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, etc.		PC35x series / PC451J00000F	46
			Low input current	PC367NJ0000F	46
		AC input response		PC354NJ0000F	46
	Darlington phototransistor	High sensitivity, High collector-emitter voltage	Low input current	PC364NJ0000F	46
				PC355NJ0000F / PC452J00000F	46
			Low input current	PC365NJ0000F	46
Compact, Half pitch (lead space), SMT type	Single phototransistor	General purpose, High resistance to noise, etc.		PC3Hx series	47
			Reinforced insulation	PC3HU7xYIP0B	47
			Low input current	PC3H71xNIP0F	47
		AC input response		PC3H3J00000F / PC3H4J00000F	47
	Darlington phototransistor		Low input current	PC3H41xNIP0F	47
		High sensitivity		PC3H5J00000F	47
			Low input current	PC3H510NIP0F	47
DIP type (4-pin)	Single phototransistor	Reinforced insulation		PC123XNNSZ0F	48
(4-pin, DIP type)		General purpose, High collector-emitter voltage, etc.	Low input current	PC1231xNSZ0X	48
				PC817XNNSZ0F / PC851XNNSZ0F	48
			Low input current	PC8171xNSZ0X	48
	Darlington phototransistor	High sensitivity, High collector-emitter voltage		PC815XNNSZ0F / PC852XNNSZ0F / PC853XNNSZ0F	48
			Low input current	PC81510NSZ0X	48
DIP type (6-pin)	Single phototransistor	General purpose, High collector-emitter voltage, etc.		PC7xxV0NSZXF	49
	Darlington phototransistor	High sensitivity, High collector-emitter voltage, etc.		PC7x5V0NSZXF	49

<OPIC output type>

Package type	Output type	Features	Model No. (series)	Page
Compact, SMT type	Digital output	General purpose, High response speed, 2ch, etc.	PC400J00000F / PC456L0NIP0F▲ / PC410S0NIP0F / PC410L0NIP0F / PC4D10SNIP0F	50
	Analog/Digital output	High CMR	PC457S0NIP0F / PC457L0NIP0F	50
DIP type, SMT type	Digital output	General purpose	PC900V0NSZXF	51
	Built-in base amplifier	For inverter control, Built-in short-circuit protection circuit	PC925LxNSZ0F / PC942J00000F▲ / PC928J00000F / PC929J00000F	51

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

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 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
	PC352NJ0000F		General purpose, high resistance to noise*1	○		50	3.75	80	90	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	70	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	2	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.
* A VDE approved type is optionally available.

PC357NJ0000F
(Mini-flat 4-pin)

RoHS

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

○: Approved

(Ta = 25°C)

Output type	Model No.	Internal connection diagram	Features	Approved by safety standards*3 UL	Package	Absolute maximum ratings: Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage VCEO (V)	Electro-optical characteristics: Current transfer ratio CTR (%) MIN.	IF (mA)	VCE (V)	Response time tr (µs) TYP.	IC (mA)	RL (Ω)	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
	PC3H2J00000F		High resistance to noise*1	○	Mini-flat 4-pin	50	2.5	80	20	1	5	4	2	100	2
	PC3H7J00000F		Standard	○*6		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, CSA approved

PC3HU7xYIP0B

PC3H2J00000F
(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 IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage VCEO (V)	Current transfer ratio CTR (%) MIN.	Current transfer ratio IF (mA)	Response time tr (μs) TYP.	Response time RL (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
	PC81510NSZ0X		High isolation voltage, high sensitivity, low input current	○	–	–		10	5.0	35	600	0.5	60	100
	PC852XNNSZ0F*5, *6		High isolation voltage, high collector-emitter voltage	○	○	–		50	5.0	350	1 000	1	100	100
	PC853XNNSZ0F*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, △: Under application

(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*1		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	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.

PC713V0NSZXF
(6-pin DIP)

Optoelectronics

◆OPIC Output

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

<Compact, SMT type> (1-1)

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*2		Package	Absolute maximum ratings		Electro-optical characteristics*1						
								Low level output voltage				Threshold input current		
			UL	VDE*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
PC456L0NIP0F▲		Built-in preamplifier, high speed transmission (2 Mb/s), for flow soldering	○	○		25	3.75	0.6	–40 to +85	2.4	10	5.0	–	20 k
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
PC410S0NIP0F		High speed (10 Mb/s), high CMR (10 kV/μs), for flow soldering, Solder heat resistance: 270°C	○	○	SOP 8-pin	20	3.75	0.6	–40 to +85	13	5	5.0	–	350
PC4D10SNIP0F		High speed (10 Mb/s), for flow soldering, Solder heat resistance: 270°C 2ch output	○	–	SOP 8-pin	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.
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

<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
PC457S0NIP0F		High speed (1 Mb/s), high CMR (15 kV/μs), for flow soldering, Solder heat resistance: 270°C	○	○	SOP 8-pin	25	3.75	19	16	0.4	4.5	0.2	0.3	1 900	16

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

PC400J00000F
(Mini-flat 5-pin)

PC410S0NIP0F
(SOP 8-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 IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	Low level output voltage				Threshold input current		
								VOL (V) MAX.	Ta (°C)	IOL (mA)	IF (mA)	IFHL (mA) MAX.	IFLH (mA) MAX.	RL (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.

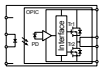
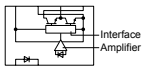
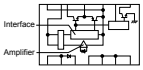
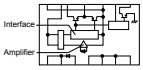
PC900V0NSZXF
(6-pin DIP)

◆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 IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	Propagation delay time					
								tPHL (µs) TYP.	tPLH (µs) TYP.	Vcc (V)	IF (mA)	RL1 (Ω)	RL2 (Ω)
PC925LxNSZ0F*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	RG = 10	–
PC942J00000F▲		For controlling inverter-controlled air-conditioner	○	○		25	5.0	2.0	2.0	6	5	5	10
PC928J00000F		For driving inverter IGBT, built-in short protection circuit	○	○	14-pin SMT (Half pitch lead)	25	4.0	1.0	1.0	24	10	RG = 47	–
PC929J00000F		For driving inverter IGBT, high speed, built-in short protection circuit	○	○		20	4.0	0.3	0.3	24	5	RG = 47	–

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

PC925LENSZ0F, PC942J00000F
(8-pin DIP)

PC928J00000F
(PC929J00000F)

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

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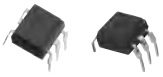
■ Phototriac Coupler Lineup

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		S2S3000F*3 / S2S5A00F*3 / S2S5FA0F*3	53
				Built-in zero-cross circuit	S2S4000F*3	54
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3ST11NSZAX*3	53
(4-pin)				Built-in zero-cross circuit	PC3ST21NSZBX*2	54
			Reinforced isolation		PC3SH11YFZAX*3 / PC3SH13YFZAX*3	53
				Built-in zero-cross circuit	PC3SH21YFZBX*2	54
DIP type	AC 100 V lines (V_{DRM} = 400V)	0.1 A	General purpose		PC2SD11NTZAF*3	53
(6-pin package, 5th-pin cut)	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3SD12NTZAF*3 / PC3SD12NTZBF*2 / PC3SD11NTZCF*1 / PC3SD13NTZBF*2	53
				Built-in zero-cross circuit	PC3SD21NTZAF*3 / PC3SD21NTZBF*2 / PC3SD21NTZCF*1 / PC3SD21NTZDF / PC3SD23YTZCF*1	54
			Reinforced isolation		PC3SF11YVZAF*3 / PC3SF11YVZBF*2 / PC3SF13YVZBF*2	53
				Built-in zero-cross circuit	PC3SF21YVZAF*3 / PC3SF21YVZBF*2 / PC3SF23YVZSF*2	54
	AC 200 V lines (V_{DRM} = 800V)	0.1 A	General purpose		PC4SD11NTZBF*2 / PC4SD11NTZCF*1	53
				Built-in zero-cross circuit	PC4SD21NTZCF*1 / PC4SD21NTZDF	54
			Reinforced isolation		PC4SF11YVZAF*3 / PC4SF11YVZBF*2	53
				Built-in zero-cross circuit	PC4SF21YVZBF*2 / PC4SF21YVZCF*1 / PC4SF21YWPSF*2	54

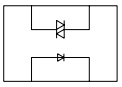
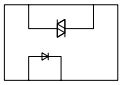
Minimum trigger current: *1 I_{FT} ≦ 5 mA, *2 I_{FT} ≦ 7 mA, *3 I_{FT} ≦ 10 mA

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 I_T (rms) (A)	Repetitive peak OFF-state voltage V_{DRM} (V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current I_{FT} (mA) MAX. V_D = 6 V, R_L = 100Ω
S2S3000F		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
PC3ST11NSZAX		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*7		100 V lines	○	–	–	6-pin DIP*1, 3	0.1	400	5.0	10
PC3SD12NTZAF*8		200 V lines	○	○*6	–			600		10
PC3SD12NTZBF		200 V lines	○	○*6	–					7
PC3SD13NTZBF		High impulse noise product	○	○*6	–					7
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
PC4SF11YVZBF		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2					7

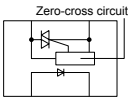
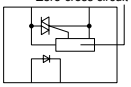
For the notes *1 to *9, see next page.

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
S2S4000F		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*9		200 V lines, low zero-cross voltage: MAX. 20 V	○	○*6	–					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
*7 An equivalent model (IFT MAX.: 15 mA) with overseas brand compatibility is also available. (PC1S3021NTZF)
*8 An equivalent model with overseas brand compatibility is also available. (PC1S3052NTZF)
*9 An equivalent model with overseas brand compatibility is also available. (PC1S3063NTZF)


S2S3000F
(Mini-flat 4-pin)


PC2SD series
(PC3SD series, PC4SD series)
(6-pin DIP)


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


PC3ST series
(4-pin DIP)


PC3SH series
(4-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	56
	AC 200 V lines	0.06 A	General purpose	PR31MA11NTZF	56
		0.15 A	General purpose	PR32MA11NTZF	56
DIP 8-pin	AC 100 V lines	0.3/0.6/0.9 A	General purpose	PR23MF11NSZF / PR26MF series / PR29MF series	56
		0.6/0.9 A	Built-in zero-cross circuit	PR26MF21NSZF / PR29MF21NSZF	56
	AC 200 V lines	0.3/0.6/0.9/1.2 A	General purpose	PR33MF51NSZF / PR39MF5 series / PR36MF5 series / PR3BMF5 series	56
		0.6/0.9/1.2 A	Built-in zero-cross circuit	PR36MF2 series / PR39MF2 series / PR3BMF21NSZF	56
SIP 4-pin	AC 100 V lines	2/8 A 3 to 16 A	General purpose	S102T01F*1 / S108T01F*1 / S101S05F / S102S01F / S112S01F / S116S01F	57
 Low profile		2/8 A 3 to 16 A	Built-in zero-cross circuit	S102T02F*1 / S108T02F*1 / S101S06F / S102S02F / S116S02F	57
		8 A	Built-in snubber circuit	S102S11F	57
		3/8 A	Built-in snubber circuit/ zero-cross circuit	S101S16F / S102S12F	57
	AC 200 V lines		General purpose	S202T01F*1 / S208T01F*1 / S202S01F / S212S01F / S216S01F	57
		2/8 A 3 to 16 A	Built-in zero-cross circuit	S202T02F*1 / S208T02F*1 / S201S06F / S202S02F / S216S02F	57/58
		8/8 A	Built-in snubber circuit	S202S15F / S202S11F	58
		8 A	Built-in snubber circuit/ zero-cross circuit	S202S12F	58

*1 Low profile

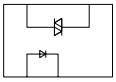
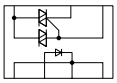
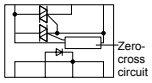
RoHS

■ 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 I_T (rms) (A)	Repetitive peak OFF-state voltage V_{DRM} (V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current I_{FT} (mA) MAX. V_D = 6 V, R_L = 100Ω
PR31MA11NTZF		200 V lines, compact	○	○	○	6-pin DIP	0.06	600	5.0	10
PR22MA11NTZF		100 V lines, 150 mA model in a small package	○	○	○		0.15	400		10
PR32MA11NTZF		200 V lines, 150 mA model in a small package	○	○	○			600		10
PR23MF11NSZF		100 V lines, compact	○	○	–	8-pin DIP	0.3	400	4.0	10
PR33MF51NSLF		200 V lines, compact	○	○	○			600		10
PR26MF11NSZF		100 V lines, compact	○	○	–		0.6	400		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
PR36MF51NSLF		200 V lines, compact	○	○	○		0.6	600		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
PR3BMF52NSLF		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	○	○	○		0.6			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	○	○	○		0.9			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.

PR22MA11NTZF
(6-pin DIP)

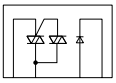
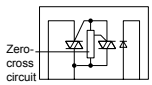
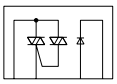
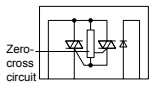
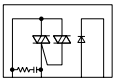
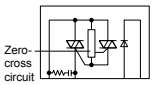
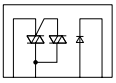
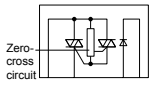
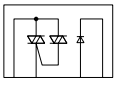
PR26MF21NSZF
(8-pin DIP)

RoHS

<SIP type> (1)

○: Approved

(Ta = 25°C)

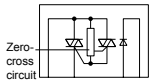
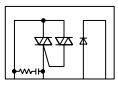
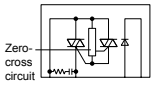
Model No.	Internal connection diagram	Features	Approved by safety standards*6		Package	Absolute maximum ratings			Electrical characteristics		
			UL	CSA		ON-state current I_T (rms) (A)	Repetitive peak OFF-state voltage V_{DRM}(V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current I_{FT} (mA) MAX.	V_D (V)	R_L (Ω)
S102T01F		100 V lines, low profile	○	○	Low profile 4-pin SIP	2	400	3.0	8	12	30
S108T01F		100 V lines, low profile	–	–		8*2			8	12	30
S102T02F		100 V lines, low profile (built-in zero-cross circuit)	○	○		2			8	12	30
S108T02F		100 V lines, low profile (built-in zero-cross circuit)	–	–		8*2			8	12	30
S101S05F		100 V lines	○	○	4-pin SIP	3*3			15	12	30
S102S01F		100 V lines	○	○		8*2		4.0	8	12	30
S112S01F		100 V lines	○	○		12*4			8	12	30
S116S01F		100 V lines	○	○		16*5			8	12	30
S101S06F		100 V lines (built-in zero-cross circuit)	○	○		3*3		3.0	15	6	30
S102S02F		100 V lines (built-in zero-cross circuit)	○	○		8*2		4.0	8	6	30
S116S02F		100 V lines (built-in zero-cross circuit)	○	○		16*5			8	6	30
S102S11F		100 V lines (built-in snubber circuit)	○	○		8*1			8	12	30
S101S16F		100 V lines (built-in snubber circuit, built-in zero-cross circuit)	○	○		3*3		3.0	15	6	30
S102S12F		100 V lines (built-in snubber circuit, built-in zero-cross circuit)	○	○		8*1		4.0	8	6	30
S202T01F		200 V lines, low profile	○	○	Low profile 4-pin SIP	2	600	3.0	8	12	30
S208T01F		200 V lines, low profile	–	–		8*2			8	12	30
S202T02F		200 V lines, low profile (built-in zero-cross circuit)	○	○		2			8	12	30
S208T02F		200 V lines, low profile (built-in zero-cross circuit)	–	–		8*2			8	12	30
S202S01F		200 V lines	○	○	4-pin SIP	8*2		4.0	8	12	30
S212S01F		200 V lines	–	–		12*4			8	12	30
S216S01F		200 V lines	–	–		16*5			8	12	30

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

<SIP type> (2)

○: Approved

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*6		Package	Absolute maximum ratings			Electrical characteristics		
			UL	CSA		ON-state current I_T (rms) (A)	Repetitive peak OFF-state voltage V_{DRM}(V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current I_{FT} (mA) MAX.	V_D (V)	R_L (Ω)
S201S06F		200 V lines (built-in zero-cross circuit)	○	○	4-pin SIP	3*3	600	3.0	15	6	30
S202S02F		200 V lines (built-in zero-cross circuit)	○	○		8*2		4.0	8	6	30
S216S02F		200 V lines (built-in zero-cross circuit)	–	–		16*5			8	6	30
S202S15F		200 V lines (built-in snubber circuit)	–	–		8*2		3.0	15	12	30
S202S11F		200 V lines (built-in snubber circuit)	○	○		8*1		4.0	8	12	30
S202S12F		200 V lines (built-in snubber circuit, built-in zero-cross circuit)	○	○		8*1			8	6	30

*1 Tc ≦ 88°C *2 Tc ≦ 80°C *3 Tc ≦ 100°C *4 Tc ≦ 70°C *5 Tc ≦ 60°C
*6 Please refer to Specification Sheets for model numbers approved by safety standards.

S102T01F series
(Low profile 4-pin SIP)

S102S02F series
(4-pin SIP)

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	60
High response speed			Surface-mount type/ Soldering reflow	GP1S396HCPSF / GP1S296HCPSF / GP1S092HCPIF / GP1S19xHCxSF	60
	Case type	High resolution	PWB mounting type, etc.	GP1S5x series	61
		Horizontal slit, High resolution	PWB mounting type	GP1S59J0000F	61
	With connector	General purpose	Snap-in	GP1S173LCS2F / GP1S74PJ000F / GP1S273LCS1F	61
Darlington phototransistor	Case type	General purpose	PWB mounting type, etc.	GP1L5x series	62
High sensitivity		Wide gap	PWB mounting type	GP1L57J0000F	62
Digital output	Compact	High voltage	PWB mounting type	GP1A98HCZ0F	62
(OPIC output)			Surface-mount type	GP1A98HCPSF	62
	Case type	High resolution	With screw hole/ PWB mounting type	GP1A5x series	63
		Wide gap	PWB mounting type	GP1A57HRJ00F	63
	With connector	General purpose	Screw mounting type/Snap-in	GP1A173LCS2F / GP1A173LCSVF / GP1A273LCS1F / GP1A7x series / GP1A07x series	64

<Reflective type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Leadless	Long focal distance	Surface-mount type	GP2S700HCP	64
High response speed	Compact, thin (leadless)	General purpose	Surface-mount type	GP2S60	64
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	65

<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	66
		Resolution: 150 LPI Linear scale slit pitch: 0.17 mm	PWB mounting type/	GP1A057RBKLF	66
		Resolution: 180 LPI Linear scale slit pitch: 0.14 mm	Screw mounting type	GP1A058SCK0F	66
		Resolution: 300 LPI Linear scale slit pitch: 0.0847 mm	PWB mounting type	GP1A054RDKLF	66
	Case type With encoder function Digital 2 output (Multiplying output)	Resolution for reading: 180 LPI Pitch: 0.14 mm Output resolution: 360 LPI	PWB mounting type	GP1A101C2KSF	66
	For amusement use		Screw mounting	GP1A204HCS0	66
Reflective type	Injection For prism system (Single phototransistor)		Screw mounting	GP2S29SVJ00F	66
	For amusement use (Pachinko ball sensor)		–	GP2A222HCKA	67

☆New product

■ 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
GP1S096HCZ0F		Narrow gap (3.5 × 2.6 × 2.9 [height] mm)	1.0	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
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


GP1S096HCZ0F


GP1S194HCZ0F


GP1S195HCPSF/
GP1S195HCZSF


GP1S196HCZ0F


GP1S196HCZSF/
GP1S196HCPSF


GP1S296HCPSF


GP1S396HCPSF

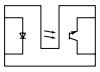

GP1S396HCP0F


GP1S097HCZ0F

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
GP1S54J0000F		High resolution, with positioning pin, PWB mounting type	3.0	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


GP1S54J0000F


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)
GP1S74PJ000F▲		Snap-in mounting type with connector Applicable to 3 kinds of thickness of mounting boards	5.0	0.5	2.5	20	5	3	2	100	2
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)
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.


GP1S74PJ000F▲


GP1S173LCS2F

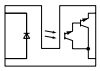

GP1S273LCS1F

RoHS

◆Darlington Phototransistor Output

<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)
GP1L50J0000F		High sensitivity, both-side mounting type	3.0	0.5	50	1	2	80	2	100	2
GP1L51J0000F		High sensitivity, side mounting type	3.0	0.5	50	1	2	80	2	100	2
GP1L52VJ000F		High sensitivity, PWB mounting type	3.0	0.5	50	1	2	80	2	100	2
GP1L53VJ000F		High sensitivity, PWB mounting type	5.0	0.5	30	1	2	80	2	100	2
GP1L57J0000F		High sensitivity, wide gap, PWB mounting type	10.0	1.8	70	1	2	130	2	100	2

※ Topr: –25 to +85°C


GP1L50J0000F


GP1L51J0000F


GP1L52VJ000F


GP1L53VJ000F

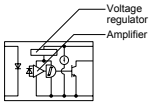

GP1L57J0000F

◆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)	
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


GP1A98HCZ0F


GP1A98HCPSF

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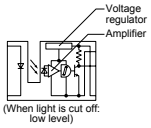
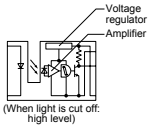
RoHS

<Case type>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics							
					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

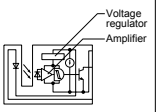
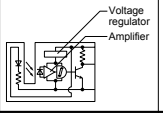
RoHS

◆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)
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			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			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
GP1A73AJ000F▲			Compact, snap-in mounting type*1	5.0	0.5	4.5	5.5	0.35	No	4	5
GP1A073LCS▲			Compact, snap-in mounting type*1, low voltage operation	5.0	0.5	2.7	5.5	0.35	No	4	3
GP1A75EJ000F			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 (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.


GP1A73AJ000F▲, GP1A073LCS▲


GP1A173LCS2F, GP1A173LCSVF


GP1A273LCS1F


GP1A75EJ000F

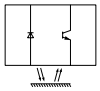
■ Photointerrupters

<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			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

※ Topr: –25 to +85°C


GP2S700HCP


GP2S60

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)

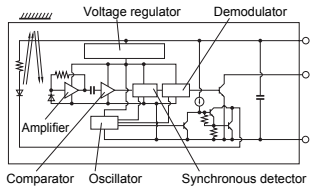
Model No.	Internal connection diagram	Features	Optimum detecting distance (mm)	Electro-optical characteristics					
				Supply voltage V_{CC} (V)		Dissipation current		Low level output voltage	
				MIN.	MAX.	I_{CC} (mA) MAX.	V_{CC} (V)	V_{OL} (V) MAX.	V_{CC} (V)
GP2A200LCS0F	(Following diagram [A])	Multi 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		Multi 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, hook type (GP2A231LRSAF), multi types of paper detectable, light modulation type, with connector	3 to 7	4.75	5.25	20*1	5	0.4	5
GP2A230LRSAF									
GP2A231LRSAF									
GP2A25NJJ00F	(Following diagram [A])	Multi 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		Multi 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		Multi 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)

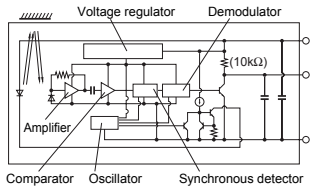
*1 Smoothing value $R_L = \infty$

[Internal connection diagram]

[A]



[B]



GP2A25J0000F
(GP2A25NJJ00F, GP2A200LCS0F, GP2A240LCS0F)

GP2A250LCS0F

GP2A25DJ000F

GP2A230LRS0F

GP2A231LRSAF

GP2A28AJ000F

Optoelectronics

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
GP1A101C2KSF	6.5	–10 to +70	3.3	Digital 2 output (Multiplying output)	Resolution for reading: 180 LPI (Pitch: 0.14 mm) Output resolution: 360 LPI	120	20	20

* 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°


GP1A054RDKLF

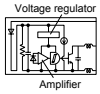

GP1A057RBKLF
(GP1A057SGKLF)


GP1A058SCK0F


GP1A101C2KSF

<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) MIN.	Operating voltage Vcc (V) MAX.	Low level output voltage VOL (V) MAX.	Low level output voltage Light cut-off	Low level output voltage IOL (mA)	Low level output voltage 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

◆Reflective Type

<Case type, phototransistor output>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Electro-optical characteristics: Peak photocurrent ICP (mA)	Peak photocurrent IF (mA)	Peak photocurrent VCE (V)	Response time tr (µs) TYP.	Response time IC (mA)	Response time RL (kΩ)	Response time VCE (V)
GP2S29SVJ00F		Long focal distance (with prism system*1), compact, screw mounting type	0.4 to 3.0*1	20	5	38	0.5	1	2

※ Topr: –25 to +85°C *1 Space between prism and sensor is 8 mm.


GP2S29SVJ00F

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<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)

GP2A222HCKA

■ Proximity Sensor

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics			
		V_{CC} (V)	Topr (°C)	Dissipation current Icc (μA) TYP.	Detecting distance Lon (mm) MIN.	Non-detecting distance Loff (mm) MAX.	Peak emission wavelength λp (nm)
GP2AP002S00F	Compact size (4.0 × 2.0 × 1.25 t mm) Disparities in detecting distance results are greatly reduced using a built-in circuit for reduction of light-detecting sensitivity disparities Built-in LEDs for simple optical design and I^2C output	3.8	–25 to +85	240	25	150	940

☆New product

■ 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				
										Output current		
		V_{CC} (V)	Topr (°C)	Dissipation current Icc (μA) TYP.	Detecting distance Lon (mm) MIN.	Non-detecting distance Loff (mm) MAX.	Peak emission wavelength λp (nm)	Recommended illuminance range Ev (lx) MIN.	Peak sensitivity wavelength λp (nm)	I_{O1} (μA) TYP.	I_{O2} (μA) MAX.
GP2AP002A00F	LED and ambient light sensor combined in a single package (5.6 × 2.1 × 1.25 t mm) Disparities in detecting distance results are greatly reduced using a built-in circuit for reduction of light-detecting sensitivity disparities Built-in LEDs for simple optical design Proximity sensor: I²C output Ambient light sensor: logarithmic current output	3.8	–25 to +85	270	25	150	940	3 to 55 000	555	30 (at Ev = 1 000 lx)	1 (at Ev = 0 lx)

(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) MIN.	Peak emission wavelength λp (nm)	Recommended illuminance range Ev (lx)	Output resolution (bit)	ADC conversion time Tint (ms) TYP.
☆GP2AP020A00F	LED and ambient light sensor combined in a single package (4.0 × 2.0 × 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)	3.8	–35 to +85	70	45.5	940	0.2 to 131 072	16	100


GP2AP002S00F


GP2AP002A00F


GP2AP020A00F

RoHS

■ 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)
GA1A1S203WP	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Logarithmic current output for illuminance Thin type	Compact SMD (2.0 × 1.6 × 0.42 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)
GA1A1S204WP	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Logarithmic current output for illuminance Back-mount-available type	Compact SMD (3.3 × 2.0 × 0.6 mm) Back-mount available, 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)


GA1A2S100SS


GA1A2S100LY


GA1A1S202WP
(GA1A1S100WP)


GA1A1S203WP


GA1A1S204WP

Optoelectronics

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RoHS

■ 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)

<Low-voltage operation>

(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings			Electro-optical characteristics								
			P (mW)	I_O (mA)	Topr (°C)	Operating supply voltage (V)	E_{VLH} (lx) MAX.	E_{VHL} (lx) MAX.	V_{CC} (V)	t_{PHL} (µs) TYP.	t_{PLH} (µs) TYP.	V_{CC} (V)	E_V (lx)	R_L (Ω)
IS489E	Built-in Schmidt trigger circuit and amplifier	Transparent epoxy resin with condenser (lens)	80	2	–25 to +85	1.4 to 7.0	–	15	3	1.3	8.5	3	125	3 000

IS489E

<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 Vcc = 5 V
*3 Straight lead type (IS471FSE) is also available.

IS471FE

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RoHS

<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

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
		Compact, thin	±35°	PT4800E0000F	PT4800FE000F / PT4850FE000F
	Darlington phototransistor	High sensitivity/Narrow acceptance	±13°	PT481E00000F	PT481FE0000F
		High sensitivity/Narrow acceptance/Long lead	±13°	—	PT483F1E000F
		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

■ 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
	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
	PT483F1E000F*1		35	75	–25 to +85	1.5	4.0	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

PT100MF0MP
(PT100MF1MP, PT100MC0MP: Transparent resin)

PT480E00000F
(PT480FE0000F, PT481E00000F, PT481FE0000F)

PT4800E0000F
(PT4800FE000F, PT4810E0000F, PT4850FE000F)

PT483F1E000F

PT491FE0000F

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RoHS

■ PIN Photodiodes

(Ta = 25°C)

Model No.	Features	Package (Material)	Active area (mm^2)	Topr (°C)	Isc (μA) MIN.	Ev (lx)	Id (A) MAX.	V_R (V)	tr, tf (μs) TYP.	V_R (V)	R_L (kΩ)	λp (nm) TYP.
PD410PI2E00F	PIN type	Visible light cut-off epoxy resin with condenser (lens)	3.31	–25 to +85	2.5	100	1×10^{-8}	10	0.2	10	1	1 000
PD411PI2E00F		Transparent epoxy resin with condenser (lens)	3.31	–25 to +85	5.0	100	1×10^{-8}	10	0.2	10	1	960
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

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	Epoxy resin with lens	General purpose/Narrow beam angle	±13°	GL480E00000F
(Side view type)		Compact and thin	±30°	GL4800E0000F
Surface mount type	Epoxy resin with lens/ leadless	Compact/Narrow beam angle	±10°	GL100MN0MP
	(Mountable for Top view/ Side view type)	High output type	±10°	GL100MN1MP
		Compact/Wide beam angle	±80°	GL100MD1MP1

■ Infrared Emitting Diodes

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

GL480E00000F

GL4800E0000F

GL100MN0MP
(GL100MN1MP, GL100MD1MP1)

RoHS

■ Distance Measuring Sensor Lineup

Output	Range of distance measuring	Features	Model No.
1-bit digital output according to distance measuring	4 to 30 cm	1-bit digital output (detected distance: 15/13 cm)	GP2Y0D413K0F
	10 to 80 cm	1-bit digital output (detected distance: 24 cm)	GP2Y0D21YK0F
	20 to 150 cm	1-bit digital output (detected distance: 80 cm)	GP2Y0D02YK0F
		Battery drive compatible, compact, 1-bit digital output (detected distance: 5/10/15 cm)	GP2Y0D805Z0F / GP2Y0D810Z0F / GP2Y0D815Z0F
		Wide operating temperature type (–40 to +85°C) (detected distance: 10 cm)	GP2Y0D810Z1F
		Battery drive compatible, compact, 1-bit digital output (detected distance: 1.5 cm) Capable of operation at high temperature (–30 to +105°C)	GP2Y5D91S00F
Analog voltage output according to distance measuring	2 to 15 cm	Analog output	GP2Y0A51SK0F
	4 to 30 cm	Analog output	GP2Y0A41SK0F
	4 to 50 cm	CMOS type, Analog output	GP2Y0E02A
		I^2C output	GP2Y0E02B
		Analog, I^2C 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

■ Paper Size Sensor (Using Optical Distance Measuring Method) Lineup

Output	Features		Model No.
1-bit output	1-beam (detection height: 60 mm)	Thin type (T: 11.5 mm)	GP2Y2D160K0F
Analog output relative to measuring distance	1-beam (detection height: 80 mm)	Thin type (T: 11.5 mm)	GP2Y2A180K0F

■ High-Precision Displacement Sensor

Output	Range of distance measuring	Features	Model No.
Voltage output according to distance measuring	4.5 to 6.0 mm	Resolution: 50 µm	GP2Y0AH01K0F

■ Dust Sensor Unit Lineup

Output	Features	Model No.
Analog output	Pulse analog output, single-shot detection of house dust, general purpose	GP2Y1010AU0F

RoHS

■ Distance Measuring Sensors (1)

◆Digital Output

(Ta = 25°C)

Model No.	Detected distance (cm)	Distance measuring range (cm)	Features	Absolute maximum ratings		Electro-optical characteristics*1			
				Vcc (V)	Topr (°C)	V_{OH} (V) MIN.	V_{OL} (V) MAX.	Dissipation current	
								Operating (mA)	Standby (μA)
GP2Y0D413K0F	13	4 to 30	Distance measuring sensor united with PSD※, infrared LED and signal processing circuit, digital voltage output	–0.3 to +7	–10 to +60	Vcc –0.3	0.6	–	–
GP2Y0D21YK0F	24	10 to 80	Distance measuring sensor united with PSD※, infrared LED and signal processing circuit, digital voltage output	–0.3 to +7	–10 to +60	Vcc –0.3	0.6	MAX. 40	–
GP2Y0D02YK0F	80	20 to 150	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	–
GP2Y0D805Z0F	5	–	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)	–0.3 to +7	–10 to +60	Vcc –0.6	0.6	MAX. 6.5	MAX. 8
GP2Y0D810Z0F	10	–	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)	–0.3 to +7	–10 to +60	Vcc –0.6	0.6	MAX. 6.5	MAX. 8
GP2Y0D815Z0F	15	–	Light detector, infrared LED and signal processing circuit, short distance measuring type, battery drive compatible (operating power supply: 2.7 to 6.2 V)	–0.3 to +7	–10 to +60	Vcc –0.6	0.6	MAX. 6.5	MAX. 8
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)	–0.3 to +7	–40 to +85	Vcc –0.6	0.6	TYP. 5	MAX. 8
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	–

*1 Vcc = 5 V

※ PSD: Position Sensitive Detector

RoHS

■ Distance Measuring Sensors (2)

◆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)
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
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 voltage 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, digital (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, digital (I²C) / analog output	–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
GP2Y0A60SZ0F/ GP2Y0A60SZLF *2	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)


GP2Y5D91S00F


GP2Y0D805Z0F
(GP2Y0D810Z0F, GP2Y0D815Z0F, GP2Y0D810Z1F)


GP2Y0E02A
(GP2Y0E02B)


GP2Y0E03


GP2Y0A60SZ0F


GP2Y0A60SZLF


GP2Y0A21YK0F
(GP2D150AJ00F, GP2Y0D21YK0F, GP2Y0A41SK0F
GP2Y0D413K: without mounting hole)


GP2Y0A51SK0F


GP2Y0D02YK0F
(GP2Y0A02YK0F)


GP2Y0A710K0F

RoHS

■ Paper Size Sensors

(Ta = 25°C)

Model No.	Features	Operating temperature Topr (°C)	Supply voltage Vcc (V)	Paper detection height H (mm)	LED beam pitch Lp (mm)	Approved value of paper position sliding Δx (mm)	Paper detection density OD	Dissipation current Icc (mA)
GP2Y2D160K0F	Thin type (T: 11.5 mm), using optical distance measuring method (1-beam), digital output (1-bit)	–10 to +65	5 ±0.5	TYP. 60	–	MIN. ±7.5	0.7 or less*1	MAX. 40
GP2Y2A180K0F	Thin type (T: 11.5 mm), analog output using optical distance measuring method (1-beam)	–10 to +65	5 ±0.5	TYP. 80	–	–	–	MAX. 25

※ This table shows the characteristics when configured in the paper size sensor system.
*1 Reflectivity: 18% or more, OD = log (1/T), T: Reflectivity

GP2Y2D160K0F

GP2Y2A180K0F

■ High-Precision Displacement Sensor

(Ta = 25°C)

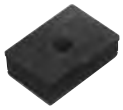
Model No.	Features	Topr (°C)	Operating supply voltage (V)	Dissipation current (mA)	Distance measuring range (mm)	Distance characteristic of output
GP2Y0AH01K0F	Resolution: 50 µm	–10 to +60	4.5 to 5.5	TYP. 20	4.5 to 6.0	TYP. 1.70 V Variation in output over range (4.5 to 6.0 mm)

GP2Y0AH01K0F

■ Dust Sensor Unit

(Ta = 25°C)

Model No.	Features	Topr (°C)	Electro-optical characteristics				
			Operating supply voltage (V)	Dissipation current (mA)	Detection sensitivity V/(0.1 mg/m^3)	Output voltage at no dust Voc (V)	Output voltage range VOH (V)
GP2Y1010AU0F	Built-in infrared emitting diode, photodiode and signal processing circuit, compact, single-shot detection of house dust	–10 to +65	4.5 to 5.5	TYP. 11	TYP. 0.5	TYP. 0.9	MIN. 3.4



GP2Y1010AU0F

RoHS

■ Fiber Optics Lineup for Audio Equipment

Connector type	Type	Outline	Features		High speed signal transmission	Model No.	
						Supply voltage 3 to 5 V	Supply voltage 5 V
Square connector (EIAJ RC-5720B)	Fiber optic transmitter	Without mounting hole	With shutter	Horizontal mounting type	MAX. 13.2 Mb/s		GP1FMV51TK0F
					MAX. 15.5 Mb/s	GP1FMV31TK0F	
		With mounting hole	With shutter	Horizontal mounting type	MAX. 13.2 Mb/s		GP1FAV51TK0F*1
					MAX. 15.5 Mb/s	GP1FAV31TK0F	
					MAX. 50 Mb/s		GP1FAV55TK0F
				Vertical mounting type	MAX. 13.2 Mb/s		GP1FSV51TK0F
					MAX. 15.5 Mb/s	GP1FSV31TK0F (mounting height: 15 mm) GP1FSB31TK0F (mounting height: 8.5 mm)	
			With protection cap	Horizontal mounting type	MAX. 13.2 Mb/s		GP1FAV50TK0F*1
					MAX. 15.5 Mb/s	GP1FAV30TK0F	
	Fiber optic receiver	Without mounting hole	With shutter	Horizontal mounting type	MAX. 13.2 Mb/s		GP1FMV51RK0F
					MAX. 15.5 Mb/s	GP1FMV31RK0F	
		With mounting hole	With shutter	Horizontal mounting type	MAX. 13.2 Mb/s		GP1FAV51RK0F
					MAX. 15.5 Mb/s	GP1FAV31RK0F	
			With protection cap	Horizontal mounting type	MAX. 13.2 Mb/s		GP1FAV50RK0F
					MAX. 15.5 Mb/s	GP1FAV30RK0F	

*1 TTL drive compatible

Connector type	Type	Outline	Features	High speed signal transmission	Model No.
					Supply voltage 3 V
Optical mini-jack ø3.5 mm (JIS C 6650)	Fiber optic transmitter	Thin type (t: 4.2 mm)	Capable of detection/transmission of optical/electrical signals	MAX. 25 Mb/s	GP1FD320TP0F▲

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

GP1FMV31 series
(GP1FMV51 series)

GP1FAV50TK0F
(GP1FAV50RK0F,
GP1FAV30TK0F,
GP1FAV30RK0F)

GP1FAV51TK0F
(GP1FAV31TK0F,
GP1FAV55TK0F,
GP1FAV51RK0F,
GP1FAV31RK0F)

GP1FSB31TK0F

GP1FSV31TK0F
(GP1FSV51TK0F)

RoHS

■ Fiber Optic Transmitters (Square Connector)

(Ta = 25°C)

Model No.	Appearance		Features	Absolute maximum ratings		Electro-optical characteristics					
	Mounting hole	Shutter		Vcc (V)	Topr (°C)	Supply voltage (V)	Propagation delay time t_{PLH} (ns) MAX.	Propagation delay time t_{PHL} (ns) MAX.	Dissipation current Icc (mA) MAX.	Pulse width distortion Δtw (ns)	Transmission speed T (Mb/s) MAX.
GP1FMV31TK0F	No	Yes	Compact	–0.5 to +7	–20 to +70	2.7 to 5.25	180	180	12	±15	15.5
GP1FMV51TK0F	No	Yes	Compact	–0.5 to +7	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FAV30TK0F	Yes	No	Low voltage drive, with protection cap	–0.5 to +7	–20 to +70	2.7 to 5.25	180	180	12	±15	15.5
GP1FAV50TK0F	Yes	No	TTL drive compatible, with protection cap	–0.5 to +7	–20 to +70	4.75 to 5.25 Input voltage: MIN. 2.0 V	180	180	13	±15	13.2
GP1FAV51TK0F	Yes	Yes	TTL drive compatible	–0.5 to +7	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FSV51TK0F	No	Yes	Vertical mounting (mounting height: 15 mm)	–0.5 to +7	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FAV31TK0F	Yes	Yes	Low voltage drive	–0.5 to +7	–20 to +70	2.7 to 5.25	180	180	12	±15	15.5
GP1FSV31TK0F	No	Yes	Vertical mounting (mounting height: 15 mm)	–0.5 to +7	–20 to +70	2.7 to 5.25	180	180	13	±15	15.5
GP1FAV55TK0F	Yes	Yes	High response speed	–0.5 to +7	–20 to +70	4.75 to 5.25	180	180	13	±15	50
GP1FSB31TK0F	No	Yes	Vertical mounting (mounting height: 8.5 mm)	–0.5 to +7	–20 to +70	2.7 to 5.25	180	180	13	±15	15.5

■ Fiber Optic Receivers (Square Connector)

(Ta = 25°C)

Model No.	Appearance		Features	Absolute maximum ratings			Electro-optical characteristics					
	Mounting hole	Shutter		Vcc (V)	I_{OL} (mA)	Topr (°C)	Supply voltage (V)	Propagation delay time t_{PLH} (ns) MAX.	Propagation delay time t_{PHL} (ns) MAX.	Dissipation current Icc (mA) MAX.	Pulse width distortion Δtw (ns)	Transmission speed T (Mb/s) MAX.
GP1FMV31RK0F	No	Yes	Compact, low voltage drive	–0.5 to +7	10	–20 to +70	2.7 to 3.6	180	180	15	±20	15.5
GP1FMV51RK0F	No	Yes	Compact	–0.5 to +7	10	–20 to +70	4.75 to 5.25	180	180	25	±20	13.2
GP1FAV30RK0F	Yes	No	Low voltage drive, with protection cap	–0.5 to +7	10	–20 to +70	2.7 to 3.6	180	180	15	±20	15.5
GP1FAV50RK0F	Yes	No	With protection cap	–0.5 to +7	10	–20 to +70	4.75 to 5.25	180	180	25	±20	13.2
GP1FAV51RK0F	Yes	Yes		–0.5 to +7	10	–20 to +70	4.75 to 5.25	180	180	25	±20	13.2
GP1FAV31RK0F	Yes	Yes	Low voltage drive	–0.5 to +7	10	–20 to +70	2.7 to 3.6	180	180	15	±20	15.5

RoHS

■ Infrared Data Communication Device Lineup

Communication system	Transmission speed	Transmission distance	Features	Operating supply voltage	Model No.
IrDA data	FIR 4 Mb/s (Receiver only)	250 cm		3.0 to 3.6 V	GP2W4020XPMF
(IrDA 1.x)		150 cm		3.0 to 3.6 V	GP2W4010YP0F
	FIR 4 Mb/s (Integrated receiver and transmitter type)	35/21 cm	LP/HP mode switching function, remote control transmission function, thin (height: 1.5 mm)	2.6 to 3.6 V	GP2W3152YP0F
			LP/HP mode switching function, remote control transmission function, top view type (height: 1.75 mm)	2.6 to 3.6 V	GP2W3176XP0F
			LP/HP mode switching and remote control transmission functions	2.6 to 3.6 V	GP2W3120YP0F
		70/21 cm	LP/MP/HP mode switching and remote control transmission functions	2.6 to 3.3 V	GP2W3106YP0F
	SIR 115.2 kb/s (Integrated receiver and transmitter type)	100 cm	Compact, low dissipation current	2.4 to 5.5 V	GP2W0004YP0F▲/ GP2W0004XP0F▲
	SIR LP 115.2 kb/s (Integrated receiver and transmitter type)	21 cm	Built-in LED constant current circuit, 3-state output	2.0 to 3.6 V 1.7 to 2.5 V	GP2W0110VY GP2W0112VY

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

RoHS

■ Infrared Data Communication Devices

◆FIR Compliant Devices (Receiver Only)

Model No.	Communication system	Transmission speed	Description	Maximum reception distance*1 (cm)	Supply voltage (V DC)	Outline dimensions (mm)
GP2W4020XPMF	Uni-directional communication (receiving only)	4 Mb/s	IrSS™-compliant, receiving-only type	250	3 to 3.6	20.96 × 6.68 × 7.1
GP2W4010YP0F	Uni-directional communication (receiving only)	9.6 k to 4 Mb/s	IrSS™-compliant, receiving-only type	150	3 to 3.6	10 × 3.93 × 4.53

*1 Radiant intensity at transmitting side: 100 mW/sr

GP2W4020XPMF

GP2W4010YP0F

◆FIR Compliant Devices (Integrated Receiver and Transmitter Type)

Model No.	Communication system	Transmission speed	Description	Transmission distance (cm)	Supply voltage (V DC)	Outline dimensions (mm)
GP2W3152YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	With remote control transmission function, LP/HP mode switching function	21/35	2.6 to 3.6	7.88 × 2.76 × 1.5
GP2W3176XP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	With remote control transmission function, top-view, LP/HP mode switching function	21/35	2.7 to 3.6	8.72 × 2.53 × 1.75
GP2W3120YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	With remote control transmission function, LP/HP mode switching function	21/35	2.6 to 3.6	7.16 × 2.73 × 1.82
GP2W3106YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	With remote control transmission function, LP/MP/HP mode switching function	21/70	2.6 to 3.3	7.9 × 2.85 × 2.5

GP2W3152YP0F

GP2W3176XP0F

GP2W3120YP0F

GP2W3106YP0F

RoHS

◆SIR Compliant Devices (Integrated Receiver and Transmitter Type)

Model No.	Communication system	Transmission speed	Description	Transmission distance (cm)	Supply voltage (V DC)	Outline dimensions (mm)
GP2W0004YP0F▲	Bi-directional (half-duplex) communication	9.6 k to 115.2 kb/s	Low dissipation current (Icc: 130 µA MAX.)	100	2.4 to 5.5	9.21 × 3.76 × 2.71
GP2W0004XP0F▲	Bi-directional (half-duplex) communication	9.6 k to 115.2 kb/s	Low dissipation current (Icc: 130 µA MAX.), top-view	100	2.4 to 5.5	9.21 × 3.35 × 3.8

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

GP2W0004YP0F▲

GP2W0004XP0F▲

◆SIR LP Compliant Devices (Integrated Receiver and Transmitter Type)

Model No.	Communication system	Transmission speed	Description	Transmission distance (cm)	Supply voltage (V DC)	Outline dimensions (mm)
GP2W0110VY	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Low dissipation current (Icc: 120 µA MAX.)	21	2.0 to 3.6	6.8 × 2.35 × 2.1
GP2W0112VY	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Low dissipation current (Icc: 120 µA MAX.)	21	1.7 to 2.5	6.8 × 2.35 × 2.1

GP2W0110VY
(GP2W0112VY)

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	
	Compact type SMD (6.8 × 2.1 × 2.35 t mm)			3 to 5 V	GP1UF31 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

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	GP1UF31xXP0F/ *5 GP1UF31xYP0F	0 to 6.0	–30 to +85	2.7 to 5.5	0.4	Vcc–0.5	0.45	*4	6.8 × 2.1 × 2.35	–	
	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 (New type)	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 (New type)	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		
	GP1UM27RK0VF	0 to 6.0	–10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc–0.5	0.45	*3	5.6 × 9.6 × 12.4		
	GP1UM28RK0VF	0 to 6.0	–10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc–0.5	0.45	*3	5.6 × 9.6 × 16.4		
	GP1UM28QK0VF	0 to 6.0	–10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc–0.5	0.45	*3	5.6 × 9.0 × 12.5(9.6)*2		
	GP1UM29QK0VF	0 to 6.0	–10 to +70	4.5 to 5.5	0.6 (0.65)	Vcc–0.5	0.45	*3	5.6 × 16.2 × 21.9(19)*2		
With shield case (holder), 3 to 5 V drive	GP1UE26XK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 9.6 × 6.8		
	GP1UE27XK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 9.6 × 12.0		
	GP1UE28XK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 9.6 × 16.0		
	GP1UE28YK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 8.6 × 12.5(9.6)*2		
With shield case (holder), 3 to 5 V drive, Strengthened resistance to electromagnetic induction noise	GP1UE26RK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 9.6 × 7.2		
	GP1UE27RK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 9.6 × 12.4		
	GP1UE28RK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 9.6 × 16.4		
	GP1UE28QK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 9.0 × 12.5(9.6)*2		
	GP1UE29QK0VF	0 to 6.0	–10 to +70	2.7 to 5.5	0.4	Vcc–0.5	0.45	*3	5.6 × 16.2 × 21.9(19)*2		
Holderless, 3 to 5 V drive, Strengthened resistance to electromagnetic induction noise (New type)	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
*4 fo = 36/36.7/38/40 kHz
*5 GP1UF31xXP0F: Top view taped package,
GP1UF31xYP0F: Side view taped package