GP2Y1001AU

Compact Dust Sensor for Air Conditioners

■ 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°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	–0.3 to +15	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

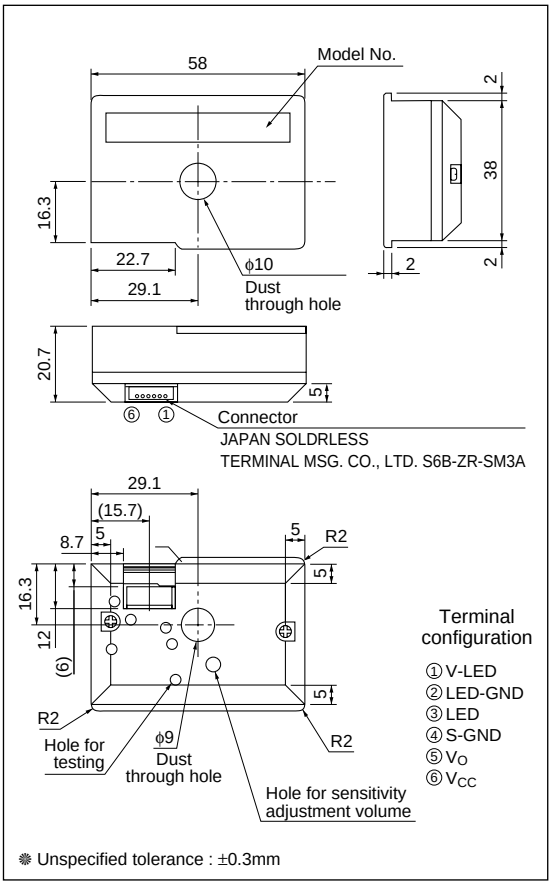
*1 Open drain drive input

■ Recommend Operating Conditions

Parameter	Symbol	Rating	Unit
Operating Supply voltage	V_{CC}	12±1.8	V

■ Outline Dimensions

(Unit : mm)



※ Unspecified tolerance : ±0.3mm

■ 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^3)
Output voltage (no dust)	V_{OC}	*2 *3 *4	0	1.2	2.5	V
Output voltage range	V_{OH}	*2 *3 *4 R_L=4.7kΩ	10.2	–	–	V
LED terminal current	I_{LED}	*2 *3 *4 LED terminal=0V	–	13	20	mA
Dissipation current	I_{CC}	*2 *3 R_L=∞	–	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^3
*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

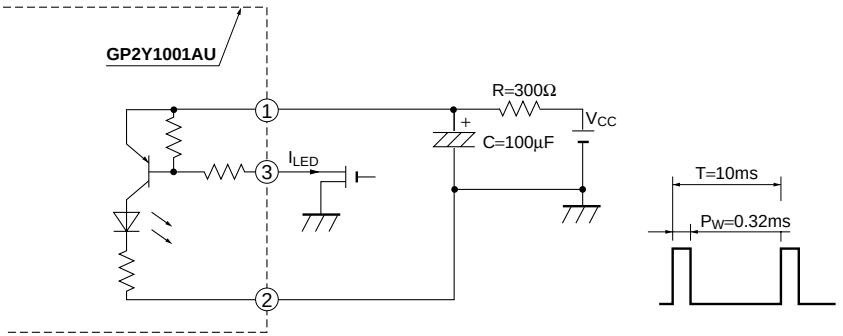
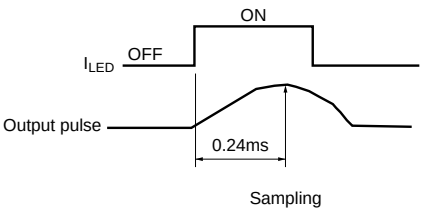


Fig.2 Sampling Timing of Output Pulse



■ 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

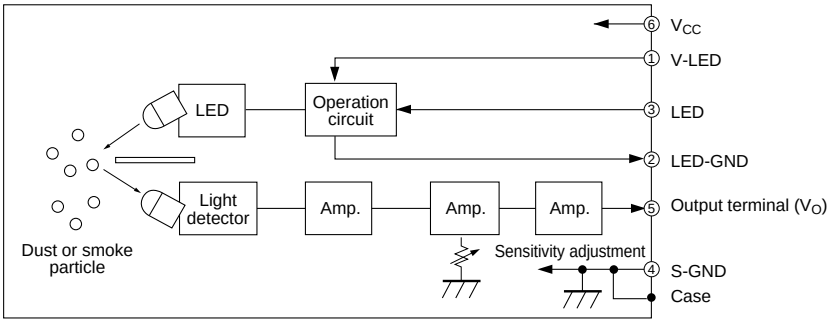
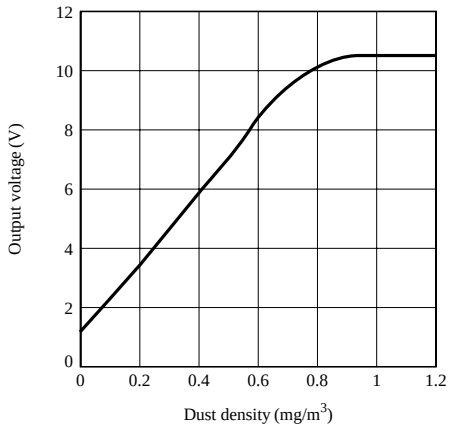


Fig.4 Output Voltage vs. Dust Density



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