

IS455

Linear Output Type OPIC Light Detector

■ Features

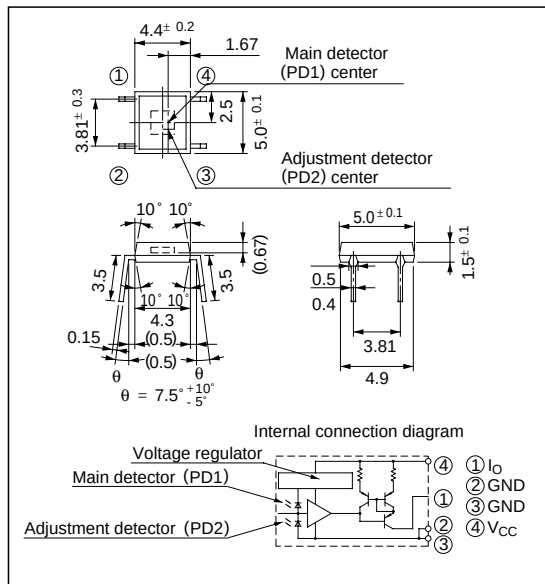
1. Linear output
2. Capable of output voltage level adjustment due to external resistor

■ Applications

- ## 1. Copiers

■ Outline Dimensions

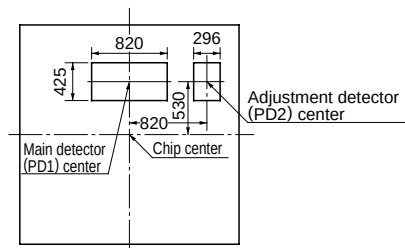
(Unit: mm)



*“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, Vcc = 5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Supply current	ICC	EV = 0 lx	0.2	0.55	1.0	mA
Output current 1	IO1	EV = 10 lx *2	-6.5	-10	- 13.5	μA
Output current 2	IO2	EV = 1 000 lx *2	-0.65	-1	- 1.35	mA
*3 Output current ratio	RIO	-	92	100	108	-
Dark output current	Iod	EV = 0	-	- 10	- 500	nA
Peak sensitivity wavelength	λ P	-	-	700	-	nm

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

*3 $RIO = \frac{IO2}{IO1}$

■ Recommended Operating Conditions

Parameter	Symbol	MIN.	MAX.	Unit
Supply voltage	VCC	4.5	5.5	V
*4 Illuminance	EV	10	5 000	lx
Output voltage	VO	0	VCC -1.5	V
Operating temperature	Topr	- 10	70	°C

*4 EV: Illuminance by standard light source A (tungsten lamp)

Fig. 1 Power Dissipation vs. Ambient Temperature

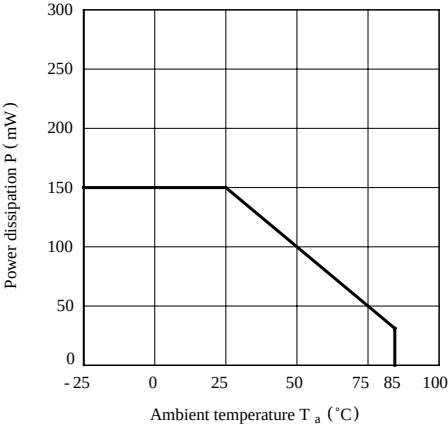


Fig. 2 Output Current vs. Illuminance

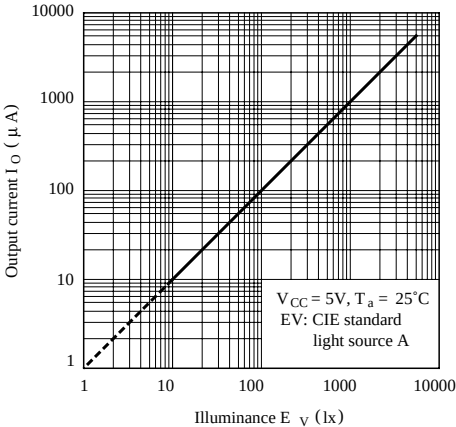


Fig. 3 Spectral Sensitivity

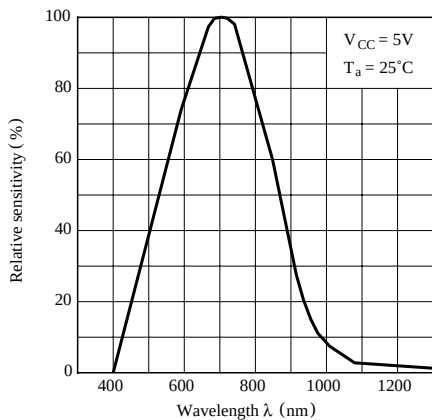


Fig. 4 Relative Output Current vs. Ambient Temperature

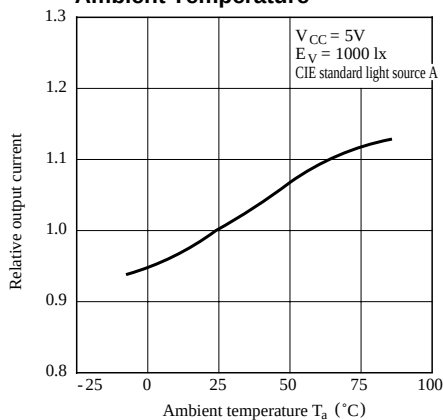


Fig. 5 Dark Output Current vs. Ambient Temperature

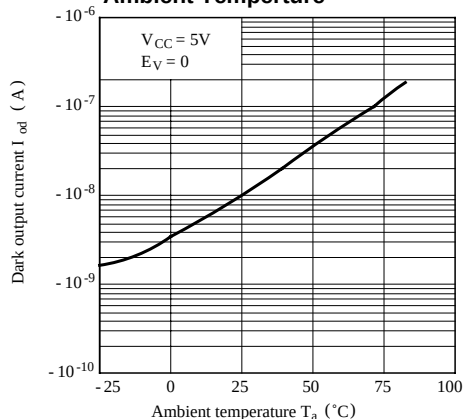


Fig. 6 Output Current vs. Supply Voltage

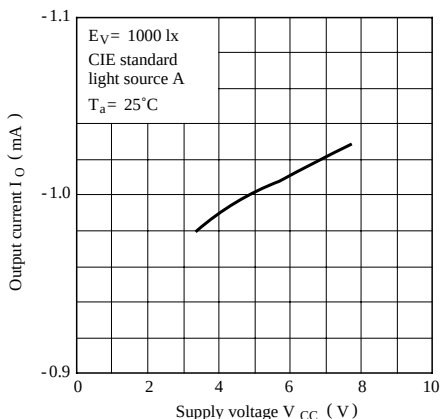
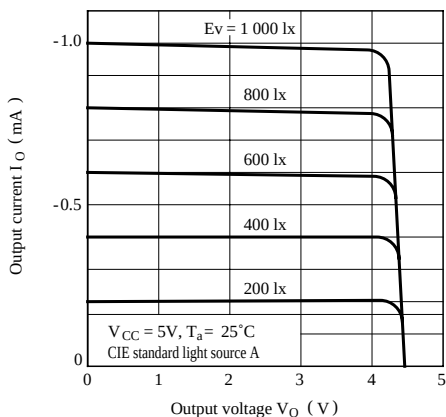


Fig. 7 Output Current vs. Output Voltage



Test Circuit for Output Current vs. Output Voltage

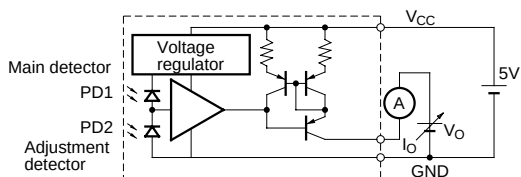


Fig. 8 Supply Current vs. Supply Voltage

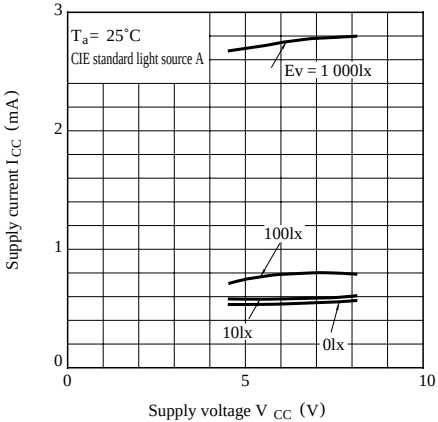


Fig. 9 Supply Current vs. Threshold Illuminance

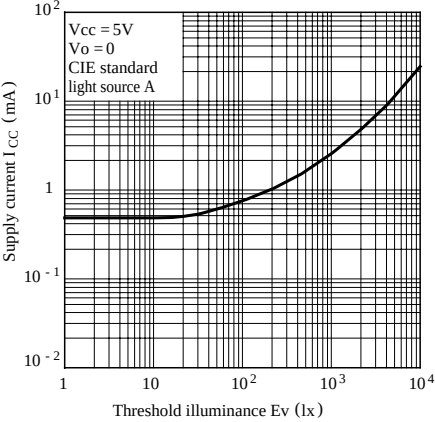
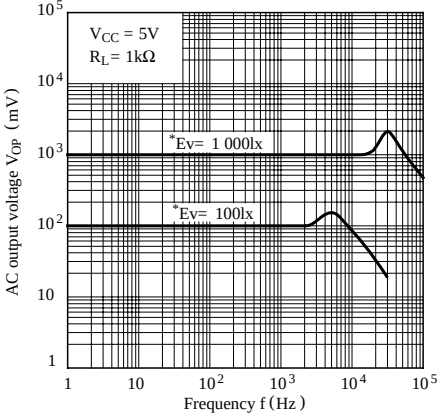


Fig.10 Frequency



Test Circuit For Frequency

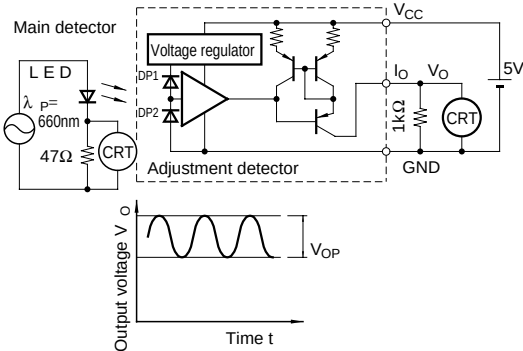


Fig.11 Supply Voltage Rejection Ratio vs. Ripple Frequency (1)

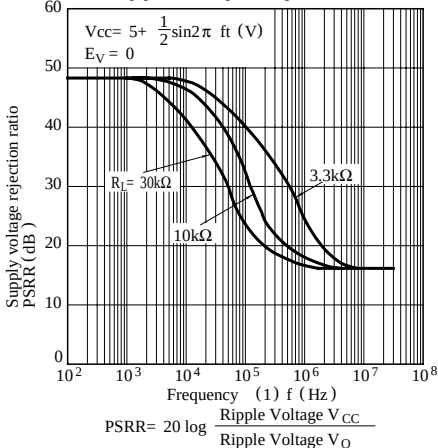


Fig.12 Supply Voltage Rejection Ratio vs. Ripple Frequency (2)

