☆New product

RoHS

■Distance Measuring Sensor Lineup

Sensor type	Output	Detected distance	Features		Model No.	Page
PSD, 2PD	1-bit digital output according to distance measuring	5 cm	Battery drive compatible, compact, 1-bit digital output		GP2Y0D805Z0F	37
		10 cm	Battery drive compatible, compact, 1-bit digital output		GP2Y0D810Z0F	37
		15 cm	Battery drive compatible, compact, 1-bit digital output		GP2Y0D815Z0F	37
		13 cm	1-bit digital output		GP2Y0D413K0F	37
		24 cm	1-bit digital output		GP2Y0D21YK0F	37
		80 cm	1-bit digital output		GP2Y0D02YK0F	37
	Analog voltage output according to distance measuring	1.5 to 15 cm		Analog output	GP2Y0AF15 series	38
		2 to 15 cm		Analog output	GP2Y0A51SK0F	38
		4 to 30 cm		Analog output	GP2Y0A41SK0F / GP2Y0AF30 series	38
		10 to 80 cm		Analog output	GP2Y0A21YK0F	38
		20 to 150 cm		Analog output	GP2Y0A02YK0F	38
		100 to 550 cm		Analog output	GP2Y0A710K0F	38
CMOS	Analog voltage output according to distance measuring (Including I^2C output)	4 to 50 cm	Compact size, high-precision measurement	Analog output	GP2Y0E02A	39
				I^2C output	GP2Y0E02B	39
				Analog, I^2C output	GP2Y0E03	39
ToF	I^2C output	10 to 120 cm	Compact size, high-precision measurement	IR laser	☆GP2AP01VTx0F	39

■Dust Sensor Unit Lineup

Output	Features	Model No.	Page
Analog output	Pulse analog output, single-shot detection of house dust, general purpose	GP2Y1010AU0F	40
	Pulse analog output, single-shot detection of house dust, high sensitivity	GP2Y1012AU0F	40
	Pulse analog output, single-shot detection of house dust, high precision	GP2Y1014AU0F	40
Digital output	Digital (PWM) output, built-in microprocessor controller, single-shot detection of house dust, high sensitivity	GP2Y1023AU0F	40
	Digital (UART) output, built-in microprocessor controller, single-shot detection of house dust, high concentration	☆GP2Y1026AU0F	40
	Digital (UART) output, built-in microprocessor controller, sensing can discriminate between PM2.5 and PM10, internal cleaning possible	GP2Y1030AU0F	40

DISTANCE MEASURING SENSORS

RoHS

■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)	V_{OH} (V) MIN.	V_{OL} (V) MAX.	Dissipation current	
							Operating (mA)	Standby (µA)
GP2Y0D805Z0F	5	Light detector (2PD), 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 (2PD), 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 (2PD), 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	MAX. 27	–
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 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

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◆Analog Output

(Ta = 25°C)

Model No.	Distance measuring range (cm)	Features	Absolute maximum ratings		Electro-optical characteristics[1]		
			V_{cc} (V)	Topr (°C)	V_{OH} (V) MIN.	V_{OL} (V) MAX.	Dissipation current
							Operating (mA)
GP2Y0AF15 series	1.5 to 15	Distance measuring sensor united with PSD[2], 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	V_O (TYP.) = 0.4 V (at L = 15 cm), ΔV_O (TYP.) = 2.3 V (at L = 15 cm → 1.5 cm)		TYP. 17
GP2Y0A51SK0F	2 to 15	Distance measuring sensor united with PSD[2], infrared LED and signal processing circuit, short measuring cycle (16.5 ms)	−0.3 to +7	−10 to +60	V_O (TYP.) = 0.4 V (at L = 15 cm), ΔV_O (TYP.) = 2.25 V (at L = 15 cm → 2 cm)		TYP. 12
GP2Y0AF30 series	4 to 30	Distance measuring sensor united with PSD[2], 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	V_O (TYP.) = 0.4 V (at L = 30 cm), ΔV_O (TYP.) = 2.3 V (at L = 30 cm → 4 cm)		TYP. 17
GP2Y0A41SK0F	4 to 30	Distance measuring sensor united with PSD[2], infrared LED and signal processing circuit, short measuring cycle (16.5 ms)	−0.3 to +7	−10 to +60	V_O (TYP.) = 0.4 V (at L = 30 cm), ΔV_O (TYP.) = 2.25 V (at L = 30 cm → 4 cm)		MAX. 22
GP2Y0A21YK0F	10 to 80	Distance measuring sensor united with PSD[2], infrared LED and signal processing circuit	−0.3 to +7	−10 to +60	V_O (TYP.) = 0.4 V (at L = 80 cm), ΔV_O (TYP.) = 1.9 V (at L: 80 cm → 10 cm)		MAX. 40
GP2Y0A02YK0F	20 to 150	Distance measuring sensor united with PSD[2], infrared LED and signal processing circuit, long distance measuring type	−0.3 to +7	−10 to +60	V_O (TYP.) = 0.4 V (at L = 150 cm), ΔV_O (TYP.) = 2.05 V (at L = 150 cm → 20 cm)		MAX. 50
GP2Y0A710K0F	100 to 550	Distance measuring sensor united with PSD[2], infrared LED and signal processing circuit, long distance measuring type	−0.3 to +7	−10 to +60	V_O (TYP.) = 2.5 V (at L = 100 cm), ΔV_O (TYP.) = 0.7 V (at L = 100 cm → 200 cm)		TYP. 30

[1] Vcc = 5 V
[2] PSD: Position Sensitive Detector

DISTANCE MEASURING SENSORS

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■Distance Measuring Sensors (2) CMOS Type

◆Analog Output (including I^{2}C output)

(Ta = 25°C)

Model No.	Distance measuring range (cm)	Features	Absolute maximum ratings		Electro-optical characteristics[1]		
			Vcc (V)	Topr (°C)	V_{OH} (V) MIN.	V_{OL} (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 × 8 × 5.2 mm), high-precision measurement, analog output	−0.3 to +3.6	−10 to +60	V_{OUT} (A) 1 = 0.3 to 0.8 V (at L = 50 cm), V_{OUT} (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 × 8 × 5.2 mm), high-precision measurement, I^{2}C output	−0.3 to +3.6	−10 to +60	D1 = 45 to 55 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 × 11 × 5.2 mm), high-precision measurement, analog / I^{2}C output both compatible	−0.3 to +5.5	−10 to +60	V_{OUT} (A) 1 = 0.3 to 0.8 V, D1 = 45 to 55 cm (at L = 50 cm), V_{OUT} (A) 3 = 2.1 to 2.3 V, D3 = 3 to 5 cm (at L = 4 cm)		MAX. 36

[1] Vcc = 5 V

GP2Y0D805Z0F
(GP2Y0D810Z0F,
GP2Y0D815Z0F)

GP2Y0E02A
(GP2Y0E02B)

GP2Y0E03

GP2Y0AF15 series

GP2Y0AF30 series

GP2Y0A21YK0F
GP2Y0D21YK0F,
GP2Y0A41SK0F
GP2Y0D413K0F:
without mounting hole

GP2Y0A51SK0F

GP2Y0D02YK0F
(GP2Y0A02YK0F)

GP2Y0A710K0F

■ToF Type Distance Measuring Sensor（ToF = Time of Flight）

(VDD = 2.8V, Ta = 25°C)

| Model No.	Features	Absolute maximum ratings		Electro-optical characteristics					
		VDD (V)	Tstg (°C)	Dissipation current (VDD) I_{CC_VDD} (mA) TYP.	Dissipation current (VCSEL) I_{CC_VCSEL} (mA) TYP.	VCSEL Peak emission wavelength λp (nm)	Possible measuring distance (white paper) Rwhite (cm)	Measurement accuracy (white paper 120 cm) Racc (%)	Detection time Trange (msec)
☆GP2AP01VTx0F	Ultra miniature integrated light detector: 4.4 × 2.4 × 1.0 mm High-speed distance measuring in dark places through employment of IR laser I^{2}C interface	3.6	−40 to +85	10	20	940	10 to 120	4	33

GP2AP01VTx0F

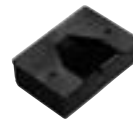**Optoelectronics**

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DUST SENSOR UNIT

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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 µg/m^3 (TYP.)	Sensitivity	Output
GP2Y1010AU0F	• Built-in infrared emitting diode, photodiode and signal processing circuit • Compact, single-shot detection of house dust • Output: Analog voltage	−10 to +65	4.5 to 5.5	TYP. 11	0 to 600	0.5±0.15 V/ (0.1 mg/m^3) Precision ±30%	Analog voltage
GP2Y1012AU0F	• High sensitivity • Built-in infrared emitting diode, photodiode and signal processing circuit • Compact, single-shot detection of house dust • Output: Analog voltage				0 to 240	1.0±0.15 V/ (0.1 mg/m^3) Precision ±15%	Analog voltage
GP2Y1014AU0F	• High precision • Built-in infrared emitting diode, photodiode and signal processing circuit • Compact, single-shot detection of house dust • Output: Analog voltage				0 to 600	0.5±0.075 V/ (0.1 mg/m^3) Precision ±15%	Analog voltage
GP2Y1023AU0F	• High sensitivity • Built-in microcomputer • Built-in infrared emitting diode, photodiode and signal processing circuit • Compact, single-shot detection of house dust • Output: Digital signal output (PWM)		4.75 to 5.25	TYP. 15	0 to 240	1.4±0.21 ms/ (0.1 mg/m^3) Precision ±15%	Digital signal (PWM) Temperature correction Averaging
☆GP2Y1026AU0F	• High concentration • Built-in microcomputer • Built-in infrared emitting diode, photodiode and signal processing circuit • Compact, single-shot detection of house dust • Output: Digital signal output (UART)				0 to 1 000	0.35±0.06 V/ (0.1 mg/m^3) Precision ±15%	Digital signal (UART) Temperature correction Averaging
GP2Y1030AU0F	• Built-in microcomputer • Built-in infrared emitting diode, photodiode and signal processing circuit • Compact, single-shot detection of house dust • Discriminated detection, PM2.5 or larger, is possible • Internal cleaning possible		4.5 to 5.5	TYP. 27	0 to 500	Precision ±15%	Digital signal (UART)
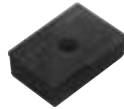
GP2Y1010AU0F
(GP2Y1012AU0F, GP2Y1014AU0F, GP2Y1023AU0F, GP2Y1026AU0F)

GP2Y1030AU0F