

# GP2Y1001AU

## Compact Dust Sensor for Air Conditioners

## ■ Features

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

## ■ Applications

1. Air conditioners
2. Air cleaner

■ **Absolute Maximum Ratings** (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	-0.3 to +15	V
*1 Input terminal voltage	V <sub>LED</sub>	-0.3 to V <sub>CC</sub>	V
Operating temperature	T <sub>opr</sub>	-10 to +65	°C
Soldering temperature	T <sub>sol</sub>	-20 to +80	°C

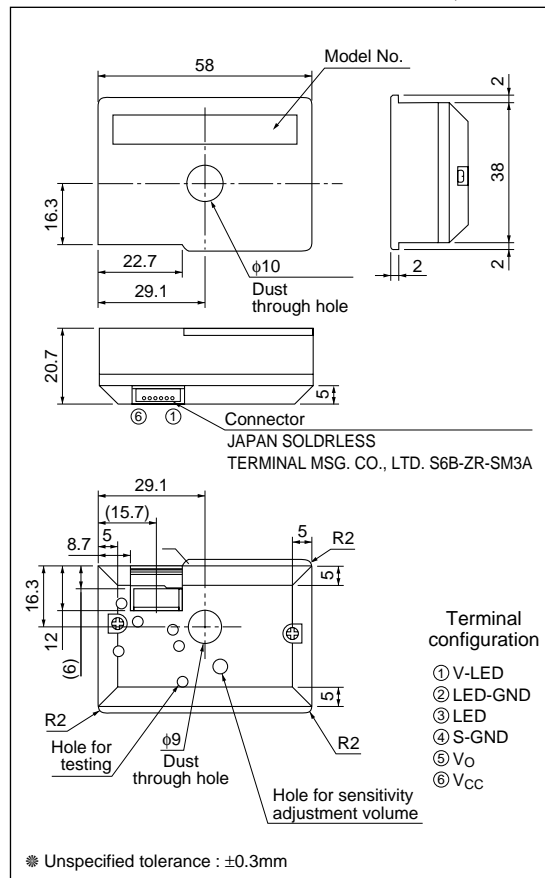
\*1 Open drain drive input

### ■ Recommend Operating Conditions

Parameter	Symbol	Rating	Unit
Operating Supply voltage	V <sub>CC</sub>	12±1.8	V

## ■ Outline Dimensions

(Unit : mm)



■ Electro-optical Characteristics

(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 RL=4.7kΩ	10.2	—	—	V
LED terminal current	ILED	*2 *3 *4 LED terminal=0V	—	13	20	mA
Dissipation current	ICC	*2 *3 RL=∞	—	13	20	mA

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

Sensitivity:K shall be specified about output voltage change when dust density is changed 0.1mg/m<sup>3</sup>

\*2 Input condition for LED input terminal (pulse driving condition) is shown in Fig.1

\*3 Refer to Fig.1

\*4 Refer to Fig.2

Fig.1 Input Condition for LED Input Terminal

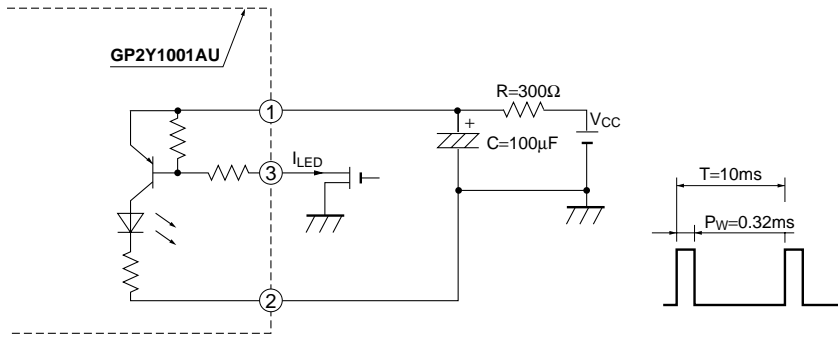
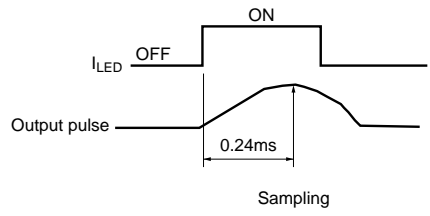


Fig.2 Sampling Timing of Output Pulse



■ 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

Fig.3 Internal Block Diagram

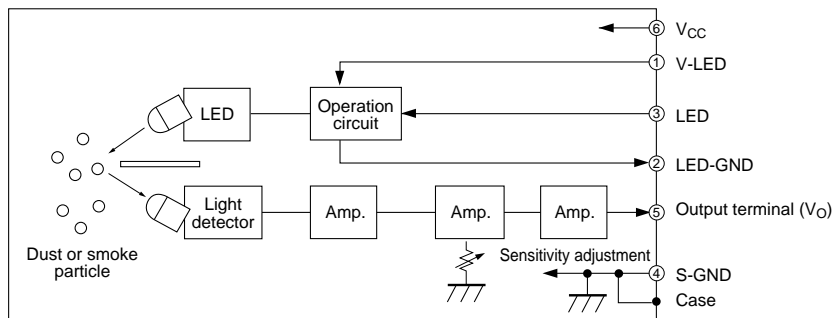
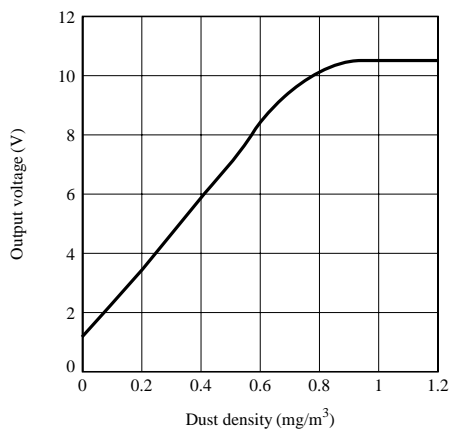


Fig.4 Output Voltage vs. Dust Density



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