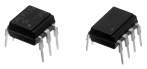
RoHS

■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	38
			Low input current	PC367NJ0000F	38
		AC input response		PC354NJ0000F	38
			Low input current	PC364NJ0000F	38
	Darlington phototransistor	High sensitivity, High collector-emitter voltage		PC355NJ0000F / PC452J00000F	38
			Low input current	PC365NJ0000F	38
Compact, Half pitch (lead space), SMT type	Single phototransistor	General purpose, High resistance to noise, etc.		PC3H7J00000F	39
			Reinforced insulation	PC3HU7xYIP0B	39
			Low input current	PC3H71xNIP0F	39
		AC input response		PC3H3J00000F / PC3H4J00000F	39
			Low input current	PC3H41xNIP0F	39
	Darlington phototransistor	High sensitivity		PC3H5J00000F	39
			Low input current	PC3H510NIP0F	39
DIP type (4-pin)	Single phototransistor	Reinforced insulation		PC123XNNSZ0F	40
(4-pin, DIP type)		General purpose, High collector-emitter voltage, etc.	Low input current	PC1231xNSZ0X	40
				PC817XNNSZ0F / PC851XNNSZ0F	40
			Low input current	PC8171xNSZ0X	40
	Darlington phototransistor	High sensitivity, High collector-emitter voltage		PC815XNNSZ0F / PC852XNNSZ0F /	40
DIP type (6-pin)	Single phototransistor	General purpose, High collector-emitter voltage, etc.		PC7xxV0NSZXF	41
	Darlington phototransistor	High sensitivity, High collector-emitter voltage, etc.		PC7x5V0NSZXF	41

<OPIC output type>

Package type	Output type	Features	Model No. (series)	Page
Compact, SMT type	Digital output	General purpose, High response speed	PC400J00000F / PC410L0NIP0F	42
	Analog/Digital output	High CMR	PC457L0NIP0F	42
DIP type, SMT type	Digital output	General purpose	PC900V0NSZXF	43
	Built-in base amplifier	For inverter control	PC925LENSZ0F	43

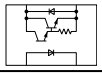
RoHS

■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)

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◆ 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*3 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.	Electro-optical characteristics: Current transfer ratio IF (mA)	Electro-optical characteristics: Current transfer ratio VCE (V)	Electro-optical characteristics: Response time tr (μs) TYP.	Electro-optical characteristics: Response time IC (mA)	Electro-optical characteristics: Response time RL (Ω)	Electro-optical characteristics: Response time VCE (V)
Single phototransistor output	PC3HU7xYIP0B		Reinforced insulation (internal insulation distance: MIN. 0.4 mm), low-profile package	○*4, 5	Low-profile mini-flat 4-pin	50	3.75	80	50	5	5	4	2	100	2
	PC3H7J00000F		Standard	○*6	Mini-flat 4-pin	50	2.5	80	20	1	5	4	2	100	2
	PC3H71xNIP0F		High resistance to noise*1, low input current	○		10	2.5	80	100	0.5	5	4	2	100	2
	PC3H3J00000F		AC input response, high resistance to noise*1	○		±50	2.5	80	20	±1	5	4	2	100	2
	PC3H4J00000F		AC input response	○*2, 6		±50	2.5	80	20	±1	5	4	2	100	2
	PC3H41xNIP0F		AC input response, high resistance to noise*1, low input current	○		±10	2.5	80	50	±0.5	5	4	2	100	2
Darlington photo-transistor output	PC3H5J00000F		High sensitivity	○	Mini-flat 4-pin	50	2.5	35	600	1	2	60	2	100	2
	PC3H510NIP0F		High sensitivity, low input current	○		10	2.5	35	600	0.5	2	60	2	100	2

*1 CMR: MIN.10 kV/μs
*2 A VDE approved type is optionally available.
*3 Please refer to Specification Sheets for model numbers approved by safety standards.
*4 VDE, CSA approved
*5 In conformance with BSI, SEMKO, DEMKO, NEMKO, and FIMKO
*6 UL, cUL approved


PC3HU7xYIP0B


PC3H7J00000F
(Mini-flat 4-pin)

Optoelectronics

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

○: Approved

(Ta = 25°C)

Output type	Model No.	Internal connection diagram	Features	Approved by safety standards*8			Package	Absolute maximum ratings			Electro-optical characteristics			
				UL	VDE *2	Others *3		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage V_{CEO} (V)	Current transfer ratio CTR (%) MIN.	I_F (mA)	Response time tr (μs) TYP.	R_L (Ω)
Single phototransistor output	PC123XNNSZ0F*1, *5, *6, *7		High isolation voltage, reinforced insulation	○	○	○	4-pin DIP	50	5.0	70	50	5	4	100
	PC1231xNSZ0X*1		High isolation voltage, reinforced insulation, low input current, high resistance to noise*4	○	○	○		10	5.0	70	50	0.5	4	100
	PC817XNNSZ0F*5, *6, *7		High isolation voltage	○	–	○*9		50	5.0	80	50	5	4	100
	PC8171xNSZ0X*5, *6		High isolation voltage, low input current, high resistance to noise*4	○	–	–		10	5.0	80	100	0.5	4	100
	PC851XNNSZ0F*5, *6		High isolation voltage, high collector-emitter voltage	○	–	–		50	5.0	350	40	5	4	100
Darlington phototransistor output	PC815XNNSZ0F*5, *6		High isolation voltage, high sensitivity	○	–	–		50	5.0	35	600	1	60	100
	PC852XNNSZ0F*5, *6		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 Optionally available.
*3 BSI, SEMKO, DEMKO, NEMKO, FIMKO, CSA
*4 CMR: 10 kV/μs MIN.
*5 Lead forming type is also available for surface mounting.
*6 Taped package of lead forming type for surface mounting is also available.
*7 Wide lead spacing type is also available. Compatible with wide lead spacing type lead-forming models for surface-mount use. Also compatible with taped packages for wide lead spacing type lead-forming models for surface-mount use.
*8 Please refer to Specification Sheets for model numbers approved by safety standards.
*9 UL, CSA approved

PC817XNNSZ0F
(4-pin DIP)

RoHS

◆ Phototransistor Output Type
<DIP type (6-pin)>

○: Approved

(Ta = 25°C)

Output type	Model No.	Internal connection diagram	Features	Approved by safety standards*2		Package	Absolute maximum ratings			Electro-optical characteristics			
							Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage V_{CEO} (V)	Current transfer ratio		Response time	
				UL	VDE*1					CTR (%) MIN.	I_F (mA)	tr (μs) TYP.	R_L (Ω)
Single phototransistor output	PC714V0NSZXF▲		High isolation voltage	○	○	6-pin DIP	50	5.0	80	50	5	4	100
	PC724V0NSZXF▲		High isolation voltage, large input current	○	–		150	5.0	35	20	100	4	100
	PC713V0NSZXF		High isolation voltage, with base terminal	○	○		50	5.0	80	50	5	4	100
Darlington phototransistor output	PC715V0NSZXF		High isolation voltage, high sensitivity	○	○		50	5.0	35	600	1	60	100
	PC725V0NSZXF		High isolation voltage, high sensitivity, high collector-emitter voltage, high power	○	○		50	5.0	300	1 000	1	100	100

*1 Optionally available.
*2 Please refer to Specification Sheets for model numbers approved by safety standards.
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

PC713V0NSZXF
(6-pin DIP)

◆OPIC Output

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<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*3		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
PC410L0NIP0F		High speed (10 Mb/s), High CMR (10 kV/μs), For flow soldering	○	○		20	3.75	0.6	–40 to +85	13	5	5.0	–	350

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.
*3 Optionally available.

<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)

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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.)

<DIP type, digital output>

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*5		Package	Absolute maximum ratings		Electro-optical characteristics*1						
			UL	VDE*4		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Low level output voltage				Threshold input current		
								V_{OL} (V) MAX.	Ta (°C)	I_{OL} (mA)	I_F (mA)	I_{FHL} (mA) MAX.	I_{FLH} (mA) MAX.	R_L (Ω)
PC900V0NSZXF*2, *3		Digital output, normal-off operation	○	○	6-pin DIP	50	5.0	0.4	0 to +70	16	4	2.0	–	280

A: Rated voltage circuit
*1 Each item is measured at Vcc=5V.
*2 Lead forming type is also available for surface mounting.
*3 Taped package of lead forming type for surface mounting is also available.
*4 Optionally available.
*5 Please refer to Specification Sheets for model numbers approved by safety standards.

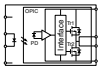
PC900V0NSZXF
(6-pin DIP)

◆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.)

<DIP type, Gate drive type>

○: Approved

(Ta = 25°C)

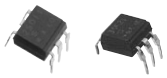
Model No.	Internal connection diagram	Features	Approved by safety standards*3		Package	Absolute maximum ratings		Electro-optical characteristics					
			UL	VDE*2		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Propagation delay time					
								t_{PHL} (µs) TYP.	t_{PLH} (µs) TYP.	V_{CC} (V)	I_F (mA)	R_{L1} (Ω)	R_{L2} (Ω)
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	R_G = 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.

PC925LENSZ0F
(8-pin DIP)

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	45
				Built-in zero-cross circuit	S2S4A00F*3	46
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3ST11NSZKF	45
(4-pin)				Built-in zero-cross circuit	PC3ST21NSZBX▲*2	46
			Reinforced isolation		PC3SH11YFZAX*3 / PC3SH13YFZAX*3	45
				Built-in zero-cross circuit	PC3SH21YFZBX*2	46
DIP type	AC 100 V lines (V_{DRM} = 400V)	0.1 A	General purpose		PC2SD11NTZAF*3 / PC1S3021NTZF*4	45
(6-pin package, 5th-pin cut)	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3SD12NTZAF*3 / PC3SD12NTZBF▲*2 / PC3SD11YTZCF*1 / PC1S3052YTZF*3 / PC3SD11NTZCF*1 / PC3SD13YXZBF*2	45
				Built-in zero-cross circuit	PC3SD21NTZAF*3 / PC3SD21NTZBF*2 / PC3SD21NTZCF▲*1 / PC3SD21NTZDF*5 / PC3SD23YTZCF▲*1 / PC1S3063YTZF*1	46
			Reinforced isolation		PC3SF11YVZAF*3 / PC3SF11YVZBF*2 / PC3SF13YVZBF▲*2	45
				Built-in zero-cross circuit	PC3SF21YVZAF*3 / PC3SF21YVZBF*2 / PC3SF23YVZSF▲*2	46
	AC 200 V lines (V_{DRM} = 800V)	0.1 A	General purpose		PC4SD11NTZBF▲*2 / PC4SD11NTZCF*1	45
				Built-in zero-cross circuit	PC4SD21NTZCF*1 / PC4SD21NTZDF*5	46
			Reinforced isolation		PC4SF11YVZAF▲*3 / PC4SF11YTZBF*2	45
				Built-in zero-cross circuit	PC4SF21YVZBF*2 / PC4SF21YVZCF▲*1 / PC4SF21YWPSF*2	46

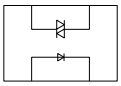
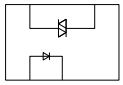
Minimum trigger current: *1 $I_{FT} \leqq$ 5 mA, *2 $I_{FT} \leqq$ 7 mA, *3 $I_{FT} \leqq$ 10 mA, *4 $I_{FT} \leqq$ 15 mA, *5 $I_{FT} \leqq$ 3 mA
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

RoHS

■ Phototriac Couplers

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*4			Package	Absolute maximum ratings			Electro-optical characteristics
			UL, CSA	VDE	Others		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	○	○*6	–	Mini-flat 4-pin	0.05	600	3.75	10
S2S5A00F		200 V lines, compact	○	○*6	–					10
S2S5FA0F		High impulse noise product	○	○*6	–					10
PC3ST11NSZKF		200 V lines, compact	○	○*6	–	4-pin DIP	0.1		5.0	10
PC3SH11YFZAX		200 V lines, compact, reinforced isolation	○	○	○*2					10
PC3SH13YFZAX		200 V lines, compact, reinforced isolation, high noise resistance	○	○	○*2					10
PC2SD11NTZAF		100 V lines	○	–	–	6-pin DIP*1, 3	0.1	400	5.0	10
PC1S3021NTZF		100 V lines	○	–	○*2					10
PC3SD12NTZAF		200 V lines	○	○*6	–			600		10
PC1S3052YTZF		200 V lines	○	○*6	○*2					10
PC3SD12NTZBF▲		200 V lines	○	○*6	–					7
PC3SD13YXZBF		High impulse noise product	○	○*6	–					7
PC3SD11YTZCF		200 V lines	○	○*6	–					5
PC4SD11NTZBF▲		200 V lines, repetitive peak-OFF-state voltage	○	○*6	–			800		7
PC3SD11NTZCF		200 V lines	○	○*6	–			600		5
PC4SD11NTZCF		200 V lines, repetitive peak-OFF-state voltage	○	○*6	–			800		5
PC3SF11YVZAF		200 V lines, reinforced isolation	○	○	○*2			600		10
PC3SF11YVZBF		200 V lines, reinforced isolation	○	○	○*2					7
PC3SF13YVZBF▲		200 V lines, reinforced isolation, high noise resistance	○	○	○*2					7
PC4SF11YVZAF▲		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2			800		10
PC4SF11YTZBF		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2					7

For the notes *1 to *6, see next page.
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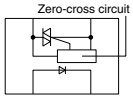
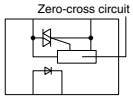
RoHS

■ Phototriac Couplers

(Built-in zero-cross circuit type)

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*4			Package	Absolute maximum ratings			Electro-optical characteristics
			UL, CSA	VDE	Others		ON-state current IT (rms) (A)	Repetitive peak OFF-state VDRM (V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current IFT (mA) MAX. VD = 4 V, RL = 100Ω
S2S4A00F		200 V lines, compact	○	○*6	–	Mini-flat 4-pin	0.05	600	3.75	10*5
PC3ST21NSZBX▲		200 V lines, compact	○	○*6	–	4-pin DIP	0.1	600	5.0	7
PC3SH21YFZBX		200 V lines, compact, reinforced isolation	○	○	○*2					7
PC3SD21NTZAF		200 V lines, low zero-cross voltage: MAX. 20 V	○	○*6	–	6-pin DIP*1, 3	0.1	600	5.0	10
PC3SD21NTZBF		200 V lines, low zero-cross voltage: MAX. 20 V	○	○*6	–					7
PC3SD21NTZCF▲		200 V lines, low zero-cross voltage: MAX. 20 V	○	○*6	–					5
PC1S3063YTZF		100 V lines, low zero-cross voltage: MAX. 20 V	○	○*6	○*2					5
PC3SD23YTZCF▲		200 V lines, high pulse/noise resistance (TYP. 2 kV)	○	○	–					5
PC3SD21NTZDF		200 V lines, low zero-cross voltage: MAX. 20 V	○	○*6	–					3
PC4SD21NTZCF		200 V lines, repetitive peak-OFF-state voltage	○	○*6	–			800		5
PC4SD21NTZDF		200 V lines, repetitive peak-OFF-state voltage	○	○*6	–					3
PC3SF21YVZAF		200 V lines, reinforced isolation	○	○	○*2			600		10
PC3SF21YVZBF		200 V lines, reinforced isolation	○	○	○*2					7
PC3SF23YVZSF▲		High impulse noise product	○	○	○*2					7
PC4SF21YVZBF		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2			800		7
PC4SF21YVZCF▲		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2					5
PC4SF21YWPSF		High impulse noise product	○	○	○*2	6-pin DIP*3				7

*1 Lead forming type for surface mounting is also available.
*2 In conformance with BSI, SEMKO, DEMKO, and FIMKO
*3 These are molded pin No. 5.
*4 Please refer to Specification Sheets for model numbers approved by safety standards.
*5 VD = 6 V, RL = 100Ω
*6 Optionally available
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

S2S3A00F
(Mini-flat 4-pin)

PC3ST series
(4-pin DIP)

PC3SH series
(4-pin DIP)

PC2SD11NTZAF
(PCIS series, PC3SD series, PC4SD series
(6-pin DIP)

PC3SF series
(PC4SF series)
(6-pin DIP)

RoHS

■ Solid State Relay Lineup

Package	Applied voltage	ON-state current (rms)	Features	Model No.	Page
DIP 6-pin	AC 100 V lines	0.15 A	General purpose	PR22MA11NTZF	48
	AC 200 V lines	0.06 A	General purpose	PR31MA11NTZF	48
		0.15 A	General purpose	PR32MA11NTZF	48
DIP 8-pin	AC 100 V lines	0.3/0.6/0.9 A	General purpose	PR23MF11NSZF▲ / PR26MF series▲ / PR29MF series▲	48
		0.6/0.9 A	Built-in zero-cross circuit	PR26MF21NSZF▲ / PR29MF21NSZF▲	48
	AC 200 V lines	0.3/0.6/0.9/1.2 A	General purpose	PR33MF5 series / PR39MF5 series / PR36MF5 series / PR3BMF5 series	48
		0.6/0.9/1.2 A	Built-in zero-cross circuit	PR36MF2 series / PR39MF2 series / PR3BMF21NSZF▲	48

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

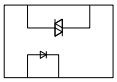
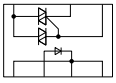
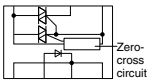
RoHS

■ Solid State Relays

<DIP type>

○: Approved

(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
PR22MA11NTZF		100 V lines, 150 mA model in a small package	○	○	○	6-pin DIP	0.15	400	5.0	10
PR31MA11NTZF		200 V lines, compact	○	○	○		0.06	600		10
PR32MA11NTZF		200 V lines, 150 mA model in a small package	○	○	○		0.15			10
PR23MF11NSZF▲		100 V lines, compact	○	○	–	8-pin DIP	0.3	400	4.0	10
PR26MF11NSZF▲		100 V lines, compact	○	○	–		0.6			10
PR26MF12NSZF▲		100 V lines, compact, low input current	○	○	–					5
PR29MF11NSZF▲		100 V lines, compact	○	○	–		0.9			10
PR29MF12NSZF▲		100 V lines, compact, low input current	○	○	–					5
PR33MF51NSLF		200 V lines, compact	○	○	○		0.3	600		10
PR33MF52NSLF		200 V lines, compact	○	○	○					10
PR36MF51NSLF		200 V lines, compact	○	○	○		0.6			10
PR36MF12NSZF		200 V lines, compact, low input current	○	○	○					5
PR39MF51NSLF		200 V lines, compact	○	○	○		0.9			10
PR39MF12NSZF▲		200 V lines, compact, low input current	○	○	○					5
PR3BMF51NSLF		200 V lines, compact	○	○	○		1.2			10
PR3BMF52NSZF		200 V lines, compact, low input current	○	○	○					5
PR26MF21NSZF▲		100 V lines, compact (built-in zero-cross circuit)	○	○	–		0.6	400		10
PR29MF21NSZF▲		100 V lines, compact (built-in zero-cross circuit)	○	○	–		0.9			10
PR36MF21NSZF		200 V lines, compact (built-in zero-cross circuit)	○	○	○		0.6	600		10
PR36MF22NSZF		200 V lines, compact (built-in zero-cross circuit), low input current	○	○	○					5
PR39MF21NSZF▲		200 V lines, compact (built-in zero-cross circuit)	○	○	○		0.9			10
PR39MF22NSZF		200 V lines, compact (built-in zero-cross circuit), low input current	○	○	○					5
PR3BMF21NSZF▲		200 V lines, compact (built-in zero-cross circuit)	○	○	○		1.2			10

*1 Please refer to Specification Sheets for model numbers approved by safety standards.
*2 Optionally available.
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.


PR22MA11NTZF
(6-pin DIP)


PR26MF21NSZF
(8-pin DIP)

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RoHS

■ Photointerrupter Lineup

<Transmissive type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Compact	High resolution	PWB mounting type	GP1S396HCP0F / GP1S09xHCZ0F / GP1S19xHCZ0F	50
High response speed			Surface-mount type/ Soldering reflow	GP1S396HCPSF / GP1S296HCPSF / GP1S092HCPIF / GP1S19xHCxSF	50
	Case type	High resolution	PWB mounting type, etc.	GP1S5x series	51
		Horizontal slit, High resolution	PWB mounting type	GP1S59J0000F	51
	With connector	General purpose	Snap-in	GP1S173LCS2F / GP1S273LCS1F	51
Digital output	Compact	High resolution	PWB mounting type	GP1A396HCP0F	52
(OPIC output)			Surface-mount type	GP1A396HCPSF	52
		High voltage	PWB mounting type	GP1A98HCZ0F	52
			Surface-mount type	GP1A98HCPSF	52
	Case type	High resolution	With screw hole/ PWB mounting type	GP1A5x series	52
		Wide gap	PWB mounting type	GP1A57HRJ00F	52
	With connector	General purpose	Snap-in	GP1A173LCS3F / GP1A173LCS2F / GP1A173LCSVF / GP1A273LCS1F	53
			Screw mounting type	GP1A75EJ000F▲	53

<Reflective type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Leadless	Long focal distance	Surface-mount type	GP2S700HCP	53
High response speed	Compact, thin (leadless)	General purpose	Surface-mount type	GP2S60	53
OPIC output	With connector	Light modulation type, Sensitivity adjusted	Screw mounting type/ Compact snap-in/ Inverter light countermeasures	GP2A25 series / GP2A28 series / GP2A200LCS0F / GP2A230LRS0F / GP2A231LRSAF▲ / GP2A230LRSAF / GP2A240LCS0F / GP2A250LCS0F	54

<Application-specific photointerrupter lineup>

Detection type	Outline (Output type etc.)		Mounting method	Model No. (series)	Page
Transmissive type	Case type With encoder function Digital 2 output (phase A/B)	Resolution: 45 LPI Linear scale slit pitch: 0.56 mm	PWB mounting type	GP1A057SGKLF▲	55
		Resolution: 150 LPI Linear scale slit pitch: 0.17 mm	PWB mounting type	GP1A057RBKLF▲	55
		Resolution: 180 LPI Linear scale slit pitch: 0.14 mm	With screw hole/ PWB mounting type	GP1A058SCK0F▲	55
		Resolution: 300 LPI Linear scale slit pitch: 0.0847 mm	With screw hole/ PWB mounting type	GP1A054RDKLF▲	55
	For amusement use		Screw mounting type	GP1A204HCS0	55
Reflective type	For amusement use (Pachinko ball sensor)		–	GP2A222HCKA▲	56

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

RoHS

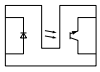
■ Photointerrupters

<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
GP1S195HCZSF 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
GP1S196HCZSF 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

※ Topr: –25 to +85°C

※※ GP1SxxxHCZxF: Sleeve package, GP1SxxxHCPxF: Taped package


GP1S092HCPIF


GP1S093HCZ0F


GP1S094HCZ0F


GP1S194HCZ0F


GP1S195HCPSF/ GP1S195HCZSF


GP1S196HCZ0F


GP1S196HCZSF/ GP1S196HCPSF


GP1S296HCPSF


GP1S396HCPSF


GP1S396HCP0F


GP1S097HCZ0F

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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
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

※ Topr: –25 to +85°C

GP1S50J0000F

GP1S51VJ000F

GP1S52VJ000F

GP1S53VJ000F

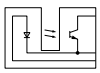
GP1S56TJ000F

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

※ Topr: –25 to +85°C, –30 to +95°C (GP1S173LCS2F, GP1S273LCS1F)

GP1S173LCS2F

GP1S273LCS1F

★ Under development

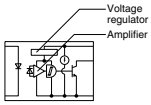
RoHS

◆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.)

<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
GP1A98HCZ0F		Compact, PWB mounting	3.2	0.5	8	–	3.3 to 24	3.9 to 20	2.0	10.0	10	3.9 to 20	3.3 to 24
GP1A98HCPSF		Compact, surface mount	3.2	0.5	8	–	3.3 to 24	3.9 to 20	2.0	10.0	10	3.9 to 20	3.3 to 24

※ Topr = –25 to +85°C


GP1A396HCP0F

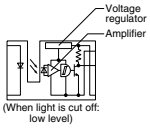
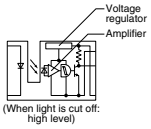

GP1A396HCPSF


GP1A98HCZ0F


GP1A98HCPSF

<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

※ Topr = –25 to +85°C


GP1A50HRJ00F


GP1A51HRJ00F


GP1A52LRJ00F
(GP1A52HRJ00F)


GP1A53HRJ00F
(GP1A58HRJ00F with positioning pin)


GP1A57HRJ00F

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RoHS

◆OPIC Type

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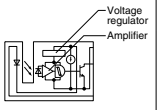
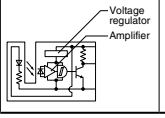
<With 3-pin connector terminal>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics: Supply voltage Vcc (V) MIN.	Supply voltage Vcc (V) MAX.	Low level output voltage VOL (V) MAX.	Light cut-off	IOL (mA)	Vcc (V)
GP1A173LCS3F		with 3-pin connector: 3 V operation, snap-in mounting integrated connector type*1	5.0	0.5	2.7	5.5	0.35	No	4	3.3
GP1A173LCS2F		with 3-pin connector: Snap-in mounting integrated connector type*1	5.0	0.5	4.5	5.5	0.35	No	4	5
GP1A173LCSVF		with 3-pin connector: Snap-in mounting integrated connector type*1, enforced electrostatic discharge (ESD) type	5.0	0.5	4.5	5.5	0.35	No	4	5
GP1A273LCS1F		with 3-pin connector: Integrated connector, compatible with 1.5 mm pitch connector, snap-in mounting type*1	5.0	0.7	4.5	5.5	0.35	No	4	5
GP1A75EJ000F▲		with 3-pin connector: Either-side mounting type Screw mounting type	5.0	0.5	4.5	5.5	0.35	Yes	16	5

※ Topr: –20 to +75°C, –30 to +95°C (GP1A173LCS3F, GP1A173LCS2F, GP1A173LCSVF, GP1A273LCS1F)
*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
GP1A173LCS2F
GP1A173LCSVF

GP1A273LCS1F

GP1A75EJ000F▲

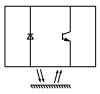
■ Photointerrupters

<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 CTR (%) MIN.	IF (mA)	VCE (V)	Response time 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

※ Topr: –25 to +85°C

GP2S700HCP

GP2S60

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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
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							
GP2A231LRSAF▲									
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

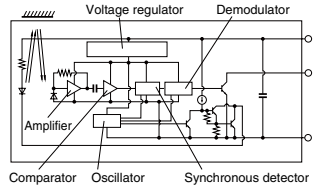
※ Topr: −10 to +60°C (GP2A25J0000F, etc.)
−10 to +70°C (GP2A200LCS0F, GP2A240LCS0F, GP2A250LCS0F, GP2A230LRS0F, GP2A230LRSAF, GP2A231LRSAF)

*1 Smoothing value $R_L = \infty$

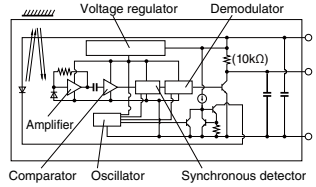
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

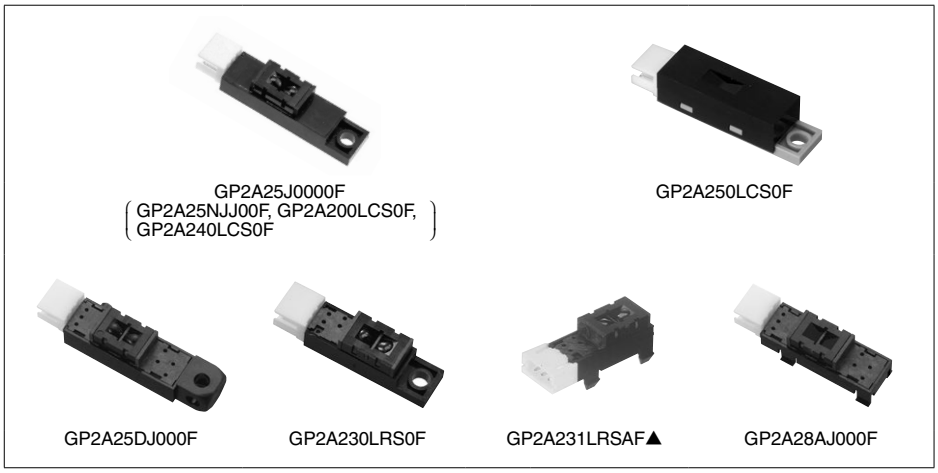
[Internal connection diagram]

[A]



[B]





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RoHS

■ Photointerrupters for Specific Applications

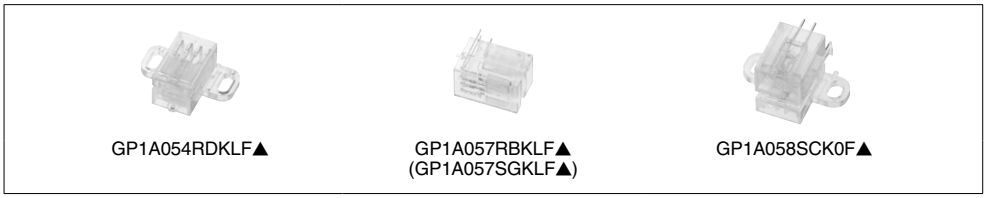
◆Transmissive Type

<Case type, with encoder function>

(Ta = 25°C)

Model No.	Absolute maximum ratings		Electro-optical characteristics					
	Vcc (V)	Topr (°C)	Operating voltage Vcc(V) TYP.	Output signal	Resolution	Response frequency f (kHz) MAX.	Response frequency IF (mA)	Dissipation current (output side) ICC (mA) MAX.
GP1A057RBKLF▲	6	–10 to +70	3.3	Digital 2 output (Phase A/B)	Linear scale slit pitch 0.17 (mm) (150LPI)	60	20	7
GP1A054RDKLF▲	6	–10 to +70	3.3		Linear scale slit pitch 0.0847 (mm) (300LPI)	60	20	5.5
GP1A057SGKLF▲	6	–10 to +70	3.3		Linear scale slit pitch 0.56 (mm) (45LPI)	25	20	5.5
GP1A058SCK0F▲	6	–10 to +70	3.3		Linear scale slit pitch 0.14 (mm) (180LPI)	60	20	5.5

* High precision read and low affection of angle error from vibration thanks to the multi-segment PD system.
Duty ratio: 50±15%, phase difference: 90±45°
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.



GP1A054RDKLF▲

GP1A057RBKLF▲
(GP1A057SGKLF▲)

GP1A058SCK0F▲

<For amusement use>

(Ta = 0 to +40°C)

Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics					
					Operating voltage Vcc (V)		Low level output voltage			
					MIN.	MAX.	VOL (V) MAX.	Light cut-off	IOL (mA)	Vcc (V)
GP1A204HCS0		Connector with lock, screw mounting type, high resistant to noise	4.0	0.5	10.8	24	0.4	Yes	5	10.8 to 24

GP1A204HCS0

RoHS

◆Reflective Type

<For amusement use>

(Ta = 25°C)

Model No.	Features	Electro-optical characteristics		
		Supply voltage Vcc (V)	Dissipation current Icc (mA)	Response frequency f (Hz)
GP2A222HCKA▲	Employs reflective type, pinball detector, connector with lock In conjunction with an IC, detects beam interruption*1	4.5 to 16.5	MAX. 12	MAX. 500

*1 Used together with interface IC for control (IR3N184)
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

GP2A222HCKA▲

■ Proximity Sensor

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics			
		Vcc (V)	Topr (°C)	Dissipation current Icc (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

☆ New product
★ Under development

■ 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
★GP2AP007T00F	LED and ambient light sensor combined in a single package (4.0 × 2.1 × 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	935	0.1 to 100 000	16	30
☆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	935	0.1 to 100 000	16	30


GP2AP030A00F


GP2AP007T00F


GP2AP007A00F

Optoelectronics

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☆ New product

■ 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

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★ Under development

■ Ambient Light Sensors

(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings			Electro-optical characteristics					
			V_{CC} (V)	I_O (mA)	Topr (°C)	Recommended supply voltage V_{CC} (V)	Recommended illuminance range Ev (lx)	Dissipation current Icc (μA) TYP.	Peak sensitivity wavelength λp (nm)	Output current I_{O1} (μA) TYP.	Output current I_{O2} (μA) TYP.
GA1A2S100SS▲	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Linear current output for illuminance Lead frame (straight) type	Transparent epoxy resin (3 × 4 mm)	7.0	5	−40 to +85	2.7 to 3.6	10 to 10 000	500	555	480 (at Ev = 1 000 lx)	48 (at Ev = 100 lx)
GA1A2S100LY▲	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Linear current output for illuminance Lead frame (L bend) type		7.0	5	−40 to +85	2.7 to 3.6	10 to 10 000	500	555	480 (at Ev = 1 000 lx)	48 (at Ev = 100 lx)
GA1A1S202WP	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Logarithmic current output for illuminance	Compact SMD (2.0 × 1.6 × 0.6 mm) Leadless	7.0	1	−40 to +85	2.3 to 3.2	3 to 55 000	70	555	20 (at Ev = 100 lx)	30 (at Ev = 1 000 lx)
GA1A1S100WP▲	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Linear current output for illuminance	Compact SMD (2.0 × 1.6 × 0.6 mm) Leadless	7.0	10	−40 to +85	2.7 to 3.6	10 to 5 000	1 460	555	1 420 (at Ev = 1 000 lx)	142 (at Ev = 100 lx)

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

GA1A2S100SS▲

GA1A2S100LY▲

GA1A1S202WP
(GA1A1S100WP▲)

■ 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

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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.

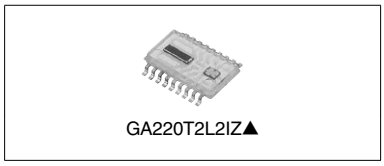
IS471FE

<For laser beam printers (laser beam origin detection)>

(Ta = 25°C)

Model No.	Type	Package	Electro-optical characteristics			
			Recommended supply voltage V_{CC} (V)	V_{OH} (V) MIN.	V_{OL} (V) MAX.	H → L delay time variation Δt_{PHL} (ns) MAX.
GA220T2L2IZ▲	2-PD, differential type	Transparent epoxy resin 18-pin	4.5 to 5.5	4.9	0.6	±8.5

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



GA220T2L2IZ▲

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
	Darlington phototransistor	Compact, thin	±35°	PT4800E0000F	PT4800FE000F / PT4850FE000F▲
		High sensitivity/Narrow acceptance	±13°	PT481E00000F▲	PT481FE0000F▲
		High sensitivity/Intermediate acceptance	±40°	—	PT491FE0000F
Surface mounting leadless type	Single phototransistor	Compact (side view/top view mounting possible)	±15°	PT100MC0MP	PT100MF0MP
	Darlington phototransistor	Compact (side view/top view mounting possible)	±15°	—	PT100MF1MP

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

■ Phototransistors

Type	Model No.	Package	Absolute maximum ratings			Ic (mA)				I_{CEO}(A)		Δθ (°) TYP.	λp (nm) TYP.
			V_{CEO} (V)	P_C (mW)	Topr (°C)	MIN.	MAX.	V_{CE} (V)	Ee (mW/cm²)	MAX.	V_{CE} (V)		
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
	PT4850FE000F▲*1		35	75	−25 to +85	0.12	0.56	5	1	1×10^{-7}	20	±35	860
Darlington	PT481E00000F▲	Epoxy resin with lens	35	75	−25 to +85	1.5	25	2	0.1	1×10^{-6}	10	±13	800
	PT481FE0000F▲*1		35	75	−25 to +85	0.9	27	2	0.1	1×10^{-6}	10	±13	860
	PT491FE0000F*1		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
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

PT100MF0MP (PT100MF1MP, PT100MC0MP: Transparent resin)

PT480E00000F (PT481E00000F▲)

PT480FE0000F (PT481FE0000F▲)

PT4800E0000F (PT4800FE000F, PT4850FE000F▲)

PT491FE0000F

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
PD412PI2E00F▲		Transparent epoxy resin with condenser (lens)	3.31	–25 to +85	3.5	100	1×10^{-8}	10	0.25	10	1	800
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

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

PD410PI2E00F
(PD411PI2E00F: transparent; PD412PI2E00F▲: transparent, PD413PI2E00F)

PD100MC0MP
(PD100MF0MP: black)

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
		Compact/Narrow beam angle, 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	Epoxy resin with lens	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

Notice
In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc.
Except where specially indicated, models listed on this page comply with the RoHS Directive*. For details, please contact SHARP.
*RoHS Directive: Prohibits use of lead, cadmium, hexavalent chromium, mercury and specific brominated flame retardants (PBBs and PBDEs), with certain exceptions.
Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.

RoHS

■ Distance Measuring Sensor Lineup

Output	Detected distance	Features	Model No.
1-bit digital output according to distance measuring	1.5 cm	Battery drive compatible, compact, 1-bit digital output	
		Capable of operation at high temperature (–30 to +105°C)	GP2Y5D91S00F▲
	5 cm	Battery drive compatible, compact, 1-bit digital output	GP2Y0D805Z0F
	10 cm	Battery drive compatible, compact, 1-bit digital output	GP2Y0D810Z0F
		Wide operating temperature type (–40 to +85°C)	GP2Y0D810Z1F▲
	15 cm	Battery drive compatible, compact, 1-bit digital output	GP2Y0D815Z0F
	13 cm	1-bit digital output	GP2Y0D413K0F
	24 cm	1-bit digital output	GP2Y0D21YK0F
	80 cm	1-bit digital output	GP2Y0D02YK0F

Output	Range of distance measuring	Features	Model No.
Analog voltage output according to distance measuring (Including I²C output)	1.5 to 15 cm	Analog output	GP2Y0AF15 series
	2 to 15 cm	Analog output	GP2Y0A51SK0F
	4 to 30 cm	Analog output	GP2Y0A41SK0F / GP2Y0AF30 series
	4 to 50 cm	CMOS type, Analog output	GP2Y0E02A
		I²C output	GP2Y0E02B
		Analog, I²C output	GP2Y0E03
	10 to 80 cm	Analog output	GP2Y0A21YK0F
	10 to 150 cm	Compact (22 × 8 × 7.2 [T] mm), Analog output	GP2Y0A60SZ0F▲ / GP2Y0A60SZLF
	20 to 150 cm	Analog output	GP2Y0A02YK0F
	100 to 550 cm	Analog output	GP2Y0A710K0F

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.
Analog output	Pulse analog output, single-shot detection of house dust, general purpose	GP2Y1010AU0F
	Pulse analog output, LED drive via external input, high sensitivity	GP2Y1012AU0F
Digital output	Digital (PWM) output, built-in microprocessor controller, LED driver circuit, high sensitivity	GP2Y1023AU0F

RoHS

■ Distance Measuring Sensors (1)

◆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)
GP2Y5D91S00F▲	1.5	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V), capable of operation at high temperature	−0.3 to +7	−30 to +105	Vcc −0.6	0.6	TYP. 7	−
GP2Y0D805Z0F	5	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)	−0.3 to +7	−10 to +60	Vcc −0.6	0.6	MAX. 6.5	MAX. 8
GP2Y0D810Z0F	10	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)	−0.3 to +7	−10 to +60	Vcc −0.6	0.6	MAX. 6.5	MAX. 8
GP2Y0D810Z1F▲	10	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V), wide operating temperature type	−0.3 to +7	−40 to +85	Vcc −0.6	0.6	MAX. 6.5	MAX. 8
GP2Y0D815Z0F	15	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)	−0.3 to +7	−10 to +60	Vcc −0.6	0.6	MAX. 6.5	MAX. 8
GP2Y0D413K0F	13	Distance measuring sensor united with PSD※, 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※, 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※, 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

※ PSD: Position Sensitive Detector

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

☆ New product

RoHS

■ Distance Measuring Sensors (2)

◆ 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)
☆GP2Y0AF15 series	1.5 to 15	Distance measuring sensor united with PSD※, 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※, 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※, 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※, 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
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
GP2Y0A21YK0F	10 to 80	Distance measuring sensor united with PSD※, 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
*2 GP2Y0A60SZ0F▲/ GP2Y0A60SZLF	10 to 150	Distance measuring sensor united with PSD※, infrared LED and signal processing circuit, compact type (22 x 8 x 7.2 mm), long distance measuring type (No external control signal required)	−0.3 to +5.5	−10 to +60	VO (TYP.) = 0.65 V *3 (at L = 150 cm), ΔVO (TYP.) = 3.0 V (at L = 150 cm → 20 cm)		MAX. 50
GP2Y0A02YK0F	20 to 150	Distance measuring sensor united with PSD※, 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※, 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

※ PSD: Position Sensitive Detector

*2 GP2Y0A60SZ0F: Surface mount type
GP2Y0A60SZLF: Board insertion type

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

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

★ Under development


GP2Y5D91S00F


GP2Y0D805Z0F
(GP2Y0D810Z0F,
GP2Y0D815Z0F,
GP2Y0D810Z1F)


GP2Y0E02A
(GP2Y0E02B)


GP2Y0E03


GP2Y0A60SZ0F▲


GP2Y0A60SZLF


GP2Y0AF15 series


GP2Y0AF30 series


GP2Y0A21YK0F
(GP2Y0D21YK0F,
GP2Y0A41SK0F
GP2Y0D413K0F:
without mounting
hole)


GP2Y0A51SK0F


GP2Y0D02YK0F
(GP2Y0A02YK0F)

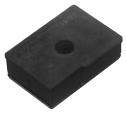

GP2Y0A710K0F

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

■ Dust Sensor Unit

(Ta = 25°C)

Model No.	Features	Topr (°C)	Operating supply voltage (V)	Electro-optical characteristics			
				Dissipation current (mA)	Sensitivity V/(0.1mg/m³) (TYP.)	Detection concentration μg/m³ (TYP.)	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	0.5	0 to 600	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	–10 to +65	4.5 to 5.5	TYP. 11	1.0	0 to 240	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)	–10 to +65	4.75 to 5.25	TYP. 15	1.0	0 to 240	Digital signal (PWM) Offset correction Temperature correction Averaging


GP2Y1010AU0F
(GP2Y1012AU0F, GP2Y1023AU0F)

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

RoHS

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

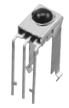
Type	Package		Features	Operating voltage	Model No.	
	Form	Detection position*5 (from PCB)				
IR detecting unit for remote control	Compact, thin type SMD (4.5 × 5.0 × 1.35 t mm)			3 to 5 V General type	GP1USC3xXP series▲	
	Lead L bend with shield case (holder)	16.0 mm*1	Compact size	3 to 5 V	GP1UE28XK0VF series	
				5 V	GP1UM28XK0VF series	
				3 to 5 V General type	GP1UE28xXKC4 series▲	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE28RK0VF series	
				5 V	GP1UM28RK0VF series	
				3 to 5 V General type	GP1UE28xRKC4 series▲	
		12.0 mm*2	Compact size	3 to 5 V	GP1UE27XK0VF series	
				5 V	GP1UM27XK0VF series	
				3 to 5 V General type	GP1UE27xXKC4 series▲	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE27RK0VF series	
				5 V	GP1UM27RK0VF series	
				3 to 5 V General type	GP1UE27xRKC4 series▲	
		6.8 mm*3	Compact size	3 to 5 V	GP1UE26XK0VF series	
				5 V	GP1UM26XK0VF series	
				3 to 5 V General type	GP1UE26xXKC4 series▲	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE26RK0VF series	
				5 V	GP1UM26RK0VF series	
				3 to 5 V General type	GP1UE26xRKC4 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	
				3 to 5 V General type	GP1UE29xQKC4 series▲	
		9.6 mm	Compact size	3 to 5 V	GP1UE28YK0VF series	
				5 V	GP1UM28YK0VF series	
				3 to 5 V General type	GP1UE28xYKC4 series▲	
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	3 to 5 V	GP1UE28QK0VF series	
				5 V	GP1UM28QK0VF series	
				3 to 5 V General type	GP1UE28xQKC4 series▲	
	Holderless	Lead straight 6.0 mm		3 to 5 V	GP1UX31QS series	
				5 V	GP1UX51QS series	
				3 to 5 V General type	GP1UXC4xQS series▲	
		Lead L bend*4 5.3 mm		3 to 5 V	GP1UX31RK series	
				5 V	GP1UX51RK series	
				3 to 5 V General type	GP1UXC4xRK series▲	

*1 Mesh type (strengthened resistance to electromagnetic induction noise): 16.4 mm
*2 Mesh type: 12.4 mm *3 Mesh type: 7.2 mm *4 Mesh type: 5.3 mm
*5 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
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.			
Surface-mount type, Reflow soldering compatible	GP1USC3xXP▲	0 to 6.0	–30 to +85	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5 × 4.5 × 1.3	–	
With shield case (holder), 3 to 5 V drive	GP1UE26xXKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 9.6 × 6.8	Center Vcc	
	GP1UE27xXKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 9.6 × 12.0		
	GP1UE28xXKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 9.6 × 16.0		
	GP1UE28xYKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	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	GP1UE26xRKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 9.6 × 7.2		
	GP1UE27xRKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 9.6 × 12.4		
	GP1UE28xRKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 9.6 × 16.4		
	GP1UE28xQKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 9.0 × 12.5(9.6)*2		
	GP1UE29xQKC4▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.6 × 16.2 × 21.9(19)*2		
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		
	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		
	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 × 12.4		
	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, 3 to 5 V drive, Strengthened resistance to electromagnetic induction noise	GP1UXC4xQS▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.5 × 5.3 × 7.5	Center GND	
	GP1UXC4xRK▲	0 to 6.0	–10 to +70	2.7 to 5.5	0.6	Vcc–0.5	0.45	*3	5.5 × 5.3 × 7.5		
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		
	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		

* 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.