

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 $(T_a=25^\circ\text{C})$

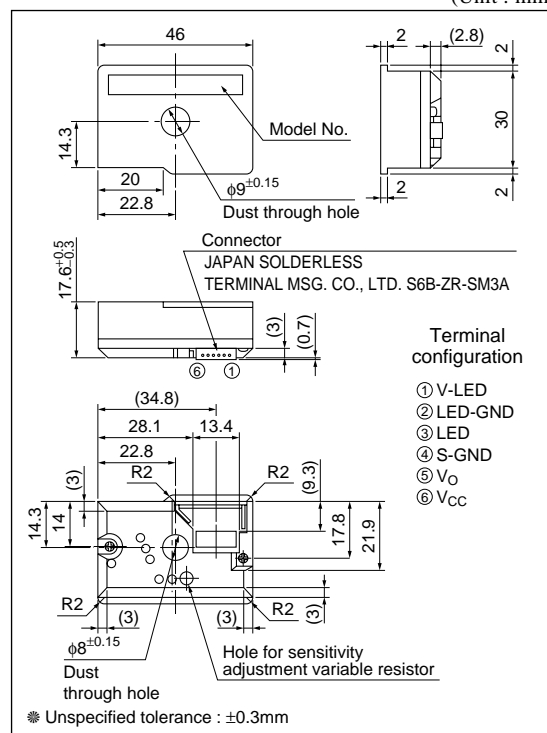
Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	-0.3 to +7	V
*1 Input terminal voltage	V_{LED}	-0.3 to V_{CC}	V
Operating temperature	T_{opr}	-10 to +65	°C
Soldering temperature	T_{sol}	-20 to +80	°C

*1 Open drain drive input

■ Recommend Operating Conditions

Parameter	Symbol	Rating	Unit
Operating Supply voltage	V_{CC}	5 ± 0.5	V

■ Outline Dimensions (Unit : mm)



■ 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 ³)
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/m³

*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

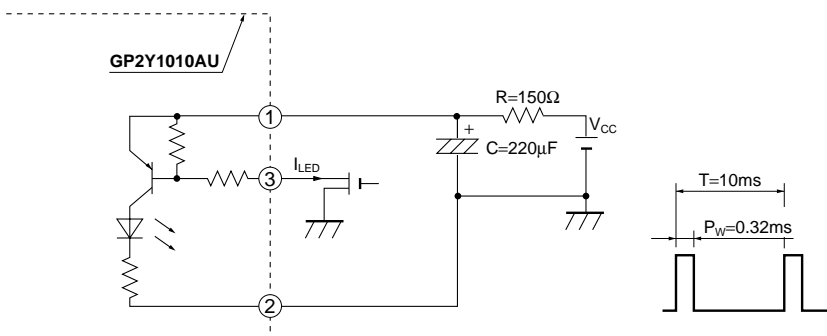
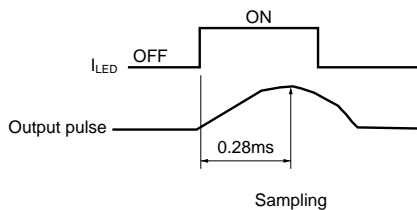


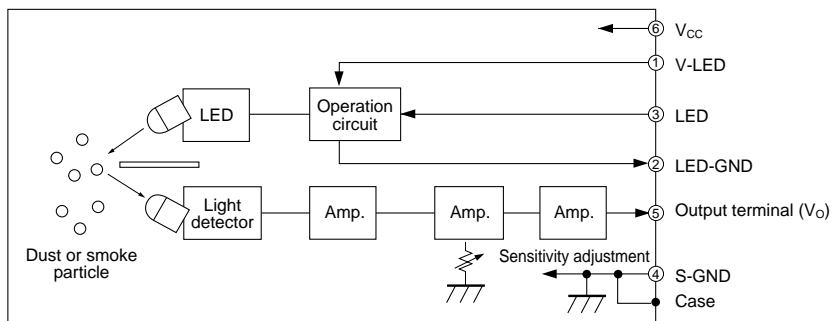
Fig.2 Sampling Timing of Output Pulse



■ Recommended Input Condition for LED Input Terminal

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

Fig.3 Internal Block Diagram



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