element and amplifier.
- Detector element has built-in temperature compensation circuit.
- A wide supply voltage range: 4.5 to 16 VDC
- Directly connects to C-MOS and TTL.
- Allows highly precise sensing with a 0.2-mm-wide sensing aperture.
- Vertical slot arrangement.
- Incorporates PCB location pips.



Dimensions



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

Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	±0.125
3 < mm ≤ 6	±0.150
6 < mm ≤ 10	±0.180
10 < mm ≤ 18	±0.215
18 < mm ≤ 30	±0.260

Specifications

■ Absolute Maximum Ratings (Ta = 25°C)

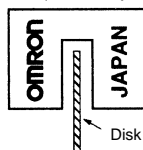
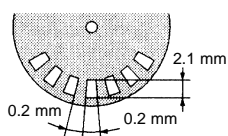
Item	Symbol	Rated value
Emitter	Forward current	I_F
	Reverse voltage	V_R
Detector	Supply voltage	V_{CC}
	Output voltage	V_{OUT}
	Output current	I_{OUT}
	Permissible output dissipation	P_{OUT}
	Ambient temperature	
Operating	T_{opr}	-40°C to 60°C
Storage	T_{stg}	-40°C to 85°C
Soldering	T_{sol}	260°C

Note: Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

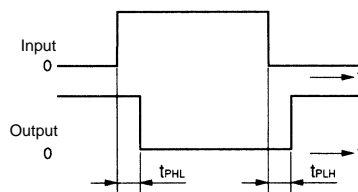
■ Electrical and Optical Characteristics (Ta = 25°C)

Item		Symbol	Value	Condition
Emitter	Forward voltage	V_F	1.2 V typ., 1.5 V max.	$I_F = 20 \text{ mA}$
	Reverse current	I_R	0.01 μA typ., 10 μA max.	$V_R = 4 \text{ V}$
	Peak emission wavelength	λ_P	940 nm typ.	$I_F = 20 \text{ mA}$
Detector	Low-level output voltage	V_{OL}	0.12 V typ., 0.4 V max.	$V_{CC} = 4.5 \text{ to } 16 \text{ V}$, $I_{OL} = 16 \text{ mA}$, $I_F = 15 \text{ mA}$
	High-level output voltage	V_{OH}	15 V min.	$V_{CC} = 16 \text{ V}$, $R_L = 1 \text{ k}\Omega$, $I_F = 0 \text{ mA}$
	Current consumption	I_{CC}	5 mA typ., 10 mA max.	$V_{CC} = 16 \text{ V}$
	Peak spectral sensitivity wavelength	λ_P	870 nm typ.	$V_{CC} = 4.5 \text{ to } 16 \text{ V}$
LED current when output is OFF	I_{FT}	10 mA typ., 15 mA max.	$V_{CC} = 4.5 \text{ to } 16 \text{ V}$	
LED current when output is ON				
Hysteresis	ΔH	15% typ.	$V_{CC} = 4.5 \text{ to } 16 \text{ V}$ (see note 1)	
Response frequency	f	3,000 P.P.S min.	$V_{CC} = 4.5 \text{ to } 16 \text{ V}$, $I_F = 15 \text{ mA}$, $I_{OL} = 16 \text{ mA}$ (see note 2)	
Response delay time	t_{PLH} (t_{PHL})	3 μs typ.	$V_{CC} = 4.5 \text{ to } 16 \text{ V}$, $I_F = 15 \text{ mA}$, $I_{OL} = 16 \text{ mA}$ (see note 3)	
Response delay time	t_{PHL} (t_{PLH})	20 μs typ.	$V_{CC} = 4.5 \text{ to } 16 \text{ V}$, $I_F = 15 \text{ mA}$, $I_{OL} = 16 \text{ mA}$ (see note 3)	

- Note:**
- 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.
 - The value of the response frequency is measured by rotating the disk as shown below. (P.P.S = pulse/s)

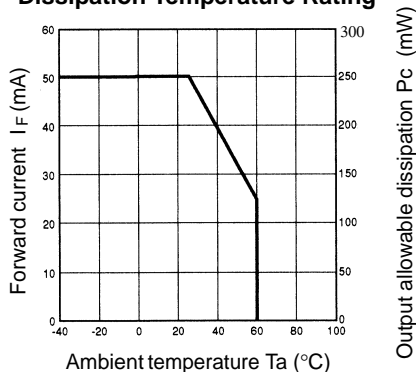


- The following illustrations show the definition of response delay time.

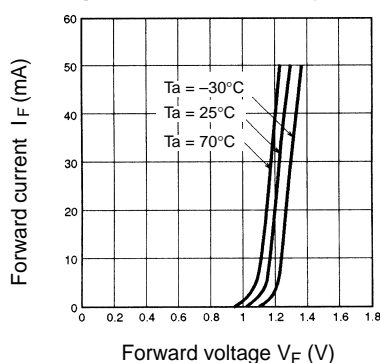


Engineering Data

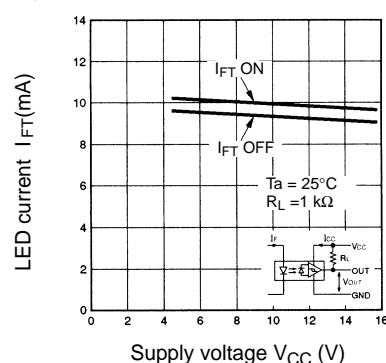
Forward Current vs. Collector Dissipation Temperature Rating



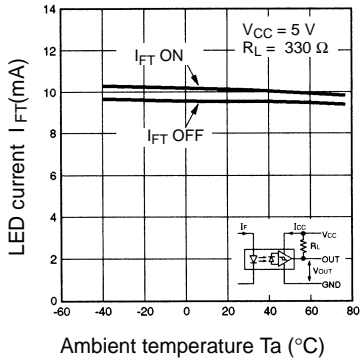
Forward Current vs. Forward Voltage Characteristics (Typical)



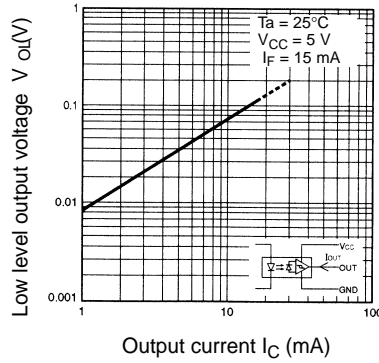
LED Current vs. Supply Voltage (Typical)



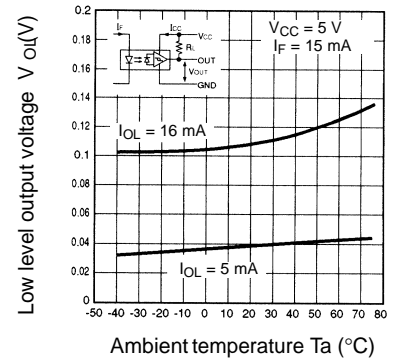
LED Current vs. Ambient Temperature Characteristics (Typical)



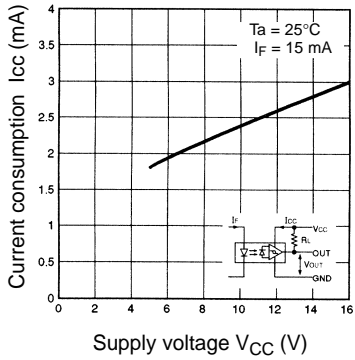
Low-level Output Voltage vs. Output Current (Typical)



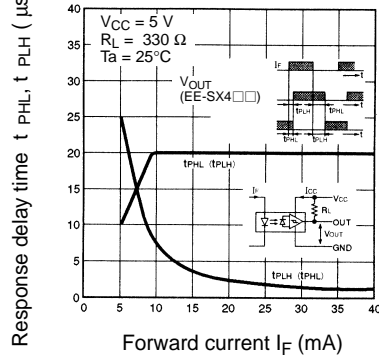
Low-level Output Voltage vs. Ambient Temperature Characteristics (Typical)



Current Consumption vs. Supply Voltage (Typical)



Response Delay Time vs. Forward Current (Typical)



Repeat Sensing Position Characteristics (Typical)

