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GP2Y1001AU

Compact Dust Sensor for Air Conditioners

■ Features

1. Compact, thin type (58×38×20.7mm)
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°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 |

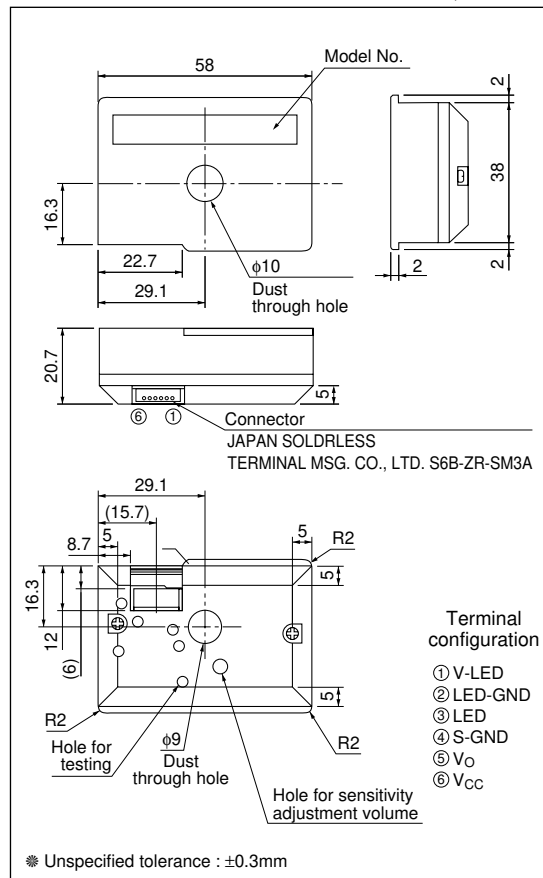
*1 Open drain drive input

■ Recommend Operating Conditions

| Parameter | Symbol | Rating | Unit |
|--------------------------|-----------------|--------|------|
| Operating Supply voltage | V _{CC} | 12±1.8 | V |

■ Outline Dimensions

(Unit : mm)



■ 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/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

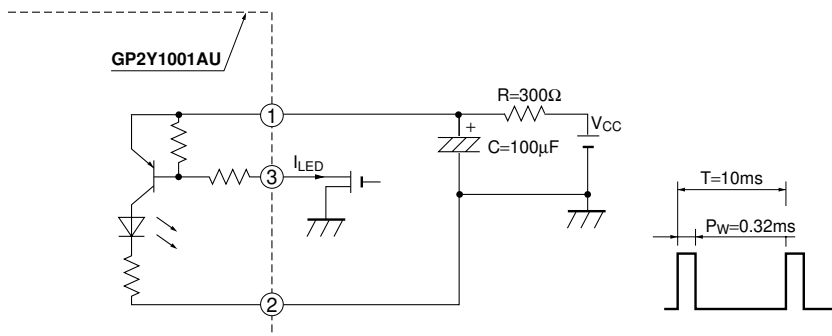
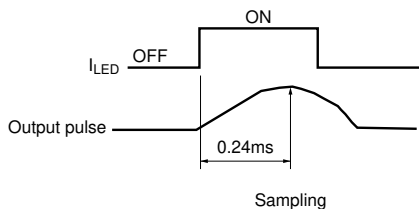


Fig.2 Sampling Timing of Output Pulse



■ 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

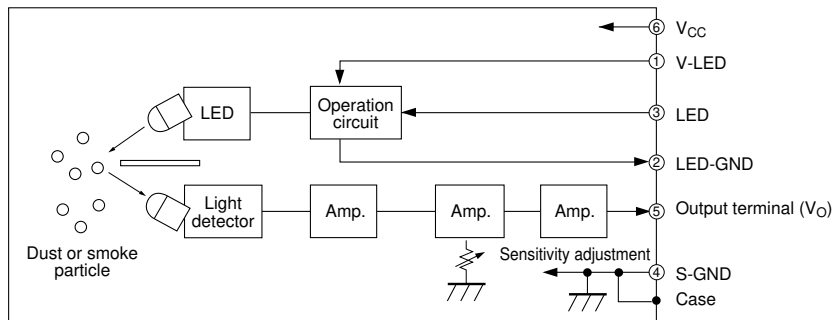
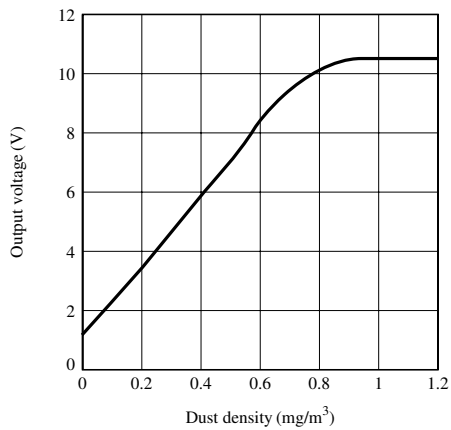


Fig.4 Output Voltage vs. Dust Density



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