IS455

Linear Output Type OPIC Light Detector

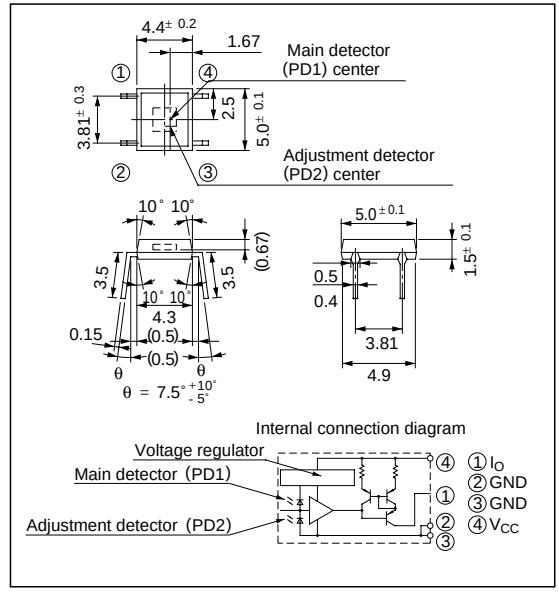
■ Features

1. Liner output
2. Capable of output voltage level adjustment due to external resistor

■ Applications

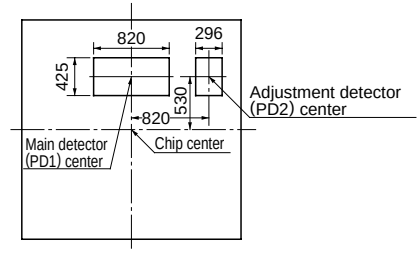
1. Copiers

■ Outline Dimensions (Unit : mm)



*" OPIC " (Optical IC) is a trademark of the SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.

■ Enlarged Figure of Light Detecting Portion (Unit : μm)



■ Absolute Maximum Ratings (Ta= 25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	-0.5 to +8	V
Output voltage	V_O	-0.5 to V_{CC}	V
Output current	I_O	- 10	mA
Power dissipation	P_O	150	mW
Operating temperature	T_{opr}	-25 to +85	°C
Storage temperature	T_{stg}	-40 to +85	°C
*1 Soldering temperature	T_{sol}	260	°C

*1 For 3 seconds at the position of 1mm from the bottom face of resin package.

■ Electro-optical Characteristics

(Ta= 25˚C, V_{CC} = 5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Supply current	I_{CC}	E_V = 0 lx	0.2	0.55	1.0	mA
Output current 1	I_{O1}	E_V = 10 lx *2	-6.5	-10	- 13.5	μA
Output current 2	I_{O2}	E_V = 1 000 lx *2	-0.65	-1	- 1.35	mA
*3 Output current ratio	R_{IO}	-	92	100	108	-
Dark output current	I_{od}	E_V = 0	-	-10	- 500	nA
Peak sensitivity wavelength	λ_P	-	-	700	-	nm

*2 E_V: Illuminance by CIE standard light source A (tungsten lamp)

*3 $RIo = \frac{I_{O2}}{I_{O1}}$

■ Recommended Operating Conditions

Parameter	Symbol	MIN.	MAX.	Unit
Supply voltage	V_{CC}	4.5	5.5	V
*4 Illuminance	E_V	10	5 000	lx
Output voltage	V_O	0	V_{CC} -1.5	V
Oparating temperature	T_{opr}	-10	70	˚C

*4 E_V: Illuminamce by standard light source A (tungsten lamp)

Fig. 1 Power Dissipation vs. Ambient Temperature

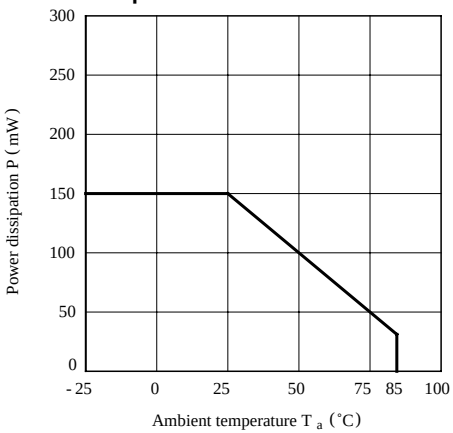


Fig. 2 Output Current vs. Illuminance

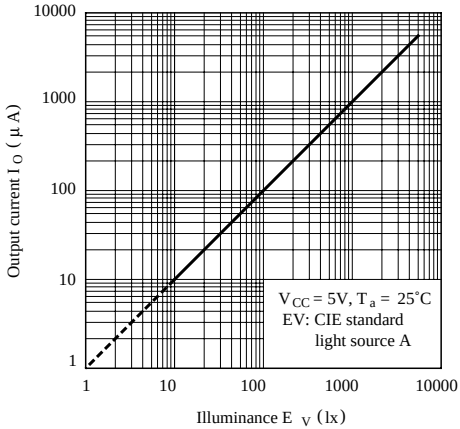


Fig. 3 Spectral Sensitivity

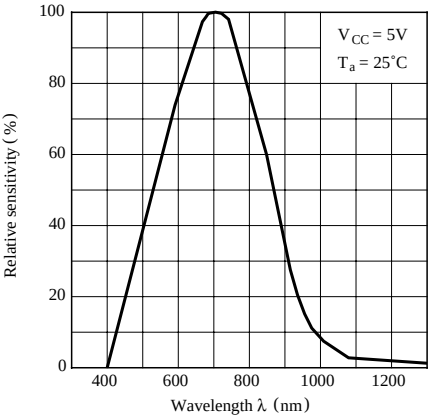


Fig. 4 Relative Output Current vs. Ambient Temperature

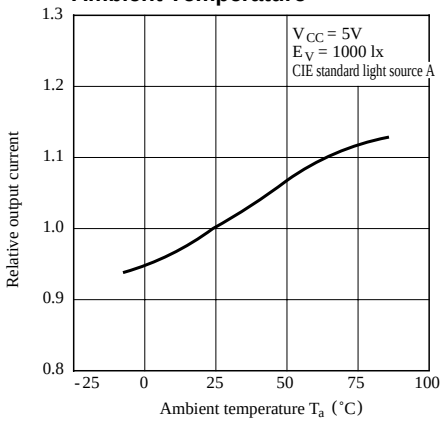


Fig. 5 Dark Output Current vs. Ambient Temperture

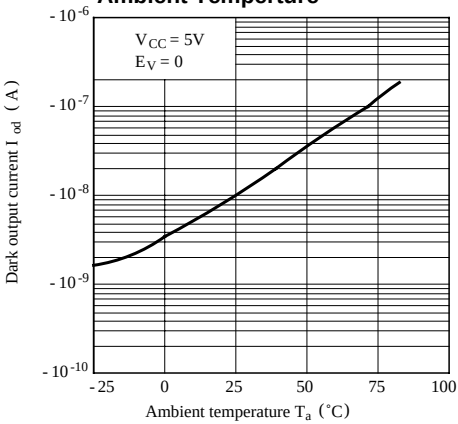


Fig. 6 Output Current vs. Supply Voltage

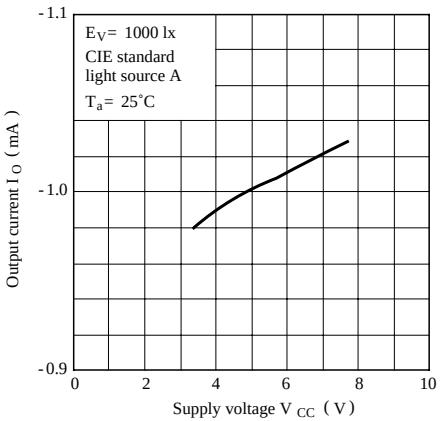
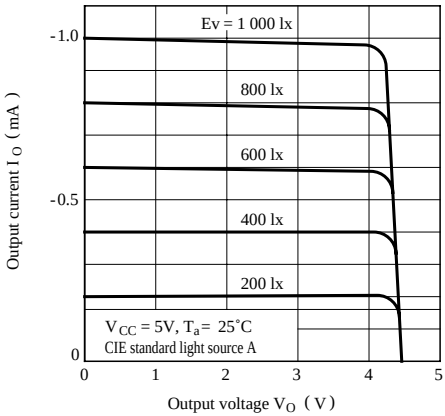


Fig. 7 Output Current vs. Output Voltage



Test Circuit for Output Current vs. Output Voltage

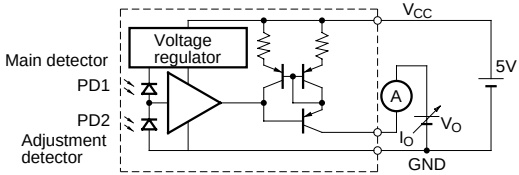


Fig. 8 Supply Current vs. Supply Voltage

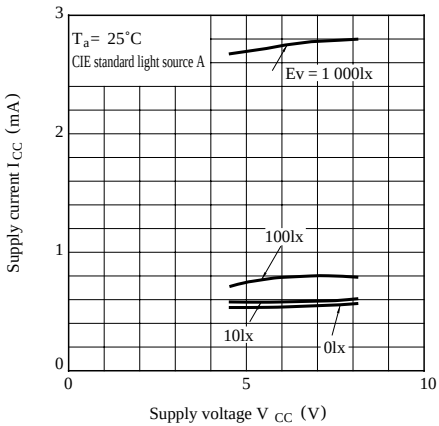


Fig. 9 Supply Current vs. Threshold Illuminance

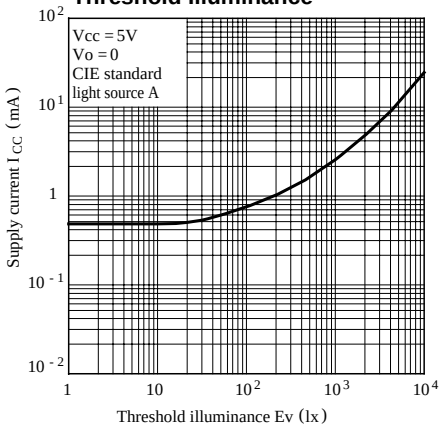
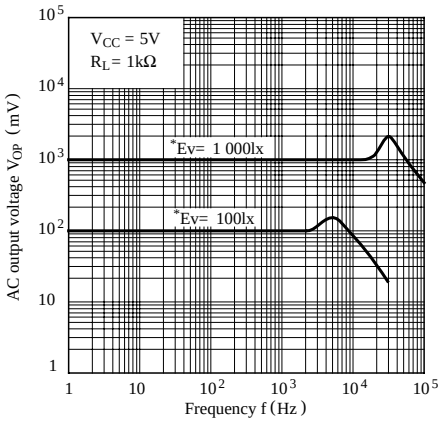


Fig.10 Frequency



Test Circuit For Frequency

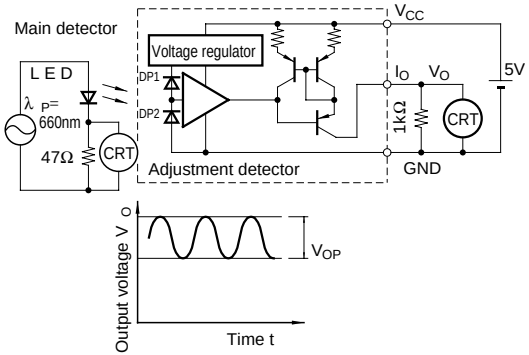
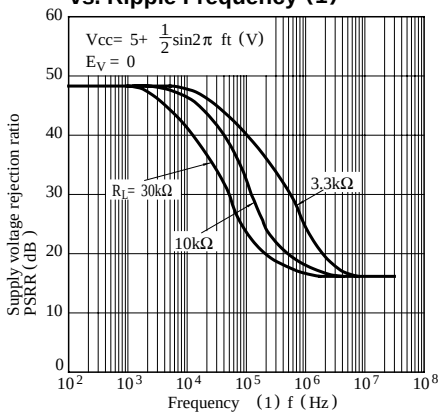
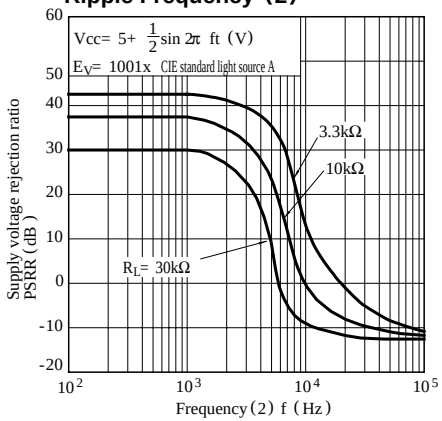


Fig.11 Supply Voltage Rejection Ratio vs. Ripple Frequency (1)



$$PSRR = 20 \log \frac{\text{Ripple Voltage } V_{CC}}{\text{Ripple Voltage } V_O}$$

Fig.12 Supply Voltage Rejection Ratio vs. Ripple Frequency (2)



● Please refer to the chapter "Precautions for Use."

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