RoHS

■Photocoupler Lineup

<Phototransistor output type>

Package type	Output type	Features		Model No. (series)	Page
Mini-flat 4-pin Compact, SMT type	Single phototransistor	General purpose, High collector-emitter voltage		PC357NJ0000F / PC451J00000F	15
			Low input current	PC367NJ0000F	15
		AC input response		PC354NJ0000F	15
	Darlington phototransistor	High sensitivity, High collector-emitter voltage	Low input current	PC364NJ0000F	15
				PC355NJ0000F / PC452J00000F	15
			Low input current	PC365NJ0000F	15
Compact, Half pitch (lead space), SMT type	Single phototransistor	General purpose, High resistance to noise, etc.		PC3H7J00001H	16
			Reinforced insulation	PC3HU7xYIP1B	16
			Low input current	PC3H71xNIP1H	16
		AC input response		PC3H3J00001H / PC3H4J00001H	16
DIP type (4-pin)	Single phototransistor	Reinforced insulation		PC123XxYSZ1B	17
(4-pin, DIP type)			Low input current	PC1231xNSZ1B	17
		General purpose, High collector-emitter voltage, etc.		PC817XxNSZ1B / PC851XNNSZ1H	17
			Low input current	PC8171xNSZ1B	17
	Darlington phototransistor	High sensitivity, High collector-emitter voltage		PC852XNNSZ1H	17

<OPIC output type>

Package type	Output type	Features	Model No. (series)	Page
Compact, SMT type	Digital output	General purpose, High response speed	PC400J00000F	18
	Analog/Digital output	High CMR	PC457L0NIP0F	18

RoHS

■Photocouplers

◆Phototransistor Output Type <Compact, SMT type>

○: Approved

(Ta = 25°C)

Output type	Model No.	Internal connection diagram	Features	Approved by safety standards*2	Package	Absolute maximum ratings			Electro-optical characteristics						
									Current transfer ratio			Response time			
				UL		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage V_{CEO} (V)	CTR (%) MIN.	I_F (mA)	V_{CE} (V)	tr (μs) TYP.	I_C (mA)	R_L (Ω)	V_{CE} (V)
Single phototransistor output	PC357NJ0000F		General purpose	○	Mini-flat 4-pin	50	3.75	80	50	5	5	4	2	100	2
	PC451J00000F		High collector-emitter voltage	○		50	3.75	350	40	5	5	4	2	100	2
	PC367NJ0000F		Low input current, high resistance to noise*1	○		10	3.75	80	100	0.5	5	4	2	100	2
	PC354NJ0000F		AC input response	○		±50	3.75	80	20	±1	5	4	2	100	2
	PC364NJ0000F		Low input current, AC input response, high resistance to noise*1	○		±10	3.75	80	50	±0.5	5	4	2	100	2
Darlington photo-transistor output	PC355NJ0000F		High sensitivity	○		50	3.75	35	600	1	2	60	2	100	2
	PC365NJ0000F		High sensitivity, low input current	○		10	3.75	35	600	0.5	2	60	10	100	2
	PC452J00000F		High collector-emitter voltage	○		50	3.75	350	1 000	1	2	100	20	100	2

*1 CMR: MIN. 10 kV/μs
*2 Please refer to Specification Sheets for model numbers approved by safety standards.

PC357NJ0000F
(Mini-flat 4-pin)

RoHS

◆Phototransistor Output Type
<Compact, half pitch (lead space) SMT type>

○: Approved

(Ta = 25°C)

Output type	Model No.	Internal connection diagram	Features	Approved by safety standards*2			Package	Absolute maximum ratings			Electro-optical characteristics						
											Current transfer ratio			Response time			
				UL	VDE	Others		Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage VCEO (V)	CTR (%) MIN.	IF (mA)	VCE (V)	tr (μs) TYP.	IC (mA)	RL (Ω)	VCE (V)
Single phototransistor output	PC3HU7xYIP1B		Reinforced insulation (internal insulation distance: MIN. 0.4 mm)	○	○	○	Mini-flat 4-pin	50	3.75	80	50	5	5	4	2	100	2
	PC3H7J00001H		Standard	○	–	○		50	2.5	80	20	1	5	4	2	100	2
	PC3H71xNIP1H		High resistance to noise*1, low input current	○	–	○		10	2.5	80	100	0.5	5	4	2	100	2
	PC3H3J00001H		AC input response, high resistance to noise*1	○	–	–		±50	2.5	80	20	±1	5	4	2	100	2
	PC3H4J00001H		AC input response	○	–	○		±50	2.5	80	20	±1	5	4	2	100	2

*1 CMR: MIN.10 kV/μs
*2 Please refer to Specification Sheets for model numbers approved by safety standards.

PC3HU7xYIP1B

PC3H7J00001H
(Mini-flat 4-pin)

RoHS

◆Phototransistor Output Type
<DIP type (4-pin)>

○: Approved

(Ta = 25°C)

Output type	Model No.	Internal connection diagram	Features	Approved by safety standards*5			Package	Absolute maximum ratings			Electro-optical characteristics			
											Current transfer ratio		Response time	
				UL	VDE	Others		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage V_{CEO} (V)	CTR (%) MIN.	I_F (mA)	tr (μs) TYP.	R_L (Ω)
Single phototransistor output	PC123XxYSZ1B*1, 3, 4		High isolation voltage, reinforced insulation	○	○	○	4-pin DIP	50	5.0	80	50	5	4	100
	PC1231xNSZ1B*1		High isolation voltage, reinforced insulation, low input current, high resistance to noise*2	○	○	○		10	5.0	80	50	0.5	4	100
	PC817XxNSZ1B*3		High isolation voltage	○	–	○		50	5.0	80	50	5	4	100
	PC8171xNSZ1B*3		High isolation voltage, low input current, high resistance to noise*2	○	–	–		10	5.0	80	100	0.5	4	100
	PC851XNNSZ1H*3		High isolation voltage, high collector-emitter voltage	○	–	–		50	5.0	350	40	5	4	100
Darlington phototransistor output	PC852XNNSZ1H*3		High isolation voltage, high collector-emitter voltage	○	–	–		50	5.0	350	1 000	1	100	100

*1 Wide lead spacing type is also available. Creepage distance: 6.4 mm or more, wide lead spacing type: 8 mm or more.
*2 CMR: 10 kV/μs MIN.
*3 Lead forming type is also available for surface mounting.
*4 Wide lead spacing type is also available. Compatible with wide lead spacing type lead-forming models for surface-mount use.
*5 Please refer to Specification Sheets for model numbers approved by safety standards.

PC817XxNSZ1B
(4-pin DIP)

Optoelectronics

◆OPIC Output

("OPIC" (Optical IC) is a trademark of SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.)

<Compact, SMT type> (1-1)

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*2		Package	Absolute maximum ratings		Electro-optical characteristics*1						
								Low level output voltage				Threshold input current		
			UL	VDE		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	V_{OL} (V) MAX.	Ta (°C)	I_{OL} (mA)	I_F (mA)	I_{FHL} (mA) MAX.	I_{FLH} (mA) MAX.	R_L (Ω)
PC400J00000F		Digital output, normal-off operation	○	–	Mini-flat 5-pin	50	3.75	0.4	0 to +70	16	4	2.0	–	280

A: Rated voltage circuit
*1 Each item is measured at Vcc=5V. (PC400)
*2 Please refer to Specification Sheets for model numbers approved by safety standards.

<Compact, SMT type> (1-2)

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*1		Package	Absolute maximum ratings		Electro-optical characteristics							
								Current transfer ratio				Propagation delay time			
			UL	VDE*2		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	CTR (%) MIN.	I_F (mA)	V_O (V)	V_{CC} (V)	t_{PHL} (μs) TYP.	t_{PLH} (μs) TYP.	R_L (Ω)	I_F (mA)
PC457L0NIP0F		High speed (1 Mb/s), high CMR (15 kV/μs), for flow soldering	○	○	Mini-flat 5-pin	25	3.75	19	16	0.4	4.5	0.2	0.4	1 900	16

*1 Please refer to Specification Sheets for model numbers approved by safety standards.
*2 Optionally available.

PC400J00000F
(Mini-flat 5-pin)

RoHS

■Phototriac Coupler Lineup

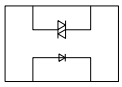
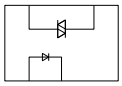
Package	Applied voltage	ON-state current (rms)	Features		Model No.	Page
Mini-flat (SMD)	AC 200 V lines (V_{DRM} = 600V)	0.05 A	General purpose		S2S3A00F*3 / S2S5A00F*3 / S2S5FA0F*3	20
				Built-in zero-cross circuit	S2S4A00F*3	21
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A				
(4-pin) 			Reinforced isolation		PC3SH11YFZAH*3 / PC3SH13YFZAH*3	20
				Built-in zero-cross circuit	PC3SH21YFZBH*2	21
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3SD12NTZAH*3 / PC3SD11NTZCH*1	20
(6-pin package, 5th-pin cut) 				Built-in zero-cross circuit	PC3SD21NTZAH*3 / PC3SD21NTZBH*2 / PC3SD21NTZDH*4	21
			Reinforced isolation		PC3SF11YVZAH*3 / PC3SF11YVZBH*2	20
				Built-in zero-cross circuit	PC3SF21YVZAH*3 / PC3SF21YVZBH*2	21
	AC 200 V lines (V_{DRM} = 800V)	0.1 A	General purpose		PC4SD11NTZCH*1	20
				Built-in zero-cross circuit	PC4SD21NTZCH*1 / PC4SD21NTZDH*4	21
			Reinforced isolation		PC4SF11YTZBH*2	20
				Built-in zero-cross circuit	PC4SF21YVZBH*2 / PC4SF21YWPSH*2	21

Minimum trigger current: *1 I_{FT} ≦ 5 mA, *2 I_{FT} ≦ 7 mA, *3 I_{FT} ≦ 10 mA, *4 I_{FT} ≦ 3 mA

■Phototriac Couplers

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*3			Package	Absolute maximum ratings			Electro-optical characteristics
			UL, CSA	VDE	BSI, SEMKO, DEMKO, FIMKO		ON-state current IT (rms) (A)	Repetitive peak OFF-state voltage VDRM (V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current IFT (mA) MAX. VD = 6 V, RL = 100Ω
S2S3A00F		200 V lines, compact	○	○*4	–	Mini-flat 4-pin	0.05	600	3.75	10
S2S5A00F		200 V lines, compact	○	–	–					10
S2S5FA0F		High impulse noise product	○	–	–					10
PC3SH11YFZAH		200 V lines, compact, reinforced isolation	○	○	○	4-pin DIP	0.1		5.0	10
PC3SH13YFZAH		200 V lines, compact, reinforced isolation, high noise resistance	○	○	○					10
PC3SD12NTZAH		200 V lines	○	○*4	–	6-pin DIP*2	0.1	600	5.0	10
PC3SD11NTZCH		200 V lines	○	○*4	–	6-pin DIP*1, *2		600		5
PC4SD11NTZCH		200 V lines, repetitive peak-OFF-state voltage	○	○*4	–	6-pin DIP*1, *2		800		5
PC3SF11YVZAH		200 V lines, reinforced isolation	○	○	○	6-pin DIP*2		600		10
PC3SF11YVZBH		200 V lines, reinforced isolation	○	○	○	6-pin DIP*1, *2				7
PC4SF11YTZBH		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○	6-pin DIP*2		800		7

*1 Lead forming type is also available for surface mounting.
*2 These are 5th-pin cut type.
*3 Please refer to Specification Sheets for model numbers approved by safety standards.
*4 Optionally available.

RoHS

■Phototriac Couplers

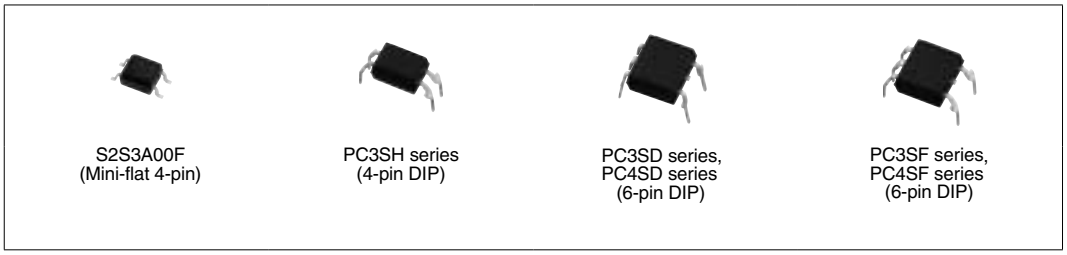
<Built-in zero-cross circuit type>

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*3			Package	Absolute maximum ratings			Electro-optical characteristics
			UL, CSA	VDE	BSI, SEMKO, DEMKO, FIMKO		ON-state current I_T (rms) (A)	Repetitive peak OFF-state V_{DRM} (V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current I_{FT} (mA) MAX. V_D = 4 V, R_L = 100Ω
S2S4A00F	Zero-cross circuit	200 V lines, compact	○	○*4	–	Mini-flat 4-pin	0.05	600	3.75	10*1
PC3SH21YFZBH		200 V lines, compact, reinforced isolation	○	○	○	4-pin DIP	0.1	600	5.0	7
PC3SD21NTZAH		200 V lines, low zero-cross voltage: MAX. 20 V	○	–	–	6-pin DIP*2	0.1	600	5.0	10
PC3SD21NTZBH		200 V lines, low zero-cross voltage: MAX. 20 V	○	○*4	–					7
PC3SD21NTZDH		200 V lines, low zero-cross voltage: MAX. 20 V	○	–	–					3
PC4SD21NTZCH	Zero-cross circuit	200 V lines, repetitive peak-OFF-state voltage	○	–	–			800		5
PC4SD21NTZDH		200 V lines, repetitive peak-OFF-state voltage	○	–	–					3
PC3SF21YVZAH		200 V lines, reinforced isolation	○	○	○			600		10
PC3SF21YVZBH		200 V lines, reinforced isolation	○	○	○					7
PC4SF21YVZBH		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○			800		7
PC4SF21YWPSH		High impulse noise product	○	○	○					7

*1 V_D = 6 V, R_L = 100Ω
*2 These are 5th-pin cut type.
*3 Please refer to Specification Sheets for model numbers approved by safety standards.
*4 Optionally available.



S2S3A00F (Mini-flat 4-pin)
PC3SH series (4-pin DIP)
PC3SD series, PC4SD series (6-pin DIP)
PC3SF series, PC4SF series (6-pin DIP)

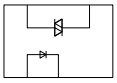
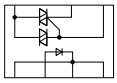
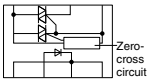
■Solid State Relay Lineup

Package	Applied voltage	ON-state current (rms)	Features	Model No.	Page
DIP 6-pin	AC 200 V lines	0.06 A	General purpose	PR31MA11NTZH	23
		0.15 A	General purpose	PR32MA11NTZH	23
DIP 8-pin	AC 200 V lines	0.3/0.6/0.9/1.2 A	General purpose	PR33MF5 series / PR39MF5 series / PR36MF5 series / PR3BMF5 series	23
		0.6/0.9 A	Built-in zero-cross circuit	PR36MF2 series / PR39MF2 series	23

■Solid State Relays

<DIP type>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*1			Package	Absolute maximum ratings			Electrical characteristics
			UL	CSA	VDE*2		ON-state current IT (rms) (A)	Repetitive peak OFF-state voltage VDRM (V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current IFT (mA) MAX. VD = 6 V, RL = 100Ω
PR31MA11NTZH		200 V lines, compact	○	○	–	6-pin DIP	0.06	600	5.0	10
PR32MA11NTZH		200 V lines, 150 mA model in a small package	○	○	–		0.15			10
PR33MF51NSLH		200 V lines, compact	○	○	○	8-pin DIP	0.3	600	4.0	10
PR33MF52NSLH		200 V lines, compact	○	○	–					10
PR36MF51NSLH		200 V lines, compact	○	○	–		0.6			10
PR39MF51NSLH		200 V lines, compact	○	○	○		0.9			10
PR3BMF51NSLH		200 V lines, compact	○	○	–		1.2			10
PR36MF21NSZH		200 V lines, compact (built-in zero-cross circuit)	○	○	–		0.6	600		10
PR36MF22NSZH		200 V lines, compact (built-in zero-cross circuit), low input current	○	○	–					5
PR39MF22NSZH		200 V lines, compact (built-in zero-cross circuit), low input current	○	○	–		0.9			5

Note: Please confirm with our sales representatives concerning inquiries related to acquisition of international safety standard compliance certification.
*1 Please refer to Specification Sheets for model numbers approved by safety standards.
*2 Optionally available.


PR31MA11NTZH
(6-pin DIP)


PR36MF21NSZH
(8-pin DIP)

☆New product
★Under development

■Photointerrupter Lineup

<Transmissive type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Compact		PWB mounting type	GP1S396HCP0F / GP1S09xHCZ0F / GP1S19xHCZ0F	25
			Surface-mount type	GP1S396HCPSF / GP1S296HCPSF / GP1S092HCPIF / GP1S19xHCxSF	25
	Case type		PWB mounting type	GP1S5x series	26
	With connector	Horizontal slit	PWB mounting type	GP1S59J0000F▲	26
		General purpose	Snap-in	GP1S173LCS2F / GP1S273LCS1F	26
Digital output	Compact	High resolution	PWB mounting type	★GP1A396HCP0F	27
(OPIC output)			Surface-mount type	★GP1A396HCPSF	27
	Case type		PWB mounting type	GP1A5x series	27
		Wide gap	PWB mounting type	GP1A57HRJ00F	27
	With connector	General purpose	Snap-in	GP1A173LCS3F / GP1A173LCSVF▲ ☆GP1A173LCS5F	28

<Reflective type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Leadless	Long focal distance	Surface-mount type	GP2S700HCP	28
High response speed	Compact, thin (leadless)	General purpose	Surface-mount type	GP2S60	28
OPIC output	With connector	Light modulation type, Sensitivity adjusted	Screw mounting type/ Compact snap-in/ Inverter light countermeasures	GP2A25 series / GP2A28 series / GP2A200LCS0F / GP2A230LRS0F / GP2A230LRSAF / ☆GP2A430LCSAF / GP2A240LCS0F / GP2A250LCS0F	29

The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

RoHS

■Photointerrupters

<Transmissive type>

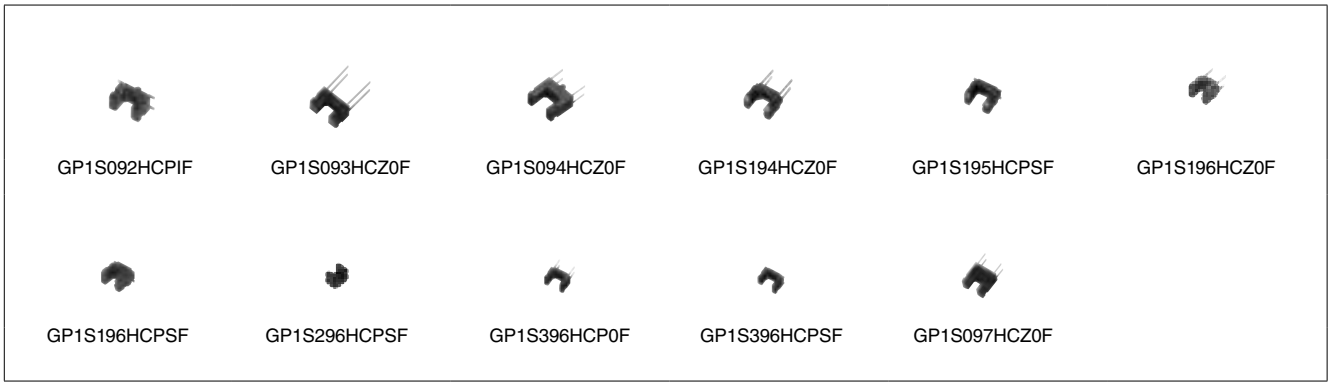
◆Single Phototransistor Output

<Compact type>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics						
					Current transfer ratio			Response time			
					CTR (%) MIN.	I_F (mA)	V_{CE} (V)	tr (μs) TYP.	I_C (mA)	R_L (kΩ)	V_{CE} (V)
GP1S092HCPIF		Wide gap, for soldering reflow, surface mount compatible, with positioning boss (4.5 × 2.6 × 2.9 [height] mm)	2.0	0.3	2.0	5	5	50	0.1	1	5
GP1S093HCZ0F		Wide gap (4.5 × 2.6 × 2.9 [height] mm)	2.0	0.3	2.0	5	5	50	0.1	1	5
GP1S094HCZ0F		Wide gap, with positioning pin, (5.5 × 2.6 × 4.8 [height] mm)	3.0	0.3	0.8	5	5	50	0.1	1	5
GP1S194HCZ0F		Compact, wide gap, size: 3.6 × 2.0 × 2.7 (height) mm	1.7	0.3	3.0	5	5	50	0.1	1	5
GP1S195HCPSF		Compact, wide gap, surface mount compatible, size: 3.4 × 2.0 × 2.7 (height) mm	1.5	0.3	3.0	5	5	50	0.1	1	5
GP1S196HCZ0F		Compact, low profile (3.1 × 2.0 × 2.7 [height] mm)	1.1	0.3	2.0	5	5	50	0.1	1	5
GP1S196HCPSF		Surface mount, for soldering reflow, compact, low profile (3.1 × 2.0 × 2.7 [height] mm)	1.1	0.3	2.0	5	5	50	0.1	1	5
GP1S296HCPSF		Surface mount, for soldering reflow, compact, low profile (2.5 × 1.8 × 1.9 [height] mm)	1.0	0.2	3.0	5	5	50	0.1	1	5
GP1S396HCP0F		Straight lead type, compact, low profile (2.26 × 1.4 × 1.6 [height] mm)	1.2	0.12	2.0	5	5	30	0.1	1	5
GP1S396HCPSF		Surface mount, for soldering reflow, compact, low profile (2.26 × 1.4 × 1.6 [height] mm)	1.2	0.12	2.0	5	5	30	0.1	1	5
GP1S097HCZ0F		High resolution, wide gap, with mounting hole (4.5 × 2.6 × 4.5 [height] mm)	2.0	0.3	2.0	5	5	50	0.1	1	5

Note: Topr: –25 to +85°C
GP1SxxxHCZxF: Sleeve package, GP1SxxxHCPxF: Taped package

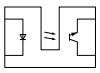


PHOTOINTERRUPTERS (TRANSMISSIVE TYPE)

RoHS

<Case type>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics						
					Current transfer ratio			Response time			
					CTR (%) MIN.	I_F (mA)	V_{CE} (V)	tr (μs) TYP.	I_C (mA)	R_L (Ω)	V_{CE} (V)
GP1S50J0000F		High resolution, both-side mounting type	3.0	0.5	2.5	20	5	3	2	100	2
GP1S51VJ000F		High resolution, side mounting type	3.0	0.5	2.5	20	5	3	2	100	2
GP1S52VJ000F		High resolution, PWB mounting type	3.0	0.5	2.5	20	5	3	2	100	2
GP1S53VJ000F		High resolution, PWB mounting type	5.0	0.5	2.5	20	5	3	2	100	2
GP1S56TJ000F▲		High resolution, with positioning pin, PWB mounting type	2.0	0.15	2.0	20	5	38	0.5	1 000	2
GP1S58VJ000F		High resolution, with positioning pin, PWB mounting type	5.0	0.5	2.5	20	5	3	2	100	2
GP1S59J0000F▲		High resolution, horizontal slit, with positioning pin, PWB mounting type	4.2	0.5	2.5	20	5	3	2	100	2

Note: Topr: –25 to +85°C
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.


GP1S50J0000F


GP1S51VJ000F


GP1S52VJ000F


GP1S53VJ000F


GP1S56TJ000F▲


GP1S58VJ000F


GP1S59J0000F▲

<With connector>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics						
					Current transfer ratio			Response time			
					CTR (%) MIN.	I_F (mA)	V_{CE} (V)	tr (μs) TYP.	I_C (mA)	R_L (Ω)	V_{CE} (V)
GP1S173LCS2F		Snap-in mounting integrated connector type Applicable to 3 kinds of thickness of mounting boards	5.0	0.5	2.5	20	5	3	2	100	2
GP1S273LCS1F		Snap-in mounting integrated connector type Applicable to 3 kinds of thickness of mounting boards Compact (Compatible with 1.5 mm pitch connector)	5.0	0.7	2.5	20	5	3	2	100	2

Note: Topr: –30 to +95°C


GP1S173LCS2F


GP1S273LCS1F

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★Under development

◆OPIC Type

("OPIC" (Optical IC) is a trademark of SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.)

<Compact type>

(Ta = 25°C)

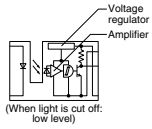
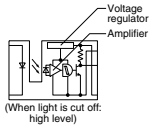
Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics								
					Threshold input current				Propagation delay time				
					I_{FLH} (mA) MAX.	I_{FHL} (mA) MAX.	V_{CC} (V)	R_L (kΩ)	t_{PLH} (µs) TYP.	t_{PHL} (µs) TYP.	I_F (mA)	R_L (kΩ)	V_{CC} (V)
★GP1A396HCP0F		Compact, high response speed, digital output, PWB mounting	1.2	0.12	2.85	–	2.5 to 5.5	24 to 30	15	15	5	24	3.3
★GP1A396HCPSF		Compact, high response speed, digital output, surface mount	1.2	0.12	2.85	–	2.5 to 5.5	24 to 30	15	15	5	24	3.3

Note: Topr = –25 to +85°C

GP1A396HCP0F GP1A396HCPSF

<Case type>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics							
					Threshold input current			Propagation delay time				
					I_{FLH} (mA) MAX.	I_{FHL} (mA) MAX.	V_{CC} (V)	t_{PLH} (µs) TYP.	t_{PHL} (µs) TYP.	I_F (mA)	R_L (Ω)	V_{CC} (V)
GP1A50HRJ00F		Both-side mounting, with screw hole	3.0	0.5	5	–	5	3	5	5	280	5
GP1A51HRJ00F		Side mounting, with screw hole	3.0	0.5	5	–	5	3	5	5	280	5
GP1A52HRJ00F		PWB mounting type	3.0	0.5	5	–	5	3	5	5	280	5
GP1A53HRJ00F		PWB mounting type	5.0	0.5	8	–	5	3	5	8	280	5
GP1A57HRJ00F		PWB mounting type, with positioning pin	10.0	1.8	7	–	5	3	5	7	280	5
GP1A58HRJ00F		PWB mounting type, with positioning pin	5.0	0.5	8	–	5	3	5	8	280	5
GP1A52LRJ00F		PWB mounting type	3.0	0.5	–	5	5	5	3	5	280	5

Note: Topr = –25 to +85°C

GP1A50HRJ00F GP1A51HRJ00F GP1A52LRJ00F (GP1A52HRJ00F) GP1A53HRJ00F (GP1A58HRJ00F with positioning pin) GP1A57HRJ00F

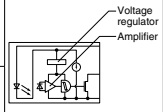
☆New product

◆OPIC Type

("OPIC" (Optical IC) is a trademark of SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.)

<With 3-pin connector terminal>

(Ta = 25°C)

Model No.	Internal connection diagram	Features		Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics					
						Supply voltage Vcc (V)		Low level output voltage			
						MIN.	MAX.	VOL (V) MAX.	Light cut-off	IOL (mA)	Vcc (V)
GP1A173LCS3F		with 3-pin connector	Snap-in mounting integrated connector type*1 3.3 V / 5 V operation	5.0	0.5	2.7	5.5	0.35	No	4	3.3 5.0
GP1A173LCSVF▲			Snap-in mounting integrated connector type*1 enforced electrostatic discharge (ESD)	5.0	0.5	4.5	5.5	0.35	No	4	5.0
☆GP1A173LCS5F			Snap-in mounting integrated connector type*1 3.3 V / 5 V operation enforced electrostatic discharge (ESD) increased power line noise tolerance	5.0	0.5	3.0	5.5	0.35	No	4	3.3 5.0

Note: Topr: –30 to +95°C
*1 Applicable to 3 kinds of thickness of mounting boards.
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

GP1A173LCS3F
GP1A173LCSVF▲
GP1A173LCS5F

■Photointerrupters

<Reflective type>

◆Single Phototransistor Output

<Compact>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Optimum detecting distance (mm)	Electro-optical characteristics						
				Current transfer ratio			Response time			
				CTR (%) MIN.	IF (mA)	VCE (V)	tr (µs) TYP.	IC (mA)	RL (kΩ)	VCE (V)
GP2S700HCP		Compact (4 × 3 × 2 [height] mm), long focal distance, surface mounting leadless type	4	1.5	4	2	20	0.1	1	2
GP2S60		Thin (3.2 × 1.7 × 1.1 [height] mm), surface mounting leadless type	1	1.0	4	2	20	0.1	1	2

Note: Topr: –25 to +85°C

GP2S700HCP GP2S60

☆New product

RoHS

◆OPIC Output

("OPIC" (Optical IC) is a trademark of SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.)

<With 3-pin connector terminal>

(Ta = 25°C)

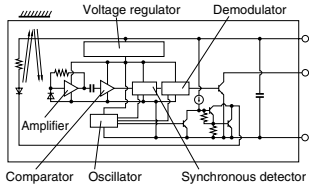
Model No.	Internal connection diagram	Features	Optimum detecting distance (mm)	Electro-optical characteristics					
				Supply voltage Vcc (V)		Dissipation current		Low level output voltage	
				MIN.	MAX.	Icc (mA) MAX.	Vcc (V)	VOL (V) MAX.	Vcc (V)
GP2A200LCS0F	(Following diagram [A])	Multiple types of paper detectable, light modulation type, with connector, sensitivity adjusted	5 to 15	4.75	5.25	30*1	5	0.4	5
GP2A240LCS0F		Applicable to inverter fluorescent lamp, light modulation type, with connector, sensitivity adjusted	5 to 15	4.75	5.25	30*1	5	0.4	5
GP2A250LCS0F		Static electricity resistant, applicable to inverter fluorescent lamp, light modulation type, with connector, sensitivity adjusted	2.5 to 12.5	4.75	5.25	30*1	5	0.4	5
GP2A25J0000F		Multiple types of paper detectable, light modulation type, with connector, sensitivity adjusted	3 to 7	4.75	5.25	30*1	5	0.4	5
GP2A230LRS0F	(Following diagram [B])	Compact, screw-clamp type, multiple types of paper detectable, light modulation type, with connector	3 to 7	4.75	5.25	20*1	5	0.4	5
GP2A230LRSAF		Compact, hook type, multiple types of paper detectable, light modulation type, with connector							
☆GP2A430LCSAF	(Following diagram [C])	Compact, hook type, multiple types of paper detectable, light modulation type, with connector		3.0	5.5	10*1	3.3 to 5	0.4	3.3 to 5
GP2A25NJJ00F	(Following diagram [A])	Multiple types of paper detectable, light modulation type, sensitivity adjusted, improved light-resistance characteristic for inverter lighting, built-in visible light cut filter	3 to 7	4.75	5.25	30*1	5	0.4	5
GP2A25DJ000F		Multiple types of paper detectable, light modulation type, with connector, sensitivity adjusted	3 to 7	4.75	5.25	30*1	5	0.4	5
GP2A28AJ000F		Multiple types of paper detectable, light modulation type, with connector, sensitivity adjusted, hook type	3 to 7	4.75	5.25	30*1	5	0.4	5

Note: Topr: –10 to +60°C (GP2A25J0000F, etc.)
–10 to +70°C (GP2A200LCS0F, GP2A240LCS0F, GP2A250LCS0F, GP2A230LRS0F, GP2A230LRSAF, GP2A430LCSAF)

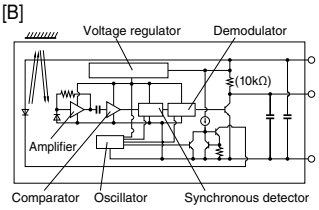
*1 Smoothing value $R_L = \infty$

[Internal connection diagram]

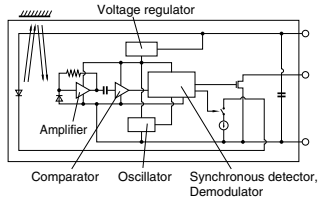
[A]



[B]



[C]



GP2A25J0000F
(GP2A25NJJ00F, GP2A200LCS0F, GP2A240LCS0F)

GP2A250LCS0F

GP2A25DJ000F

GP2A230LRS0F

GP2A230LRSAF
(GP2A430LCSAF)

GP2A28AJ000F

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☆New product

■Proximity Sensor

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics			
		V_{CC} (V)	Topr (°C)	Dissipation current I_{CC} (μA) TYP.	Detecting distance Lon (mm) MIN.	Non-detecting distance Loff (mm) MAX.	Peak emission wavelength λp (nm)
GP2AP002S30F	Compact size (4.0 × 2.0 × 1.25 t mm) Drastically reduced LED current consumption by employing a light modulation system Built-in LEDs for simple optical design and I²C output (LED emission duty: MAX. 0.3%)	3.8	–25 to +85	240	25	150	940

GP2AP002S30F

■Proximity Sensor with Integrated Ambient Light Sensor

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics					
					Proximity sensor portion		Ambient light sensor portion		
		V_{CC} (V)	Topr (°C)	Dissipation current Icc (μA) TYP.	Detecting distance Lon (mm) TYP.	Peak emission wavelength λp (nm)	Recommended illuminance range Ev (lx)	Output resolution (bit)	ADC conversion time Tint (ms) TYP.
GP2AP030A00F	LED and ambient light sensor combined in a single package (4.0 × 2.1 × 1.25 t mm) Built-in LEDs for simple optical design Illuminance output: digital 16-bit output (Minimum detectable illuminance: 0.02 lx) I²C output compatible (proximity sensor, ambient light sensor)	5.5	–35 to +85	65	100	940	0.02 to 10 000	16	100
☆GP2AP007A00F	LED and ambient light sensor combined in a single package (2.5 × 2.0 × 1.0 t mm) Compact with reduced mounting area Illuminance output: digital 16-bit output (Minimum detectable illuminance: 0.1 lx) Small aperture compatible I²C output compatible (proximity sensor, ambient light sensor)	2.2 to 5.5	–30 to +85	100	100	940	0.1 to 100 000	16	30
☆GP2AP008T00F	LED and ambient light sensor combined in a single package (3.94 × 2.36 × 1.35 t mm) Illuminance output: digital 16-bit output (Minimum detectable illuminance: 0.1 lx) Small aperture compatible I²C output compatible (proximity sensor, ambient light sensor)	2.2 to 5.5	–30 to +85	100	100	940	0.1 to 100 000	16	30

GP2AP030A00F

GP2AP007A00F

GP2AP008T00F

RoHS

■Proximity/Gesture Sensor with Integrated Ambient Light Sensor

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics						
						Proximity/gesture sensor portion		Ambient light sensor portion		
		V_{CC} (V)	Topr (°C)	Dissipation current Icc (μA) TYP.	Dissipation current Icc (Gesture) (μA) TYP.	Detecting distance Lon (mm) TYP.	Peak emission wavelength λp (nm)	Recommended illuminance range Ev (lx)	Output resolution (bit)	ADC conversion time Tint (ms) TYP.
GP2AP054A00F	LED and ambient light sensor combined in a single package (4.0 × 2.1 × 1.25 t mm) Simultaneous operation of the gesture recognition and illuminance functions is possible Low power consumption mode is available for the proximity sensor Capable of holding a total of 4 gesture detection results	5.5	–35 to +85	100	320	100	940	0.02 to 10 000	16	30

GP2AP054A00F

■UV Light Sensors

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings			Electro-optical characteristics				
		V_{CC} (V)	I^2C voltage VI^2C (V)	Topr (°C)	Dissipation current Icc (μA) TYP.	Built-in clock frequency fosc (MHz) TYP.	Output resolution (bit)	ADC conversion time (ms) TYP.	Recommended illuminance range Ev (lx) Sunlight (AM1.5 equivalent)
GA1AUV100WP	Detects only UV rays contained within sunlight (no sensitivity to visible light) Built-in ambient light sensor Compact size: 2.0 × 1.6 × 0.6 t mm I^2C output compatible	2.2 to 5.5	1.7 to Vcc	–35 to +85	65	2.62	16	25	UV: 0 to 200 000 Illuminance: 0 to 120 000

GA1AUV100WP

■OPIC Light Detectors

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(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings				Electro-optical characteristics							
			V_{CC} (V)	P (mW)	I_O (mA)	Topr (°C)	E_{VLH} (lx) MAX.	E_{VHL} (lx) MAX.	V_{CC} (V)	t_{PLH} (µs) TYP.	t_{PHL} (µs) TYP.	V_{CC} (V)	E_V (lx)	R_L (Ω)
IS485E	Built-in schmidt trigger circuit, amplifier and voltage regulator	Transparent epoxy resin with condenser (lens)	−0.5 to +17	175	50	−25 to +85	–	35	5	5	3	5	50	280
IS486E			−0.5 to +17	175	50	−25 to +85	35	–	5	3	5	5	50	280

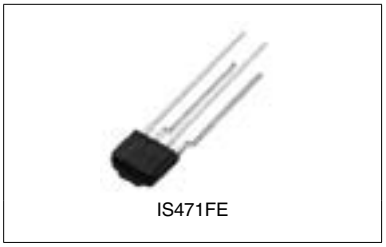
IS485E
(IS486E)

<Model employing a light modulation system>

(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings				Electro-optical characteristics*2						External disturbing light illuminance E_{VDX}(lx) TYP.
			V_{CC} (V)	P (mW)	I_O (mA)	Topr (°C)	V_{OL} (V) MAX.	V_{OH} (V) MIN.	t_{PLH} (µs) TYP.	t_{PHL} (µs) TYP.	V_{CC} (V)	R_L (Ω)	
IS471FE*1, *3	Built-in pulse driver circuit at the emitter side, synchronous detector circuit, amplifier circuit and demodulator circuit	Visible light cut-off epoxy resin	−0.5 to +16	250	50	−25 to +60	0.35	4.97	400	400	5	280	7 000

*1 IS471FE is less susceptible to disturbing effects thanks to the light modulation system
*2 V_{CC} = 5 V
*3 Straight lead type (IS471FSE) is also available.



IS471FE

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RoHS

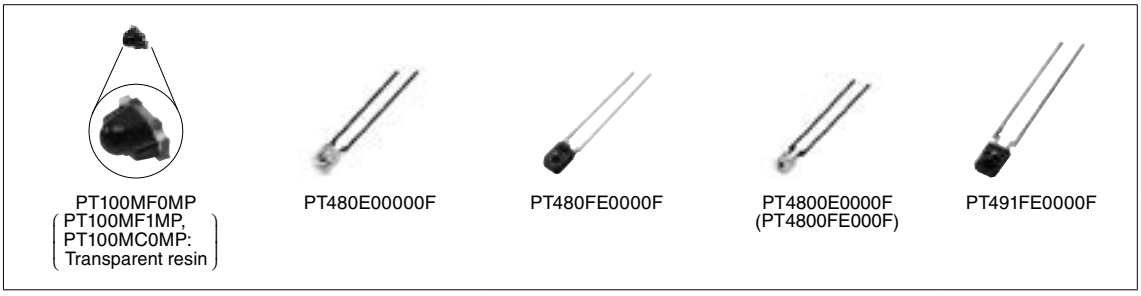
■Phototransistor Lineup

Package	Output type	Features	Half sensitivity angle	Model No.	
				Standard	Visible light cut-off
Epoxy resin with lens	Single phototransistor	General purpose/Narrow acceptance	±13°	PT480E00000F	PT480FE0000F
Surface mounting leadless type	Darlington phototransistor	Compact, thin	±35°	PT4800E0000F	PT4800FE000F
		High sensitivity/Intermediate acceptance	±40°	—	PT491FE0000F
	Single phototransistor	Compact (side view/top view mounting possible)	±15°	PT100MC0MP	PT100MF0MP
	Darlington phototransistor	Compact (side view/top view mounting possible)	±15°	—	PT100MF1MP

■Phototransistors

Type	Model No.	Package	Absolute maximum ratings			Ic (mA)				I_{CEO}(A)		$\Delta\theta$ (°)	λp (nm)
			V_{CEO} (V)	P_C (mW)	Topr (°C)	MIN.	MAX.	V_{CE} (V)	Ee (mW/cm²)	MAX.	V_{CE} (V)	TYP.	TYP.
Single	PT100MC0MP	Surface mounting leadless type with lens	35	75	−30 to +85	1.7	5.1	5	1	1×10^{-7}	20	±15	900
	PT100MF0MP*1		35	75	−30 to +85	1.15	3.45	5	1	1×10^{-7}	20	±15	910
	PT480E00000F	Epoxy resin with lens	35	75	−25 to +85	0.4	TYP. 1.7	5	1	1×10^{-7}	20	±13	800
	PT480FE0000F*1		35	75	−25 to +85	0.25	TYP. 0.8	5	1	1×10^{-7}	20	±13	860
	PT4800E0000F		35	75	−25 to +85	0.12	TYP. 0.4	5	1	1×10^{-7}	20	±35	800
	PT4800FE000F*1		35	75	−25 to +85	0.08	TYP. 0.25	5	1	1×10^{-7}	20	±35	860
Darlington	PT491FE0000F*1	Epoxy resin with lens	35	75	−25 to +85	0.2	0.8	2	Ev, 2 lx	1×10^{-6}	10	±40	860
	PT100MF1MP*1	Surface mounting leadless type with lens	35	75	−30 to +85	0.2	1.2	5	0.01	1×10^{-6}	10	±15	860

*1 Visible light cut-off type



PT100MF0MP (PT100MF1MP, PT100MC0MP: Transparent resin)

PT480E00000F

PT480FE0000F

PT4800E0000F (PT4800FE000F)

PT491FE0000F

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RoHS

■PIN Photodiodes

(Ta = 25°C)

Model No.	Features	Package (Material)	Active area (mm^2)	Topr (°C)	Isc (μA) MIN.	Ev (lx)	Id (A) MAX.	V_R (V)	tr, tf (μs) TYP.	V_R (V)	R_L (kΩ)	λp (nm) TYP.
PD410PI2E00F	PIN type	Visible light cut-off epoxy resin with condenser (lens)	3.31	–25 to +85	2.5	100	1×10^{-8}	10	0.2	10	1	1 000
PD411PI2E00F		Transparent epoxy resin with condenser (lens)	3.31	–25 to +85	5.0	100	1×10^{-8}	10	0.2	10	1	960
PD413PI2E00F	PIN type IrDA1.0	Visible light cut-off epoxy resin with condenser (lens)	3.31	–25 to +85	MIN. 4.5 (TYP. 5.4)	100	1×10^{-8}	10	0.2	10	1	960
PD100MC0MP	Surface mounting leadless type	Transparent epoxy resin board with lens	–	–30 to +85	0.6	100	1×10^{-8}	10	0.01	15	0.18	820
PD100MF0MP	Surface mounting leadless type	Visible light cut-off epoxy resin board with lens	–	–30 to +85	0.4	100	1×10^{-8}	10	0.01	15	0.18	850

PD410PI2E00F
(PD411PI2E00F: transparent;
PD413PI2E00F)

PD100MC0MP
(PD100MF0MP: black)

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RoHS

■Infrared Emitting Diode Lineup

Type	Package	Features	Half intensity angle	Model No.
Single-end lead	Epoxy resin with lens	General purpose/Narrow beam angle	±13°	GL480E00000F
(Side view type)		Compact and thin	±30°	GL4800E0000F
Surface mount type	Epoxy resin with lens/ leadless	Compact/Narrow beam angle	±10°	GL100MN0MP
	(Mountable for Top view/ Side view type)	High output type	±10°	GL100MN1MP
		Compact/Wide beam angle	±80°	GL100MD1MP1

■Infrared Emitting Diodes

(Ta = 25°C)

Model No.	Package, features	Absolute maximum ratings				Radiant flux Φe (mW)			VF (V)			Δθ (°)	λp (nm)
		IF (mA)	VR (V)	P (mW)	Topr (°C)	MIN.	TYP.	IF (mA)	TYP.	MAX.	IF (mA)	TYP.	TYP.
GL480E00000F	Epoxy resin with lens	50	6	75	−25 to +85	0.7	–	20	1.2	1.4	20	±13	950
GL4800E0000F		50	6	75	−25 to +85	0.7	1.6	20	1.2	1.4	20	±30	950
GL100MN0MP	Surface mounting leadless type, epoxy resin board with lens	50	6	75	−30 to +85	1.0	3.0 (MAX.)	20	1.2	1.4	20	±10	940
GL100MN1MP	Surface mounting leadless type, epoxy resin board with lens, high output type	50	6	75	−30 to +85	2.0	6.0 (MAX.)	20	1.2	1.5	20	±10	940
GL100MD1MP1	Surface mounting leadless type, epoxy resin board with lens, wide beam angle	50	6	75	−30 to +85	–	6.0 (MAX.)	20	–	1.5	20	±80	940

GL480E00000F

GL4800E0000F

GL100MN0MP
(GL100MN1MP, GL100MD1MP1)

Optoelectronics

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☆New product

■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 I²C output)	4 to 50 cm	Compact size, high-precision measurement	Analog output	GP2Y0E02A	39
				I²C output	GP2Y0E02B	39
				Analog, I²C output	GP2Y0E03	39
ToF	I²C 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

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)	VOH (V) MIN.	VOL (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	–	–
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

RoHS

◆Analog Output

(Ta = 25°C)

Model No.	Distance measuring range (cm)	Features	Absolute maximum ratings		Electro-optical characteristics*1		
			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*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	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*2, 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*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	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*2, 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*2, 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
GP2Y0A02YK0F	20 to 150	Distance measuring sensor united with PSD*2, 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*2, 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

☆New product

RoHS

■Distance Measuring Sensors (2) CMOS Type

◆Analog Output (including I²C output)

(Ta = 25°C)

Model No.	Distance measuring range (cm)	Features	Absolute maximum ratings		Electro-optical characteristics*1		
			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 × 8 × 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 × 8 × 5.2 mm), high-precision measurement, I²C 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 × 11 × 5.2 mm), high-precision measurement, analog / I²C 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

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) ICC_VDD (mA) TYP.	Dissipation current (VCSEL) ICC_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 I²C interface	3.6	−40 to +85	10	20	940	10 to 120	4	33

GP2AP01VTx0F

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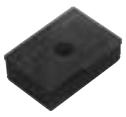
☆New product

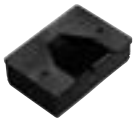
■Dust Sensor Unit

(Ta = 25°C)

Model No.	Features	Topr (°C)	Operating supply voltage (V)	Electro-optical characteristics			
				Dissipation current (mA)	Detection concentration μg/m³ (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/m³) 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/m³) 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/m³) 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/m³) 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/m³) 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 • Sensing can discriminate between PM2.5 and PM10 • Internal cleaning possible		3 to 5.5	TYP. 25	0 to 500	Precision ±15%	Digital signal (UART)



GP2Y1010AU0F
(GP2Y1012AU0F, GP2Y1014AU0F, GP2Y1023AU0F, GP2Y1026AU0F)



GP2Y1030AU0F

IR DETECTING UNIT FOR REMOTE CONTROL LINEUP (CLASSIFIED BY FORM)

RoHS

■IR Detecting Unit for Remote Control Lineup (Classified by Form)

Type	Package		Features	Operating voltage	Model No.	
	Form	Detection position*1 (from PCB)				
IR detecting unit for remote control	Lead L bend with shield case (holder)	16.0 mm*2	Compact size	3 to 5 V	GP1UE28XK0VF series▲	
				5 V	GP1UM28XK0VF series	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE28RK0VF series▲	
				5 V	GP1UM28RK0VF series	
		12.0 mm*3	Compact size	3 to 5 V	GP1UE27XK0VF series▲	
				5 V	GP1UM27XK0VF series	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE27RK0VF series▲	
				5 V	GP1UM27RK0VF series	
		6.8 mm*4	Compact size	3 to 5 V	GP1UE26XK0VF series▲	
				5 V	GP1UM26XK0VF series	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE26RK0VF series▲	
				5 V	GP1UM26RK0VF series	
	Lead straight with shield case (holder)	19.0 mm	Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE29QK0VF series▲	
				5 V	GP1UM29QK0VF series	
		9.6 mm	Compact size	3 to 5 V	GP1UE28YK0VF series▲	
				5 V	GP1UM28YK0VF series	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE28QK0VF series▲	
				5 V	GP1UM28QK0VF series	
	Holderless	Lead straight 6.0 mm		3 to 5 V	GP1UX31QS series▲	
				5 V	GP1UX51QS series	
		Lead L bend*5 5.3 mm		3 to 5 V	GP1UX31RK series▲	
				5 V	GP1UX51RK series	

*1 Lead straight: Distance from lens center to mounting board upper surface
No mesh lead L bend: Distance from tip of lens to mounting board upper surface
Mesh-type lead L bend: Distance from tip of mesh to mounting board upper surface
*2 Mesh type (strengthened resistance to electromagnetic induction noise): 16.4 mm
*3 Mesh type: 12.4 mm
*4 Mesh type: 7.2 mm
*5 Mesh type: 5.3 mm
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

RoHS

■IR Detecting Units for Remote Control

(Ta = 25°C)

Type	Series No.	Absolute maximum ratings		Operating voltage (V)	Electrical characteristics				Size (mm)	Terminal layout
		Vcc (V)	Topr (°C)		Icc (mA)*1 MAX.	VOH (V) MIN.	VOL (V) MAX.	fo (kHz) TYP.		
With shield case (holder), 5 V drive	GP1UM26XK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 9.6 × 6.8	Center Vcc
	GP1UM27XK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 9.6 × 12.0	
	GP1UM28XK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 9.6 × 16.0	
	GP1UM28YK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 8.6 × 12.5(9.6)*2	
With shield case (holder), 5 V drive, Strengthened resistance to electromagnetic induction noise	GP1UM26RK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 9.6 × 7.2	
	GP1UM27RK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 9.6 × 12.4	
	GP1UM28RK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 9.6 × 16.4	
	GP1UM28QK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 9.0 × 12.5(9.6)*2	
	GP1UM29QK0VF	0 to 6.0	−10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc−0.5	0.45	*3	5.6 × 16.2 × 21.9(19)*2	
With shield case (holder), 3 to 5 V drive	GP1UE26XK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 9.6 × 6.8	
	GP1UE27XK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 9.6 × 12.0	
	GP1UE28XK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 9.6 × 16.0	
	GP1UE28YK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 8.6 × 12.5(9.6)*2	
With shield case (holder), 3 to 5 V drive, Strengthened resistance to electromagnetic induction noise	GP1UE26RK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 9.6 × 7.2	
	GP1UE27RK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 9.6 × 12.4	
	GP1UE28RK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 9.6 × 16.4	
	GP1UE28QK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 9.0 × 12.5(9.6)*2	
	GP1UE29QK0VF▲	0 to 6.0	−10 to +70	2.7 to 5.5	0.4	Vcc−0.5	0.45	*3	5.6 × 16.2 × 21.9(19)*2	
Holderless, 5 V drive, Strengthened resistance to electromagnetic induction noise	GP1UX51QS	0 to 6.0	−10 to +70	4.5 to 5.5	0.6	Vcc−0.5	0.45	*3	5.5 × 5.3 × 7.5	Center GND
	GP1UX51RK	0 to 6.0	−10 to +70	4.5 to 5.5	0.6	Vcc−0.5	0.45	*3	5.5 × 5.3 × 7.5	
Holderless, 3 to 5 V drive, Strengthened resistance to electromagnetic induction noise	GP1UX31QS▲	0 to 6.0	−10 to +70	4.5 to 5.5	0.4	Vcc−0.5	0.45	*3	5.5 × 5.3 × 7.5	
	GP1UX31RK▲	0 to 6.0	−10 to +70	4.5 to 5.5	0.4	Vcc−0.5	0.45	*3	5.5 × 5.3 × 7.5	

Note: A voltage regulator circuit is built-in but may be affected by the usage environment. Install with an externally mounted C and R as a power supply filter.
*1 When no signal is input (during input light).
*2 Figures in parentheses indicate the distance to the light detection center.
*3 fo = 32.75/36/36.7/38/40 kHz
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.