★Under development

■Photocoupler Lineup

<Phototransistor output type>

Package type	Output type	Features		Model No. (series)	Page
Mini-flat 4-pin Compact, SOP type	Single phototransistor	General purpose, High collector-emitter voltage		PC357NJ0000F / PC451J00000F	11
			Low input current	PC367NJ0000F	11
		AC input response		PC354NJ0000F	11
	Darlington phototransistor	High sensitivity, High collector-emitter voltage	Low input current	PC364NJ0000F	11
				PC355NJ0000F / PC452J00000F	11
			Low input current	PC365NJ0000F	11
Compact, Half pitch (lead space), SOP type	Single phototransistor	General purpose		PC3H7J00001H	12
			Reinforced insulation	PC3HU7xYIP1B	12
			Low input current	PC3H71xNIP1H	12
		AC input response		PC3H3J00001H / PC3H4J00001H	12
DIP type (4-pin)	Single phototransistor	Reinforced insulation		PC123XxYSZ1B	13
(4-pin, DIP type)			Low input current	PC1231xNSZ1B	13
		General purpose, High collector-emitter voltage, etc.		PC817XxNSZ1B / PC851XNNSZ1H	13
			Low input current	PC8171xNSZ1B	13
	Darlington phototransistor	High sensitivity, High collector-emitter voltage		PC852XNNSZ1H	13

<OPIC output type>

Package type	Output type	Features		Model No. (series)	Page
Compact, SOP type	Digital output	General purpose, High response speed		PC400J00000F / PC410LENIP0F	14
	Analog/Digital output	High CMR		PC457L0NIP0F	14
DIP type, Gate drive type	Built-in base amplifier	For inverter control	1.5A output	PC923LRNSZ0F	14
			2.5A output	PC925LENSZ0F	14
LSOP type,Gate drive type	Built-in base amplifier	For inverter control	1.5A output	★PC4L23xxIP0F	15
			2.5A output	★PC4L25xxIP0F	15

RoHS

■Photocouplers

◆Phototransistor Output Type <Compact, SOP type>

○: Approved

(Ta = 25°C)

Output type	Model No.	Internal connection diagram	Features	Approved by safety standards*2 UL	Package	Absolute maximum ratings: Forward current IF (mA)	Absolute maximum ratings: Isolation voltage (AC) Viso (rms) (kV)	Absolute maximum ratings: Collector-emitter voltage VCEO (V)	Electro-optical characteristics: Current transfer ratio CTR (%) MIN.	Current transfer ratio: IF (mA)	Current transfer ratio: VCE (V)	Response time: tr (μs) TYP.	Response time: IC (mA)	Response time: RL (Ω)	Response time: VCE (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)

Optoelectronics

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◆Phototransistor Output Type
<Compact, half pitch (lead space) SOP 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)	○	○	○	Compact half pitch	50	3.75	80	50	5	5	4	2	100	2
	PC3H7J00001H		General-purpose	○	–	○		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
(Compact half pitch)

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◆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	○	○*6	○		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.
*6 Optionally available.



PC817XxNSZ1B
(4-pin DIP)

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◆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, SOP 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 IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	VOL (V) MAX.	Ta (°C)	IOL (mA)	IF (mA)	IFHL (mA) MAX.	IFLH (mA) MAX.	RL (Ω)
PC400J00000F		Digital output, normal-off operation	○	–	Mini-flat 5-pin	50	3.75	0.4	0 to +70	16	4	2.0	–	280
PC410LENIP0F		High speed (10 Mb/s), high CMR (10 kV/μs), for flow soldering	○	○		20		0.6	-40 to +85	13	5	5.0	–	350

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

<Compact, SOP 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 IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	CTR (%) MIN.	IF (mA)	VO (V)	VCC (V)	tPHL (μs) TYP.	tPLH (μs) TYP.	RL (Ω)	IF (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)

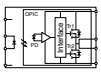
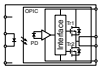
◆OPIC Output

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<DIP type, Gate drive type>

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*3		Package	Absolute maximum ratings		Electro-optical characteristics					
								Propagation delay time					
			UL	VDE *2		Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	tPHL (μs) TYP.	tPLH (μs) TYP.	VCC (V)	IF (mA)	RG (Ω)	CG (nF)
PC923LRNSZ0F*1		• Built-in drive circuit directly connectable to MOS-FET and IGBT • Peak output current: 1.5 A • Low dissipation current (Icc = TYP. 2.5 mA) • High resistance to noise (CMR: MIN. 15 kV/μs)	○	○	8-pin DIP	25	5.0	MAX. 0.5	MAX. 0.5	15 to 30	7 to 16	47	3
PC925LENSZ0F*1		• Built-in drive circuit directly connectable to MOS-FET and IGBT • Peak output current: 2.5 A • Low dissipation current (Icc = TYP. 2.5 mA) • High resistance to noise (CMR: MIN. 15 kV/μs)	○	○	8-pin DIP	25	5.0	MAX. 0.5	MAX. 0.5	15 to 30	7 to 16	10	10

*1 Lead forming type is also available for surface mounting. Taped package of lead forming type for surface mounting is also available.
*2 A VDE approved type is optionally available.
*3 Please refer to Specification Sheets for model numbers approved by safety standards.



PC923LRNSZ0F/PC925LENSZ0F
(8-pin DIP)

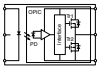
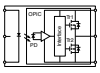
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★Under development

<LSOP type, Gate drive type>

△: Under preparation

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*3		Package	Absolute maximum ratings		Electro-optical characteristics					
								Propagation delay time					
			UL	VDE *2		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	t_{PHL} (µs) TYP.	t_{PLH} (µs) TYP.	V_{CC} (V)	I_F (mA)	R_G (Ω)	C_G (nF)
★PC4L23xxIP0F*1		• Built-in drive circuit directly connectable to MOS-FET and IGBT • Peak output current: 1.5 A • Low dissipation current (Icc = TYP. 2.5 mA) • High resistance to noise (CMR: MIN. 35 kV/µs)	△	△	6-pin LSOP	25	5.0	MAX. 0.3	MAX. 0.3	15 to 30	7 to 16	47	3
★PC4L25xxIP0F*1		• Built-in drive circuit directly connectable to MOS-FET and IGBT • Peak output current: 2.5 A • Low dissipation current (Icc = TYP. 2.5 mA) • High resistance to noise (CMR: MIN. 35 kV/µs)	△	△	6-pin LSOP	25	5.0	MAX. 0.4	MAX. 0.4	15 to 30	7 to 16	10	10

*1 Wide lead forming type is also available for surface mounting.
*2 A VDE approved type is optionally available.
*3 Please refer to Specification Sheets for model numbers approved by safety standards.

RoHS

■Phototriac Coupler Lineup

Package	Applied voltage	ON-state current (rms)	Features		Model No.	Page
Mini-flat (SOP)	AC 200 V lines (V_{DRM} = 600V)	0.05 A	General purpose		S2S3A00F*3 / S2S5A00F*3 / S2S5FA0F*3	17
				Built-in zero-cross circuit	S2S4A00F*3	18
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A				
(4-pin)			Reinforced isolation		PC3SH11YFZAH*3 / PC3SH13YFZAH*3	17
				Built-in zero-cross circuit	PC3SH21YFZBH*2	18
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3SD12NTZAH*3 / PC3SD11NTZBH*2 / PC3SD11NTZCH*1	17
(6-pin package, 5th-pin cut)				Built-in zero-cross circuit	PC3SD21NTZAH*3 / PC3SD21NTZBH*2 / PC3SD21NTZDH*4	18
			Reinforced isolation		PC3SF11YVZAH*3 / PC3SF11YVZBH*2	17
				Built-in zero-cross circuit	PC3SF21YVZAH*3 / PC3SF21YVZBH*2	18
	AC 200 V lines (V_{DRM} = 800V)	0.1 A	General purpose		PC4SD11NTZCH*1	17
				Built-in zero-cross circuit	PC4SD21NTZCH*1 / PC4SD21NTZDH*4	18
			Reinforced isolation		PC4SF11YTZBH*2	17
				Built-in zero-cross circuit	PC4SF21YVZBH*2 / PC4SF21YWPSH*2	18

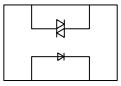
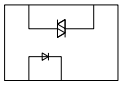
Minimum trigger current: *1 I_{FT} ≦ 5 mA, *2 I_{FT} ≦ 7 mA, *3 I_{FT} ≦ 10 mA, *4 I_{FT} ≦ 3 mA

RoHS

■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	○	–	–	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
PC3SD11NTZBH			○	–	–					7
PC3SD11NTZCH			○	○*4	–	6-pin DIP*1, *2				5
PC4SD11NTZCH		200 V lines, repetitive peak-OFF-state voltage	○	–	–			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.

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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)

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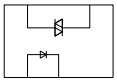
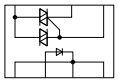
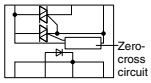
■Solid State Relay Lineup

Package	Applied voltage	ON-state current (rms)	Features	Model No.	Page
DIP 6-pin	AC 200 V lines	0.06 A	General purpose	PR31MA11NTZH	20
		0.15 A	General purpose	PR32MA11NTZH	20
DIP 8-pin	AC 200 V lines	0.3/0.6/0.9/1.2 A	General purpose	PR33MF5 series / PR36MF5 series / PR39MF5 series / PR3BMF5 series	20
		0.6/0.9 A	Built-in zero-cross circuit	PR36MF2 series / PR39MF2 series	20

■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		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*3 DIP	0.06	600	5.0	10
PR32MA11NTZH		200 V lines, 150 mA model in a small package	○	○	–	6-pin*3 *5 DIP	0.15			10
PR33MF51NSLH		200 V lines, compact	○	○	○*2	8-pin*3 *5 DIP	0.3	600	4.0	10
PR33MF52NSLH		200 V lines, compact	○	○	–	8-pin*3 DIP				5
PR36MF51NSLH		200 V lines, compact	○	○	–	8-pin*3 *5 DIP	0.6			10
PR39MF51NSLH		200 V lines, compact	○	○	○*2		0.9			10
PR3BMF51NSLH		200 V lines, compact	○	○	–		1.2			10
PR36MF21NSZH		200 V lines, compact (built-in zero-cross circuit)	○	○	–	8-pin*3 DIP	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.
*3 These are 5th-pin cut type.
*4 These are 7th-pin cut type.
*5 Lead forming type is also available for surface mounting.


PR31MA11NTZH
(6-pin DIP)


PR36MF21NSZH
(8-pin DIP)

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☆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	22
			Surface-mount type	GP1S396HCPSF / GP1S296HCPSF / GP1S092HCPIF / GP1S19xHCPSF	22
	Case type		PWB mounting type	GP1S5x series▲	23
	With connector	General purpose	Snap-in	GP1S173LCS2F / GP1S273LCS1F	23
Digital output					
(OPIC output)	Case type		PWB mounting type	GP1A51HRJ00F	24
		Wide gap	PWB mounting type	GP1A57HRJ00F	24
	With connector	General purpose	Snap-in	GP1A173LCS5F	25

<Reflective type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Leadless	Long focal distance	Surface-mount type	GP2S700HCP	25
High response speed	Compact, thin (leadless)	General purpose	Surface-mount type	GP2S60	25
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 / GP2A430LCS0F / GP2A430LCSAF / ☆GP2A431LCSAF / GP2A240LCS0F / GP2A250LCS0F / ☆GP2A451LCS0F	26

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

RoHS

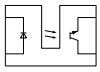
■Photointerrupters

<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
GP1S097HCZ0F		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
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

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


GP1S092HCPIF


GP1S093HCZ0F


GP1S094HCZ0F


GP1S097HCZ0F


GP1S194HCZ0F


GP1S195HCPSF


GP1S196HCZ0F


GP1S196HCPSF


GP1S296HCPSF


GP1S396HCP0F


GP1S396HCPSF

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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
GP1S58VJ000F▲		High resolution, with positioning pin, PWB mounting type	5.0	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▲

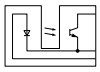

GP1S52VJ000F▲


GP1S53VJ000F▲


GP1S58VJ000F▲

<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

Optoelectronics

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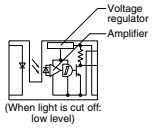
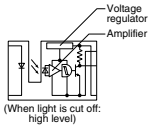
RoHS

◆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.)

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


GP1A50HRJ00F▲


GP1A51HRJ00F


GP1A52LRJ00F▲
(GP1A52HRJ00F▲)


GP1A53HRJ00F▲
(GP1A58HRJ00F with positioning pin)


GP1A57HRJ00F

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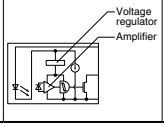
RoHS

◆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 V_{CC} (V)		Low level output voltage			
					MIN.	MAX.	V_{OL} (V) MAX.	Light cut-off	I_{OL} (mA)	V_{CC} (V)
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.



GP1A173LCS5F

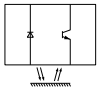
■Photointerrupters

<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.	I_F (mA)	V_{CE} (V)	tr (μs) TYP.	I_C (mA)	R_L (kΩ)	V_{CE} (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

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☆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)

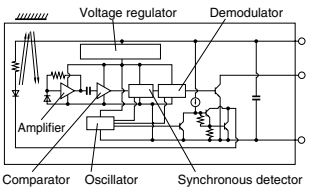
Model No.	Internal connection diagram	Features	Optimum detecting distance (mm)	Electro-optical characteristics					
				Supply voltage V_{CC} (V)		Dissipation current		Low level output voltage	
				MIN.	MAX.	I_{CC} (mA) MAX.	V_{CC} (V)	V_{OL} (V) MAX.	V_{CC} (V)
GP2A200LCS0F	(Following diagram [A])	Multiple 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
☆GP2A451LCS0F	(Following diagram [D])	Compact,screw-clamp type, Applicable to inverter fluorescent lamp, Light modulation type,with connector,3.3 to 5.0V Operation	2.5 to 12.5	3.0	5.50	10*1	3.3 to 5	0.4	3.3 to 5
GP2A25J0000F	(Following diagram [A])	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							
GP2A430LCS0F	(Following diagram [C])	Compact, screw-clamp type, multiple types of paper detectable, light modulation type, with connector, 3.3 to 5V Operation, Low power comsumption		3.0	5.5	10*1	3.3 to 5	0.4	3.3 to 5
GP2A430LCSAF		Compact, hook type, multiple types of paper detectable, light modulation type, with connector, 3.3 to 5V Operation, Low power comsumption							
☆GP2A431LCSAF									
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, GP2A430LCS0F, GP2A430LCSAF, GP2A431LCSAF)
–10 to +85°C (GP2A451LCS0F)

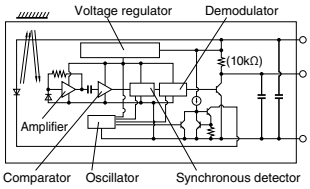
*1 Smoothing value $R_L = \infty$

[Internal connection diagram]

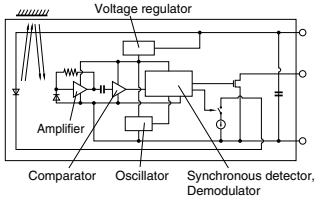
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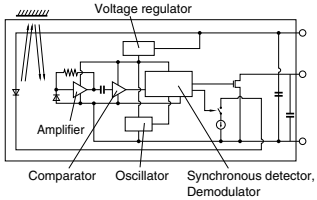
[B]



[C]



[D]





GP2A25J0000F
(GP2A25NJJ00F, GP2A200LCS0F, GP2A240LCS0F)



GP2A250LCS0F



GP2A25DJ000F



GP2A230LRS0F
(GP2A430LCS0F, GP2A451LCS0F)



GP2A230LRSAF
(GP2A430LCSAF, GP2A431LCSAF)



GP2A28AJ000F

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RoHS

■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.	Output resolution (bit)	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
GP2AP070S00F	Compact size (4.0 × 2.0 × 1.1 t mm) High accuracy Precision±10% (Distance 100mm)	3.8	–25 to +85	170	100 (TYP.)		14	940
GP2AP110S00F	Compact size (4.0 × 2.0 × 1.1 t mm) Built-in VCSEL for Narrow IR-window (window size 4.0 × 1.0mm)	3.8	–25 to +85	130	100 (TYP.)		14	940


GP2AP002S30F


GP2AP070S00F


GP2AP110S00F

■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

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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

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GA1AUV100WP▲

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■OPIC Light Detectors

("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.)

(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



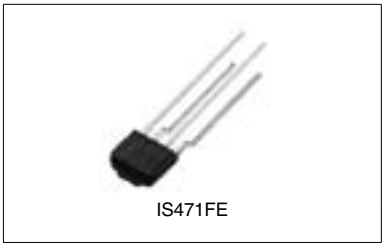
IS485E
(IS486E)

<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)		Δθ (°)	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	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)

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■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
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
(PD413PI2E00F)



PD100MC0MP
(PD100MF0MP: black)

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RoHS

■Infrared Emitting Diode Lineup

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

■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



GL480E00000F



GL4800E0000F



GL100MN0MP
(GL100MN1MP)

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☆New product

■Distance Measuring Sensor Lineup

Sensor type	Output	Detected distance	Features		Model No.	Page
PSD	1-bit digital output according to distance measuring	13 cm	1-bit digital output		GP2Y0D413K0F	34
		24 cm	1-bit digital output		GP2Y0D21YK0F	34
		80 cm	1-bit digital output		GP2Y0D02YK0F	34
	Analog voltage output according to distance measuring	1.5 to 15 cm		Analog output	GP2Y0AF15 series	34
		2 to 15 cm		Analog output	GP2Y0A51SK0F	34
		4 to 30 cm		Analog output	GP2Y0A41SK0F / GP2Y0AF30 series	34
		10 to 80 cm		Analog output	GP2Y0A21YK0F	34
		20 to 150 cm		Analog output	GP2Y0A02YK0F	34
		100 to 550 cm		Analog output	GP2Y0A710K0F	34
CMOS	Analog voltage output according to distance measuring (Including I²C output)	4 to 50 cm	Compact size, high-precision measurement	Analog output	GP2Y0E02A	35
				I²C output	GP2Y0E02B	35
				Analog, I²C output	GP2Y0E03	35
ToF	I²C output	10 to 200 cm	Compact size, high-precision measurement	IR laser	☆GP2AP02VT20F	36
		1 to 30 cm	Compact size, high-precision measurement	IR laser	GP2AP03VT00F	36

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

■Dust Sensor Unit Lineup

Output	Features	Model No.	Page
Analog output	Pulse analog output, single-shot detection of house dust, general purpose	GP2Y1010AU0F	37
	Pulse analog output, single-shot detection of house dust, high sensitivity	GP2Y1012AU0F	37
	Pulse analog output, single-shot detection of house dust, high precision	GP2Y1014AU0F	37
Digital output	Digital (PWM) output, built-in microprocessor controller, single-shot detection of house dust, high sensitivity	GP2Y1023AU0F	37
	Digital (UART) output, built-in microprocessor controller, single-shot detection of house dust, high concentration	GP2Y1026AU0F	37
	Digital (UART) output, built-in microprocessor controller, sensing can discriminate between PM2.5 and PM10, internal cleaning possible	GP2Y1030AU0F	37

■PM Sensor Unit Lineup

Output	Features	Model No.	Page
Digital output	Digital (UART/I²C) Output Detectable PM1.0/PM2.5/PM10 separately Equipped with auto cleaning mode function	GP2Y1040AU0F	37

RoHS

■Distance Measuring Sensors (1) PSD 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)
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
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

◆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	−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	−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	−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

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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 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 / I²C output both compatible	−0.3 to +5.5	−10 to +60	VOUT (A) 1 = 0.3 to 0.8 V, D1 = 45 to 55 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 = 3.3 V



GP2Y0E02A
(GP2Y0E02B)



GP2Y0E03



GP2Y0AF15 series



GP2Y0AF30 series



GP2Y0A21YK0F
GP2Y0D21YK0F,
GP2Y0A41SK0F
GP2Y0D413K0F:
without mounting hole



GP2Y0A51SK0F



GP2Y0D02YK0F
(GP2Y0A02YK0F)



GP2Y0A710K0F

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Optoelectronics

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☆New product

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

(Ta = 25℃)

Model No.	Features	Absolute maximum ratings		Operating supply voltage VDD (V)	Electro-optical characteristics				
		VDD (V)	Tstg (°C)		Average Dissipation current (VDD+VCSEL) ICC (mA) TYP.	VCSEL Peak emission wavelength λp (nm)	Possible measuring distance (white paper) Rwhite (cm)	Measurement accuracy (white paper) Racc	Detection time Trange (msec)
☆GP2AP02VT20F	Ultra miniature integrated light detector: 4.0 × 2.2 × 1.5 mm Equipped TDC circuit achieves higher precision and allows operation in 50,000-lux sunlight I2C interface	3.6	−40 to +85	2.6 to 3.5	10	940	10 to 200	±4 % (@120 cm)	33
GP2AP03VT00F	Ultra miniature integrated light detector: 4.0 × 2.2 × 1.5 mm Equipped TDC circuit achieves higher precision and highly precise measurement at close range I²C interface	3.6	−40 to +85	3.0 to 3.5	10	940	1 to 30	±6 mm (@10 cm)	33



☆GP2AP02VT20F
(GP2AP03VT00F)

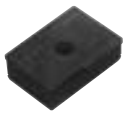
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■Dust Sensor Unit

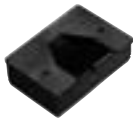
(Ta = 25°C)

Model No.	Features	Topr (°C)	Operating supply voltage (V)	Electro-optical characteristics			
				Dissipation current (mA)	Reference 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 1 500	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 750	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 1 500	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 750	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 2 100	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 • 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)

(*) Based on the TSI 8530 standard



GP2Y1010AU0F
(GP2Y1012AU0F, GP2Y1014AU0F, GP2Y1023AU0F, GP2Y1026AU0F)

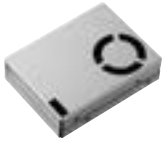


GP2Y1030AU0F

■PM Sensor Unit

(Ta = 25°C)

Model No.	Features	Topr (°C)	Operating supply voltage (V)	Electro-optical characteristics			
				Dissipation current (mA)	Reference Detection concentration μg/m³ (TYP.)(*)	Sensitivity	Output
GP2Y1040AU0F	• Built-in VCSEL for high sensitivity and high accuracy • Detectable PM1.0/PM2.5/PM10 separately • Built-in high reliability fan • Equipped with auto cleaning mode function	–10 to +60	4.5 to 5.5	TYP. 50	0 to 1 000	Precision ±10μg (0 -100μg/m³) Precision ±10% (100-500μg/m³)	Diginal siganal (UART and I²C)



GP2Y1040AU0F

Notice
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Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.