SHARP GP2Y1001AU

## **GP2Y1001AU**

#### **■** Features

- 1. Compact, thin type (58×38×20.7mm)
- 2. Low dissipation current (Icc:MAX. 20mA)
- 3. Single-shot detection of house dust

## ■ Applications

- 1. Air conditioners
- 2. Air cleaner

## ■ Absolute Maximum Ratings

 $(Ta=25^{\circ}C)$ 

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	-0.3 to +15	V
*1 Input terminal voltage	VLED	-0.3 to Vcc	V
Operating temperature	Topr	-10 to +65	°C
Soldering temperature	Tsol	-20 to +80	°C

<sup>\*1</sup> Open drain drive input

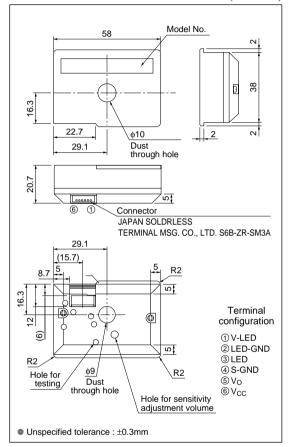
## **■** Recommend Operating Conditions

Parameter	Symbol	Rating	Unit
Operating Supply voltage	Vcc	12±1.8	V

# Compact Dust Sensor for Air Conditioners

### **■** Outline Dimensions

(Unit: mm)



■ Electro-optical Chara	acteristics
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(	Ta=25°	C	Vcc=	12V

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Detecting sensitivity	K	*1 *2 *3 *4	0.84	1.2	1.56	V/ (0.1mg/m <sup>3</sup> )
Output voltage (no dust)	Voc	*2 *3 *4	0	1.2	2.5	V
Output voltage range	Voh	*2 *3 *4 R <sub>L</sub> =4.7kΩ	10.2	_	_	V
LED terminal current	ILED	*2 *3 *4 LED terminal=0V	_	13	20	mA
Dissipation current	Icc	*2 *3 R <sub>L</sub> =∞	_	13	20	mA

<sup>\*1</sup> Dust density shall be measured the density of Mild seven by using a digital dust indicator. (P-5L2 made by SIBATA SCIENTIFIC TECHNOLOGY LTD.)

Fig.1 Input Condition for LED Input Terminal

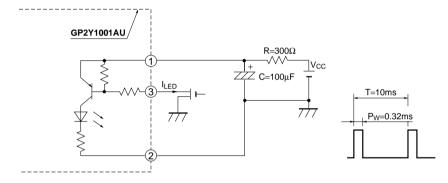
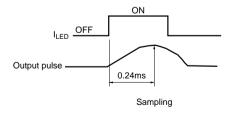


Fig.2 Sampling Timing of Output Pulse



## ■ Recommended Input Condition for LED Input Terminal

Parameter	Symbol	Recommendation	Unit
Pulse cycle	T	10±1	ms
Pulse width	Pw	0.32±0.02	ms

Sensitivity:K shall be specified about output voltage change when dust density is changed  $0.1 \text{mg/m}^3$  \*2 Input condition for LED input terminal (pulse driving condition) is shown in Fig.1

<sup>\*3</sup> Refer to Fig.1

<sup>\*4</sup> Refer to Fig.2

Fig.3 Internal Block Diagram

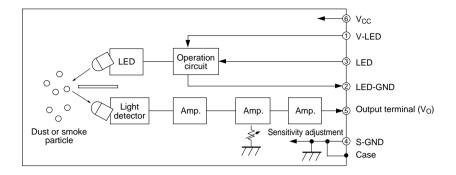
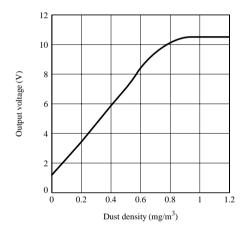


Fig.4 Output Voltage vs. Dust Density



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