

# GP2Y1010AU

## Compact Dust Sensor for Air Conditioners

### ■ Features

1. Compact, thin type (46×30×17.6mm)
2. Low dissipation current ( $I_{CC}$ :MAX. 20mA)
3. Single-shot detection of house dust

### ■ Applications

1. Air conditioners
2. Air cleaner

### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	-0.3 to +7	V
*1 Input terminal voltage	$V_{LED}$	-0.3 to $V_{CC}$	V
Operating temperature	$T_{opr}$	-10 to +65	°C
Soldering temperature	$T_{sol}$	-20 to +80	°C

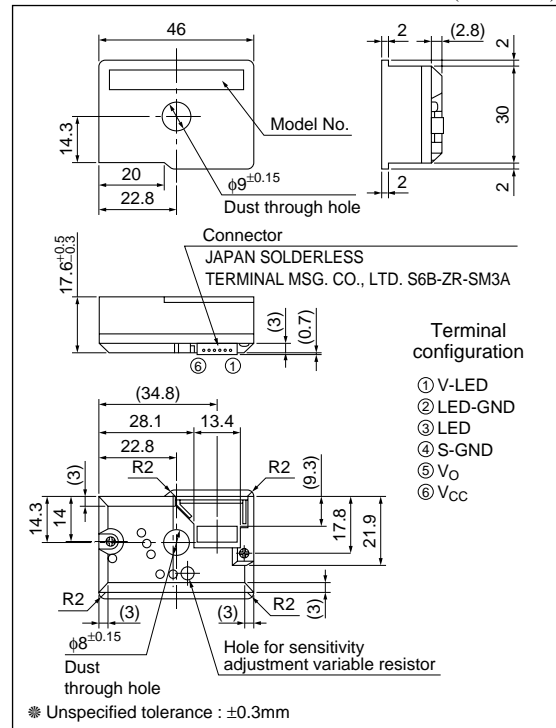
\*1 Open drain drive input

### ■ Recommend Operating Conditions

Parameter	Symbol	Rating	Unit
Operating Supply voltage	$V_{CC}$	$5\pm 0.5$	V

### ■ Outline Dimensions

(Unit : mm)



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### ■ Electro-optical Characteristics

( $T_a=25^\circ\text{C}$ ,  $V_{CC}=5\text{V}$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Detecting sensitivity	K	*1 *2 *3 *4	0.35	0.5	0.65	V/(0.1mg/m <sup>3</sup> )
Output voltage (no dust)	$V_{OC}$	*2 *3 *4	0	0.9	1.5	V
Output voltage range	$V_{OH}$	*2 *3 *4 $R_L=4.7\text{k}\Omega$	3.4	—	—	V
LED terminal current	$I_{LED}$	*2 *3 *4 LED terminal=0V	—	10	20	mA
Dissipation current	$I_{CC}$	*2 *3 $R_L=\infty$	—	11	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.)

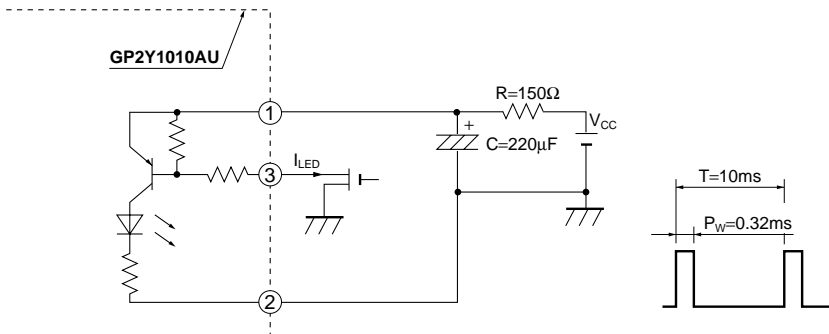
Sensitivity:K shall be specified about output voltage change when dust density is changed 0.1mg/m<sup>3</sup>

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

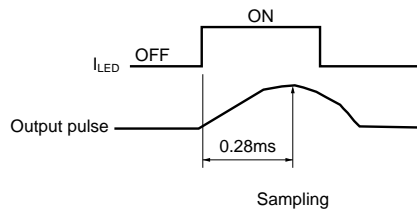
\*3 Refer to Fig.1

\*4 Refer to Fig.2

### Fig.1 Input Condition for LED Input Terminal



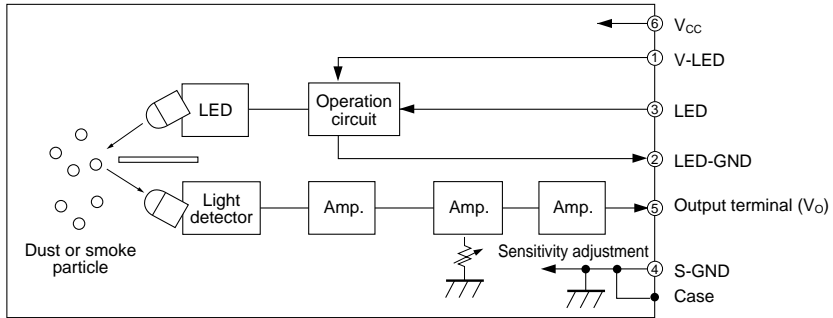
### Fig.2 Sampling Timing of Output Pulse



### ■ Recommended Input Condition for LED Input Terminal

Parameter	Symbol	Recommendation	Unit
Pulse cycle	T	10±1	ms
Pulse width	P <sub>W</sub>	0.32±0.02	ms

**Fig.3 Internal Block Diagram**



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