1s455

Linear Output Type **OPIC** Light Detector

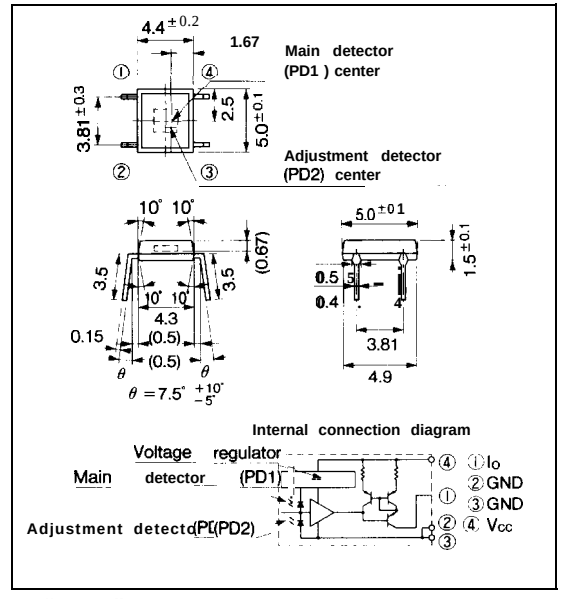
■ Features

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

■ Applications

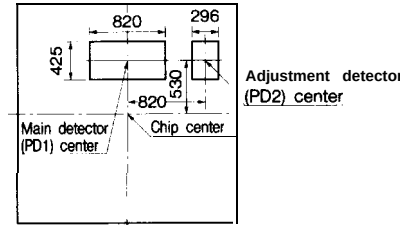
1. Copiers

■ 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℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	–0.5 to +8	V
Output voltage	Vo	-0.5 to Vcc	V
Output current	10	– 10	mA
Power dissipation	Po	150	mW
Operating temperature	T_{opr}	–25 to +85	℃
Storage temperature	T_{stg}	–40 to +85	℃
*1 Soldering temperature	T_{sol}	260	℃

*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 = 0lx	0.2	0.55	1.0	mA
Output current 1	I_{O1}	Ev = 10lx *2	–6.5	–1 o	– 13.5	μA
Output current 2	I_{O2}	Ev = 1 000lx ● 2	–0.65	–1	–1.35	mA
*3Output current ratio	RIO		92	100	108	–
Dark output current	I_{od}	Ev=O	—	–1 o	– 500	nA
Peak sensitivity wavelength	λ_P		—	700	–	nm

*2 Ev : 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
*4Illuminance	E_V	10	5 000	lx
Output voltage	V_O	0	V_{CC} − 1.5	V
Oparating temperature	T_{opr}	−10	70	℃

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

Fig. 1 Power Dissipation vs. Ambient Temperature

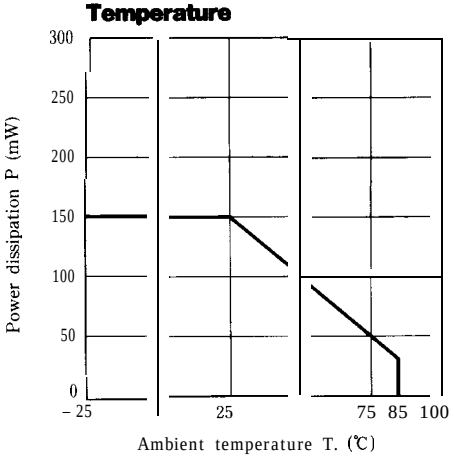


Fig. 2 Output Current vs. Illuminance

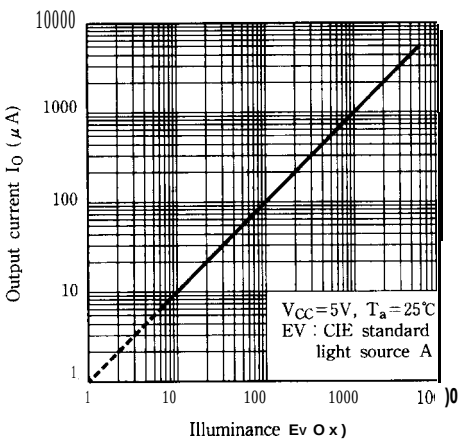


Fig. 3 Spectral Sensitivity

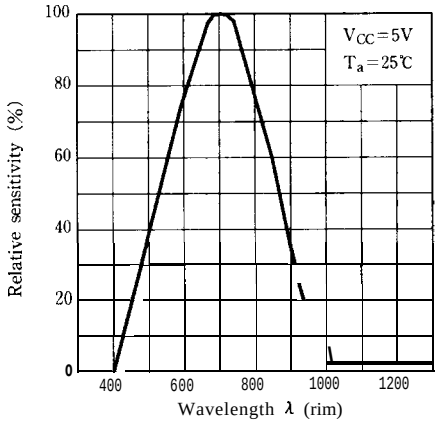


Fig. 4 Relative Output Current vs. Ambient Temperature

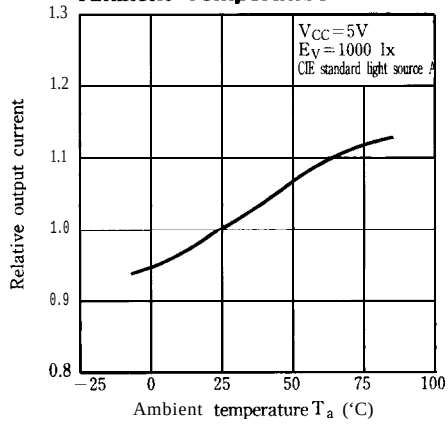


Fig. 5 Dark Output Current vs. Ambient Temperture

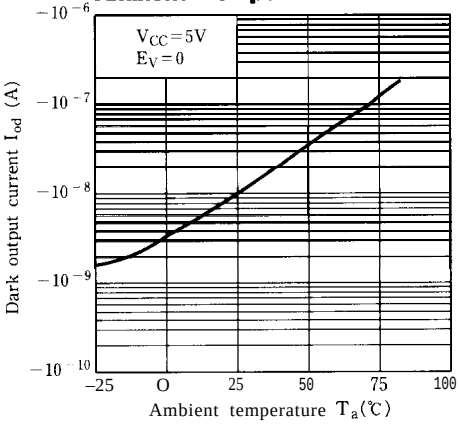


Fig. 6 Output Current vs. Supply Voltage

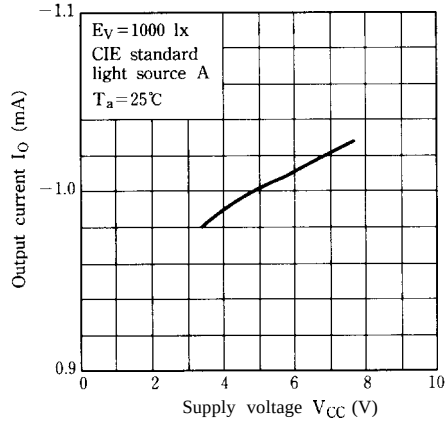
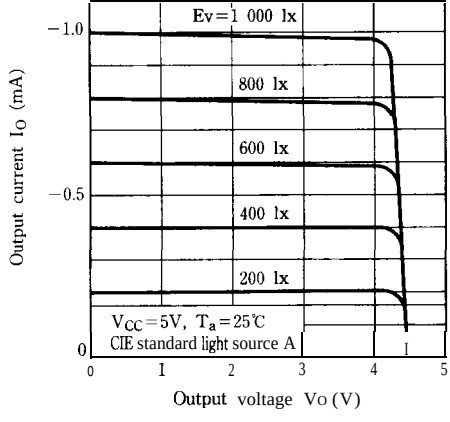


Fig. 7 Output Current vs. Output Voltage



Test Circuit for Output Current vs. Output Voltage

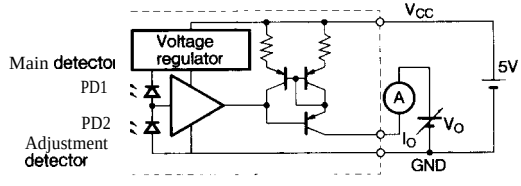


Fig. 8 Supply Current vs. Supply Voltage

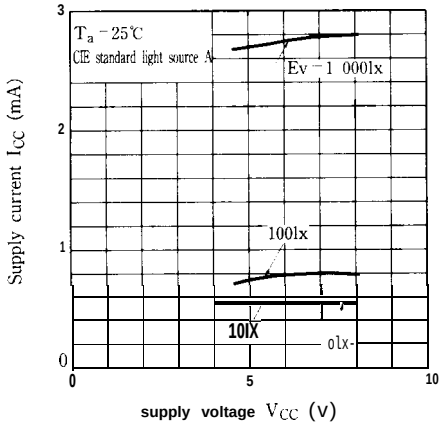


Fig. 9 Supply Current vs. Threshold Illuminance

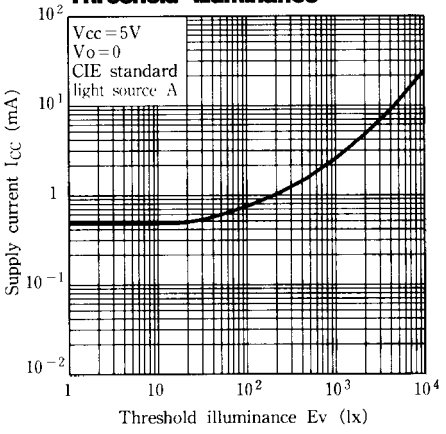
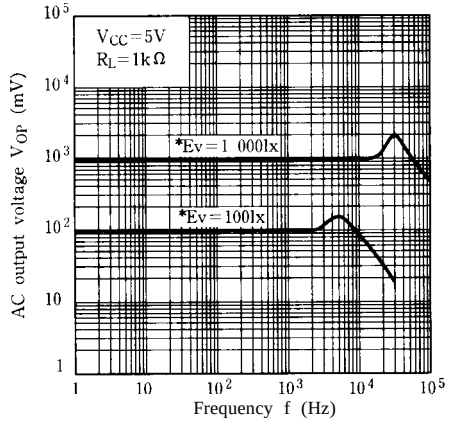


Fig.10 Frequency



Test Circuit For Frequency

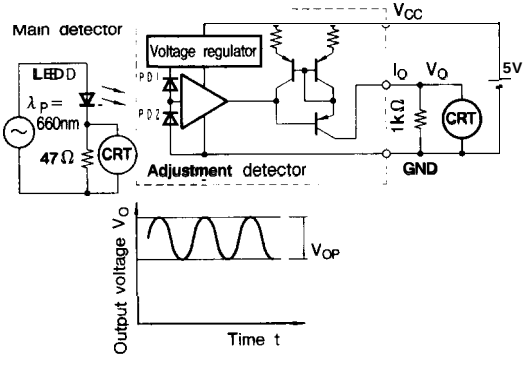
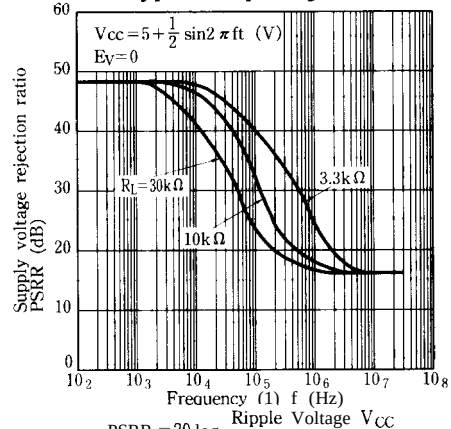
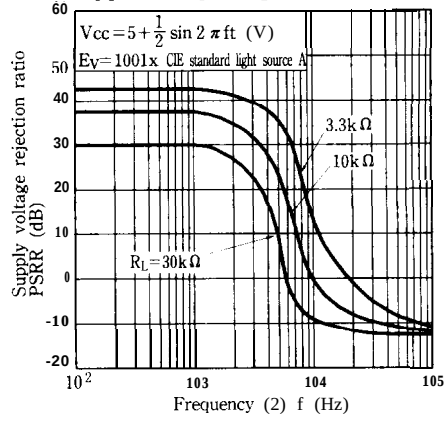


Fig.11 Supply Voltage Rejection Ratio vs. Ripple Frequency (1)



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

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



● Please **refer to the chapter "Precautions for Use."** (Page 78 to 93)