GP2U06

Compact Dust Sensor for Detecting Particles

■ Features

1. Compact package (58 × 38 × 25mm)
2. High sensitivity
   (Dust detecting sensitivity : TYP. 0.5V/(0.1mg/m^3)
3. Possible to detect dust even in low density area
   (Minimum particle density : TYP. 0.02mg/m^3)
4. Operating voltage : 5V
5. Low dissipation current (Icc : MAX. 15mA)

■ Applications

1. Air purifiers
2. Air conditioners

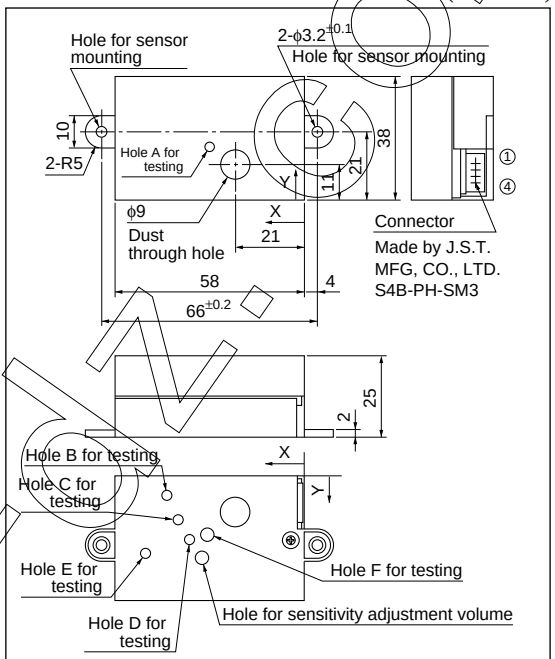
■ Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit	Remark
Supply voltage	V_{CC}	−0.3 to +7	V	−
Input terminal voltage	V_{LED}	−0.3 to Vcc	V	Open Drain drive input
Operating temperature	T_{opr}	−10 to +65	°C	−
Storage temperature	T_{stg}	−20 to +80	°C	−

■ Outline Dimensions

(Unit : mm)



Terminal connection

① GND
② V_O
③ LED
④ V_{CC}

Hole diameter • hole position size

Hole	Hole diameter	X	Y
Hole A for testing	φ3	28.9	16.3
Hole B for testing	φ3	42.0	6.0
Hole C for testing	φ3	38.5	13.5
Hole D for testing	φ3	35.0	19.5
Hole E for testing	φ3	48.5	23.5
Hole F for testing	φ4	29.6	18.0
Hole for adjustment volume	φ4	31.2	25.0

※ Unspecified tolerance : ±0.3mm

■ Recommended Operating Conditions

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

■ Electro-optical Characteristics

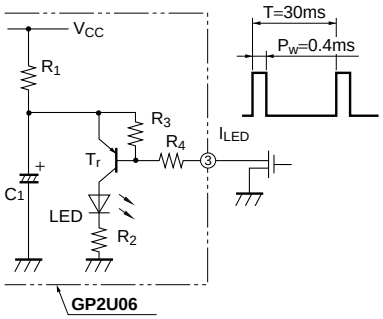
(Ta=25°C, V_{CC}=5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Detecting sensitivity	K	*1, 2	0.35	0.5	0.65	V/(0.1mg/m³)
Output voltage (no dust)	V_{OC}	*2	0	0.5	1.0	V
Range of output voltage	V_{OH}	R_L=4.7kΩ	3.2	–	–	V
LED operating current	I_{LED}	LED terminal=0V *2	–	10	20	mA
Dissipation current	I_{CC}	R_L=∞ *2	–	10	15	mA

*1 Dust density is measured by *mildseven smoke density, using digital dust meter [P-5L2 made by SHIBATA scientific instrumental industry].
Detecting sensitivity is settled according to the change of output voltage when dust density change 0.1mg/m³ from the initial value.
*2 Input conditions to LED terminal (pulse operation condition) is shown in Fig.1.
* Japanese cigarette "MILD SEVEN"

Fig.1 Test Circuit for Response Time

Input condition to LED terminal



Recommended input conditions to LED terminal
T=30±5ms
P_W=0.4±0.1ms

Fig.2 Internal Block Diagram

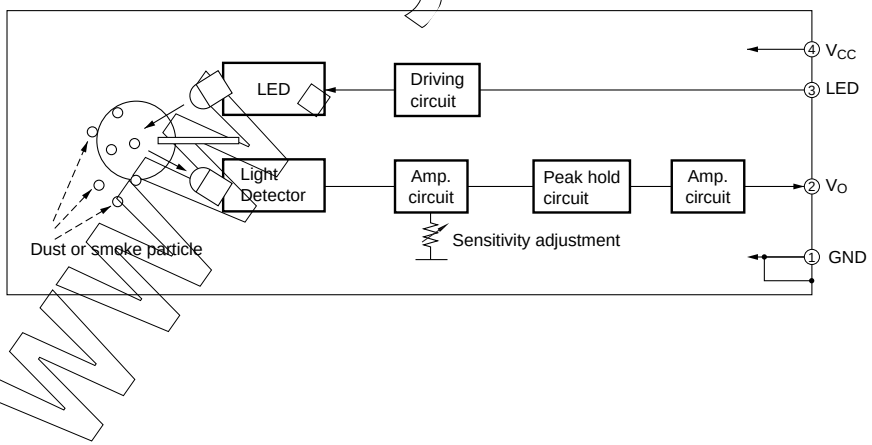
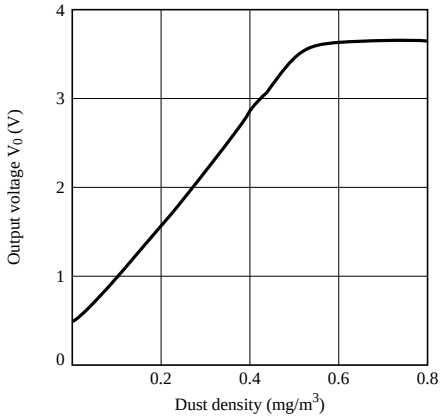


Fig.3 Output Voltage vs. Dust Density



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