



## Distance Measuring Sensor Lineup

| Sensor type | Output  | Detected distance | Features  | Model No.                       |           |
|-------------|---|-------------------|---|---------------------------------|-----------|
| PSD, 2PD    | 1-bit digital output according to distance measuring                                      | 5 cm              | Battery drive compatible, compact, 1-bit digital output | GP2Y0D805Z0F                    |           |
|             |   | 10 cm             | Battery drive compatible, compact, 1-bit digital output | GP2Y0D810Z0F                    |           |
|             |   | 15 cm             | Battery drive compatible, compact, 1-bit digital output | GP2Y0D815Z0F                    |           |
|             |   | 13 cm             | 1-bit digital output                                    | GP2Y0D413K0F                    |           |
|             |   | 24 cm             | 1-bit digital output                                    | GP2Y0D21YK0F                    |           |
|             |   | 80 cm             | 1-bit digital output                                    | GP2Y0D02YK0F                    |           |
|             | Analog voltage output according to distance measuring                                     | 1.5 to 15 cm      | Analog output   | GP2Y0AF15 series                |           |
|             |   | 2 to 15 cm        | Analog output   | GP2Y0A51SK0F                    |           |
|             |   | 4 to 30 cm        | Analog output   | GP2Y0A41SK0F / GP2Y0AF30 series |           |
|             |   | 10 to 80 cm       | Analog output   | GP2Y0A21YK0F                    |           |
|             |   | 10 to 150 cm      | Compact (22 × 8 × 7.2 [T] mm), Analog output            | GP2Y0A60SZLF                    |           |
|             |   | 20 to 150 cm      | Analog output   | GP2Y0A02YK0F                    |           |
|             |   | 100 to 550 cm     | Analog output   | GP2Y0A710K0F                    |           |
| CMOS        | Analog voltage output according to distance measuring (Including I <sup>2</sup> C output) | 4 to 50 cm        | Compact size, high-precision measurement                | Analog output                   | GP2Y0E02A |
|             |   |                   |   | I <sup>2</sup> C output         | GP2Y0E02B |
|             |   |                   |   | Analog, I <sup>2</sup> C output | GP2Y0E03  |

## Dust Sensor Unit Lineup

| Output         | Features   | Model No.     |
|----------------|--|---------------|
| Analog output  | Pulse analog output, single-shot detection of house dust, general purpose  | GP2Y1010AU0F  |
|                | Pulse analog output, single-shot detection of house dust, high sensitivity   | GP2Y1012AU0F  |
| Digital output | Digital (PWM) output, built-in microprocessor controller, single-shot detection of house dust, high sensitivity                        | GP2Y1023AU0F  |
|                | Digital (UART) output, built-in microprocessor controller, sensing can discriminate between PM2.5 and PM10, internal cleaning possible | ★GP2Y1030AU0F |



## Distance Measuring Sensors (1) PSD, 2PD Type

### ◆ Digital Output

(Ta = 25°C)

| Model No.    | Detected distance (cm) | Features   | Absolute maximum ratings |            | Electro-optical characteristics*1 |              |                     |              |
|--------------|------------------------|--|--------------------------|------------|-----------------------------------|--------------|---------------------|--------------|
|              |                        |  | Vcc (V)                  | Topr (°C)  | VOH (V) MIN.                      | VOL (V) MAX. | Dissipation current |              |
|              |                        |  |                          |            |                                   |              | Operating (mA)      | Standby (μA) |
| GP2Y0D805Z0F | 5                      | Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)   | -0.3 to +7               | -10 to +60 | Vcc -0.6                          | 0.6          | MAX. 6.5            | MAX. 8       |
| GP2Y0D810Z0F | 10                     | Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)   | -0.3 to +7               | -10 to +60 | Vcc -0.6                          | 0.6          | MAX. 6.5            | MAX. 8       |
| GP2Y0D815Z0F | 15                     | Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)   | -0.3 to +7               | -10 to +60 | Vcc -0.6                          | 0.6          | MAX. 6.5            | MAX. 8       |
| GP2Y0D413K0F | 13                     | Distance measuring sensor united with PSD*2, infrared LED and signal processing circuit, digital voltage output according to the measured distance   | -0.3 to +7               | -10 to +60 | Vcc -0.3                          | 0.6          | -                   | -            |
| GP2Y0D21YK0F | 24                     | Distance measuring sensor united with PSD*2, infrared LED and signal processing circuit, digital voltage output according to the measured distance   | -0.3 to +7               | -10 to +60 | Vcc -0.3                          | 0.6          | MAX. 40             | -            |
| GP2Y0D02YK0F | 80                     | Distance measuring sensor united with PSD*2, infrared LED and signal processing circuit, long distance measuring type (No external control signal required), digital voltage output according to the measured distance | -0.3 to +7               | -10 to +60 | Vcc -0.3                          | 0.6          | MAX. 50             | -            |

\*1 Vcc = 5 V

\*2 PSD: Position Sensitive Detector

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## Distance Measuring Sensors (1) PSD, 2PD Type

### ◆ Analog Output

(Ta = 25°C)

| Model No.        | Distance measuring range (cm) | Features   | Absolute maximum ratings |            | Electro-optical characteristics <sup>*1</sup>  |              |                                    |
|------------------|-------------------------------|--|--------------------------|------------|--|--------------|------------------------------------|
|                  |                               |  | Vcc (V)                  | Topr (°C)  | VoH (V) MIN.   | VoL (V) MAX. | Dissipation current Operating (mA) |
| GP2Y0AF15 series | 1.5 to 15                     | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, short measuring cycle (16.5 ms), compact, lineup of various connector shapes                       | -0.3 to +7               | -10 to +60 | Vo (TYP.) = 0.4 V (at L = 15 cm), ΔVo (TYP.) = 2.3 V (at L = 15 cm → 1.5 cm)                 |              | TYP. 17                            |
| GP2Y0A51SK0F     | 2 to 15                       | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, short measuring cycle (16.5 ms)  | -0.3 to +7               | -10 to +60 | Vo (TYP.) = 0.4 V (at L = 15 cm), ΔVo (TYP.) = 2.25 V (at L = 15 cm → 2 cm)                  |              | TYP. 12                            |
| GP2Y0AF30 series | 4 to 30                       | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, short measuring cycle (16.5 ms), compact, lineup of various connector shapes                       | -0.3 to +7               | -10 to +60 | Vo (TYP.) = 0.4 V (at L = 30 cm), ΔVo (TYP.) = 2.3 V (at L = 30 cm → 4 cm)                   |              | TYP. 17                            |
| GP2Y0A41SK0F     | 4 to 30                       | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, short measuring cycle (16.5 ms)  | -0.3 to +7               | -10 to +60 | Vo (TYP.) = 0.4 V (at L = 30 cm), ΔVo (TYP.) = 2.25 V (at L = 30 cm → 4 cm)                  |              | MAX. 22                            |
| GP2Y0A21YK0F     | 10 to 80                      | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, linear voltage output  | -0.3 to +7               | -10 to +60 | Vo (TYP.) = 0.4 V (at L = 80 cm), ΔVo (TYP.) = 1.9 V (at L = 80 cm → 10 cm)                  |              | MAX. 40                            |
| GP2Y0A60SZLF     | 10 to 150                     | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, compact type (22 x 8 x 7.2 mm), long distance measuring type (No external control signal required) | -0.3 to +5.5             | -10 to +60 | Vo (TYP.) = 0.65 V (at L = 150 cm), ΔVo (TYP.) = 3.0 V (at L = 150 cm → 20 cm) <sup>*3</sup> |              | MAX. 50                            |
| GP2Y0A02YK0F     | 20 to 150                     | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, long distance measuring type (No external control signal required)                                 | -0.3 to +7               | -10 to +60 | Vo (TYP.) = 0.4 V (at L = 150 cm), ΔVo (TYP.) = 2.05 V (at L = 150 cm → 20 cm)               |              | MAX. 50                            |
| GP2Y0A710K0F     | 100 to 550                    | Distance measuring sensor united with PSD <sup>*2</sup> , infrared LED and signal processing circuit, long distance measuring type (No external control signal required)                                 | -0.3 to +7               | -10 to +60 | Vo (TYP.) = 2.5 V (at L = 100 cm), ΔVo (TYP.) = 0.7 V (at L = 100 cm → 200 cm)               |              | TYP. 30                            |

\*1 Vcc = 5 V

\*2 PSD: Position Sensitive Detector

\*3 When Vcc = 3 V: Vo (TYP.) = 0.35 V (at L = 150 cm); ΔVo (TYP.) = 1.6 V (at L = 150 cm → 20 cm)

## Distance Measuring Sensors (2) CMOS type

### ◆ Analog Output (Including I<sup>2</sup>C output)

(Ta = 25°C)

| Model No. | Distance measuring range (cm) | Features  | Absolute maximum ratings |            | Electro-optical characteristics <sup>*1</sup>   |              |                                    |
|-----------|-------------------------------|---|--------------------------|------------|---|--------------|------------------------------------|
|           |                               |   | Vcc (V)                  | Topr (°C)  | VoH (V) MIN.  | VoL (V) MAX. | Dissipation current Operating (mA) |
| GP2Y0E02A | 4 to 50                       | Infrared LED and CMOS image sensor with built-in signal processing circuit, compact size (18.9 x 8 x 5.2 mm), high-precision measurement, analog output                                     | -0.3 to +3.6             | -10 to +60 | VOUT (A) 1 = 0.3 to 0.8 V (at L = 50 cm), VOUT (A) 3 = 2.1 to 2.3 V (at L = 4 cm)                                   |              | MAX. 36                            |
| GP2Y0E02B | 4 to 50                       | Infrared LED and CMOS image sensor with built-in signal processing circuit, compact size (18.9 x 8 x 5.2 mm), high-precision measurement, I <sup>2</sup> C output                           | -0.3 to +3.6             | -10 to +60 | D1 = 45 to 50 cm (at L = 50 cm), D3 = 3 to 5 cm (at L = 4 cm)   |              | MAX. 36                            |
| GP2Y0E03  | 4 to 50                       | Infrared LED and CMOS image sensor with built-in signal processing circuit, compact size (16.7 x 11 x 5.2 mm), high-precision measurement, analog / I <sup>2</sup> C output both compatible | -0.3 to +5.5             | -10 to +60 | VOUT (A) 1 = 0.3 to 0.8 V, D1 = 45 to 50 cm (at L = 50 cm), VOUT (A) 3 = 2.1 to 2.3 V, D3 = 3 to 5 cm (at L = 4 cm) |              | MAX. 36                            |

\*1 Vcc = 5 V

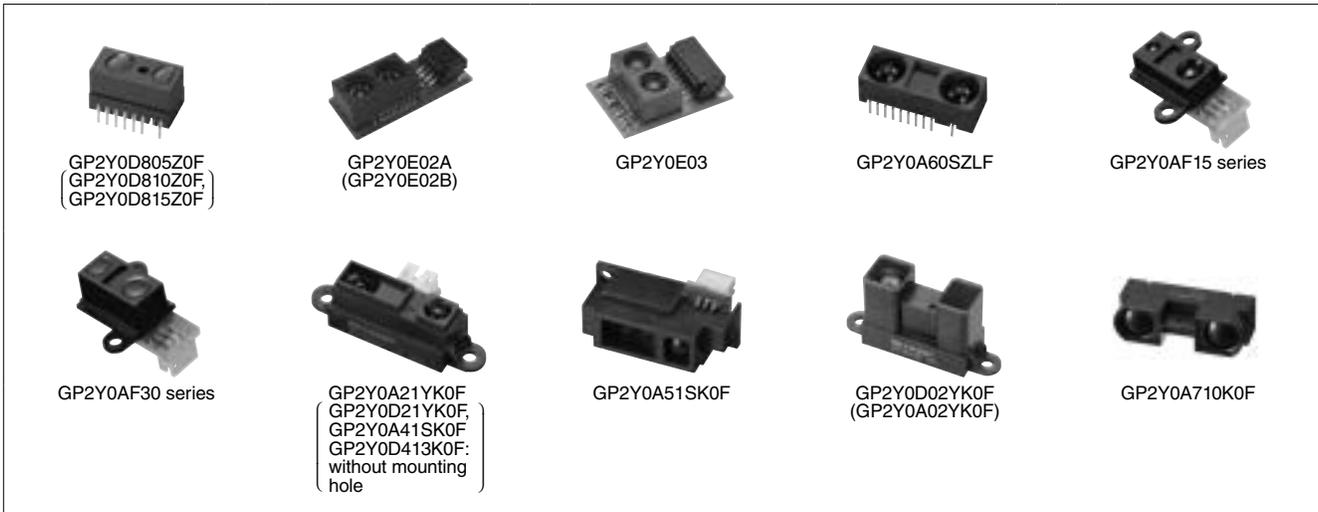
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## ■ Dust Sensor Unit

(Ta = 25°C)

| Model No.     | Features  | Topr (°C)  | Operating supply voltage (V) | Electro-optical characteristics |   |   |
|---------------|---|------------|------------------------------|---------------------------------|---|---|
|               |   |            |                              | Dissipation current (mA)        | Detection concentration $\mu\text{g}/\text{m}^3$ (TYP.) | Output  |
| GP2Y1010AU0F  | <ul style="list-style-type: none"> <li>Built-in infrared emitting diode, photodiode and signal processing circuit</li> <li>Compact, single-shot detection of house dust</li> <li>Output: Analog voltage</li> </ul>  | -10 to +65 | 4.5 to 5.5                   | TYP. 11                         | 0 to 600  | Analog voltage  |
| GP2Y1012AU0F  | <ul style="list-style-type: none"> <li>High sensitivity</li> <li>Built-in infrared emitting diode, photodiode and signal processing circuit</li> <li>Compact, single-shot detection of house dust</li> <li>Output: Analog voltage</li> </ul>  |            | 4.5 to 5.5                   | TYP. 11                         | 0 to 240  | Analog voltage  |
| GP2Y1023AU0F  | <ul style="list-style-type: none"> <li>High sensitivity</li> <li>Built-in microcomputer</li> <li>Built-in infrared emitting diode, photodiode and signal processing circuit</li> <li>Compact, single-shot detection of house dust</li> <li>Output: Digital signal output (PWM)</li> </ul> |            | 4.75 to 5.25                 | TYP. 15                         | 0 to 240  | Digital signal (PWM)<br>Temperature correction<br>Averaging |
| ★GP2Y1030AU0F | <ul style="list-style-type: none"> <li>Built-in infrared emitting diode, photodiode and signal processing circuit</li> <li>Built-in microcomputer</li> <li>Sensing can discriminate between PM2.5 and PM10</li> <li>Internal cleaning possible</li> </ul>                                 |            | 3 to 5.5                     | TYP. 25                         | 0 to 500  | Digital signal (UART)                                       |



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