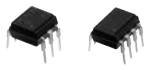
RoHS Pb FREE

■ Photocoupler Lineup

<Phototransistor output type>

Package type	Output type	Features		Model No. (series)	Page
4-pin SOP Compact, SMT type	Single phototransistor	General purpose, High collector-emitter voltage, etc.		PC35x series/PC451J00000F	75
	Darlington phototransistor		Low input current	PC367NJ0000F	75
		AC input response		PC354NJ0000F	75
		High sensitivity, High collector-emitter voltage	Low input current	PC364NJ0000F	75
				PC355NJ0000F	75
			Low input current	PC365NJ0000F	75
Compact, Half pitch (lead space), SMT type	Single phototransistor	General purpose, High collector-emitter voltage, etc.		PC3Hx series/PC3HU series	76
	Darlington phototransistor		Low input current	PC3H71xNIP0F	76
		High collector-emitter voltage		PC4H510NIP0F	76
		AC input response		PC3H3J00000F/PC3H4J00000F	76
			Low input current	PC3H41xNIP0F	76
		General purpose		PC3H5J00000F	76
			Low input current	PC3H510NIP0F	76
		High collector-emitter voltage		PC4H520NIP0F▲	76
DIP type (4/16-pin)	Single phototransistor	Approved by safety standards other than UL	Isolation thickness: 0.4 mm or more Creepage distance: 6.4 mm or more	PC123J00000F series	77
	Darlington phototransistor		Low input current	PC1231xNSZ0F	77
		General purpose, High collector-emitter voltage, etc.		PC817XJ0000F/PC847XJ0000F/ PC851XJ0000F	77
			Low input current	PC817xxNSZ0F	77
		AC input response		PC814XJ0000F/PC844XJ0000F	77
			Low input current	PC8141xNSZ0F	77
		Built-in SBD/High response speed		PC81100NSZ0F	77
		General purpose, High collector-emitter voltage		PC815XJ0000F/PC845XJ0000F/ PC852XJ0000F/PC853XJ0000F	77
			Low input current	PC81510NSZ0F	77
DIP type (6-pin)	Single phototransistor	General purpose, High collector-emitter voltage, etc.		PC7xxV0NSZXF	78
	Darlington phototransistor	General purpose, High collector-emitter voltage, etc.		PC7x5V0NSZXF	78

<OPIC output type>

Package type	Output type	Features	Model No. (series)	Page
Compact, SMT type	Digital output	General purpose, High response speed, 2ch, etc.	PC4xxJ00000F/PC456L0NIP0F/ PC41xS0NIP0F/PC410L0NIP0F/ PC411L0NIP0F/PC4D10SNIP0F	79
	Analog/Digital output	High CMR	PC457S0NIP0F/PC457L0NIP0F	80
DIP type, SMT type	Digital output	General purpose, High response speed, etc.	PC9xxV0NSZXF/PC956L0NSZ0F/ PC910L0NSZ0F/PC911L0NSZ0F/ PC912L0NSZ0F▲	80
	Built-in base amplifier	For inverter control/For inverter control, Built-in short-circuit protection circuit	PC942J00000F/PC92xL0NSZ0F series	81
	Analog/Digital output	High speed, High CMR, etc.	PC957L0NSZ0F	81

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

■ Photocouplers

◆Phototransistor Output Type
<Compact, SMT type>

○: 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		Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage VCEO (V)	CTR (%) MIN.	IF (mA)	VCE (V)	tr (μs) TYP.	IC (mA)	RL (Ω)	VCE (V)
Single phototransistor output	PC357NJ0000F		General purpose	○*	Mini-flat 4-pin	50	3.75	80	50	5	5	4	2	100	2
	PC352NJ000F		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

*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)
*PC353TJ0000F only: Same shape, 5-pin

★Under development

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

○: Approved, △: Under application

(Ta = 25°C)

Type	Model No.	Internal connection diagram	Features	Approved by safety standards*3	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					CTR (%) MIN.	I_F (mA)	V_{CE} (V)	tr (μs) TYP.	I_C (mA)	R_L (Ω)	V_{CE} (V)
Single phototransistor output	★PC3HU7NYIP0F		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	○*2		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		±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
	PC4H510NIP0F		High collector-emitter voltage	○		50	2.5	350	40	5	5	4	2	100	2
Darlington photo-transistor output	PC3H5J00000F		High sensitivity	○*2	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
	PC4H520NIP0F▲		High collector-emitter voltage	○		50	2.5	350	1 000	1	2	100	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
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

PC3HU7NYIP0F

PC3H2J00000F
(Mini-flat 4-pin)

◆Phototransistor Output Type
<DIP type (4/16-pin)>

○: Approved, △: Under application

(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.	IF (mA)	Response time tr (μs) TYP.	RL (Ω)
Single phototransistor output	PC123J00000F*1		High isolation voltage, long creepage distance	○	○	○	4-pin DIP	50	5.0	70	50	5	4	100
	PC1231xNSZ0F		High isolation voltage, long creepage distance, low input current, high resistance to noise*4	○	○	–		10	5.0	70	50	0.5	4	100
	PC817XJ0000F*5, *6, *7		High isolation voltage	○	○	–		50	5.0	80	50	5	4	100
	PC847XJ0000F*5, *9		High isolation voltage (4-ch)	○	○	–	16-pin DIP	50	5.0	80	50	5	4	100
	PC8171xNSZ0F		High isolation voltage, low input current, high resistance to noise*4	○	–	–	4-pin DIP	10	5.0	70	100	0.5	4	100
	PC851XJ0000F		High isolation voltage, high collector-emitter voltage	○	–	–		50	5.0	350	40	5	4	100
	PC814XJ0000F*5, *6		High isolation voltage, AC input response	○	○	–		±50	5.0	80	20	±1	4	100
	PC844XJ0000F		High isolation voltage, AC input response (4-ch)	○	○	–	16-pin DIP	±50	5.0	80	20	±1	4	100
	PC8141xNSZ0F		High isolation voltage, AC input response, low input current, high resistance to noise*4	○	–	–	4-pin DIP	±10	5.0	80	50	±0.5	4	100
	PC81100NSZ0F	Schottky barrier diode	Built-in schottky barrier diode, toff: 35μs TYP. (In saturation, RL = 100kΩ)	○	–	–		50	5.0	70	50	5	ton: TYP. 9	100
Darlington phototransistor output	PC815XJ0000F		High isolation voltage, high sensitivity	○	–	–	4-pin DIP	50	5.0	35	600	1	60	100
	PC845XJ0000F		High isolation voltage, high sensitivity (4-ch)	○	–	–	16-pin DIP	50	5.0	35	600	1	60	100
	PC81510NSZ0F		High isolation voltage, high sensitivity, low input current	○	–	–	4-pin DIP	10	5.0	35	600	0.5	60	100
	PC852XJ0000F*5, *6		High isolation voltage, high collector-emitter voltage	○	○	–		50	5.0	350	1 000	1	100	100
	PC853XJ0000F*5, *6		High isolation voltage, high collector-emitter voltage	○	○	–		50	5.0	350	1 000	1	100	100

*1 Wide lead spacing type (F type) is also available. Creepage distance PC123: 6.4 mm or more, PC123F: 8 mm or more
*2 Optionally available.
*3 BSI, SEMKO, DEMKO, NEMKO, FIMKO, CSA
*4 CMR: 10 kV/μs MIN.
*5 Lead forming type (I 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 (F type) is also available. Lead forming type (FI type) of F type is also available.Taped package is also available for I and FI type of lead forming type.
*8 Please refer to Specification Sheets for model numbers approved by safety standards.
*9 Approved by UL as multi-channel type of PC817.

PC817XJ0000F
(4-pin DIP)

PC847XJ0000F
(16-pin DIP)

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.

◆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			
							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.

PC713V0NSZXF
(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.)

<Compact, SMT type> (1-1)

○: Approved, △: Under application

(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 IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	VOL (V) MAX.	Ta (°C)	IOL (mA)	IF (mA)	IFHL (mA) MAX.	IFLH (mA) MAX.	RL (Ω)
PC400J00000F		Digital output, normal-off operation	○	–	Mini-flat 5-pin	50	3.75	0.4	0 to +70	16	4	2.0	–	280
PC401J00000F		Digital output, normal-on operation	○	–		50	3.75	0.4	0 to +70	16	0	–	2.0	280
PC456L0NIP0F		Built-in preamplifier, high speed transmission (2 Mb/s), For flow soldering	○	○		25	3.75	0.6	–40 to +85	4.4	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
PC412S0NIP0F		High speed (25 Mb/s), High CMR (10 kV/μs), For flow soldering, Solder heat resistance: 270°C	○	–		–*4	3.75	1	–40 to +85	4	VIN = VIL	–	–	–
PC411L0NIP0F		High speed (15 Mb/s), High CMR (10 kV/μs), For flow soldering	○	○	Mini-flat 5-pin	20	3.75	0.1	–40 to +85	0.02	12	6.0	–	–
PC411S0NIP0F		High speed (15 Mb/s), High CMR (10 kV/μs), For flow soldering, Solder heat resistance: 270°C	○	○	SOP 8-pin	20	3.75	0.1	–40 to +85	0.02	12	6.0	–	–
PC4D10SNIP0F		High speed (10 Mb/s), For flow soldering, Solder heat resistance: 270°C 2ch output	○	–		20	3.75	0.6	–40 to +85	13	5	5.0	–	–

A: Rated voltage circuit
*1 Each item is measured at Vcc=5V. (PC400, PC401)
*2 Please refer to Specification Sheets for model numbers approved by safety standards.
*3 Optionally available.
*4 No forward current rating for voltage input (rated input voltage: –0.5 to 6.0 V).

<Compact, SMT type> (1-2)

○: Approved, △: Under application

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*1		Package	Absolute maximum ratings		Electro-optical characteristics							
								Current transfer ratio				Propagation delay time			
			UL	VDE*2		Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	CTR (%) MIN.	IF (mA)	VO (V)	VCC (V)	tPHL (µs) TYP.	tPLH (µs) TYP.	RL (Ω)	IF (mA)
PC457L0NIP0F		High speed (1 Mb/s), high CMR (15 kV/µs), For flow soldering	○	○	Mini-flat 5-pin	25	3.75	19	16	0.4	4.5	0.2	0.6	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	0.6	1 900	16

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

*2 Optionally available.

PC400J00000F
(Mini-flat 5-pin)

PC412S0NIP0F
(SOP 8-pin)

◆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, △: Under application

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*6		Package	Absolute maximum ratings		Electro-optical characteristics*1						
								Low level output voltage				Threshold input current		
			UL	VDE *4		Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	VOL (V) MAX.	Ta (°C)	IOL (mA)	IF (mA)	IFHL (mA) MAX.	IFLH (mA) MAX.	RL (Ω)
PC900V0NSZXF*2, *3		Digital output, normal-off operation	○	○	6-pin DIP	50	5.0	0.4	0 to +70	16	4	2.0	–	280
PC901V0NSZXF		Digital output, normal-on operation	○	○		50	5.0	0.4	0 to +70	16	0	–	2.0	280
PC956L0NSZ0F		Built-in preamplifier, high speed transmission (2 Mb/s) For soldering flow	○	○	8-pin DIP	25	5.0	0.6	–40 to +85	2.4	10	5.0	–	20 k
PC910L0NSZ0F		Digital output, High speed (10 Mb/s), high CMR (20 kV/µs) For soldering flow	○	○		20	5.0	0.6	–40 to +85	13	5	5.0	–	350
PC911L0NSZ0F		High speed (15 Mb/s), high CMR (10 kV/µs), For soldering flow	○	○		20	5.0	0.1	–40 to +85	0.02	12	6.0	–	–
PC912L0NSZ0F▲		Digital output, High speed (25 Mb/s), high CMR (20 kV/µs)	○	○		–*5	5.0	1.0	–40 to +85	4	VIN = VIL	–	–	–

A: Rated voltage circuit

*1 Each item is measured at Vcc=5V.

*2 Lead forming type (I type) is also available for surface mounting.

*3 Taped package of lead forming type for surface mounting is also available.

*4 Optionally available.

*5 No forward current rating due to voltage input. (rated input voltage: –0.5 to 6.0 V)

*6 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.

PC90xV0NSZXF series
(6-pin DIP)

PC910L0NSZ0F
(8-pin DIP)

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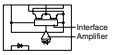
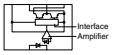
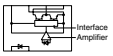
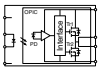
◆OPIC Output

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

<DIP type, Gate drive type>

○: Approved, △: Under application

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*3		Package	Absolute maximum ratings			Electro-optical characteristics					
									Propagation delay time					
			UL	VDE *2		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Output current I_{O1} (A)	t_{PHL} (µs) TYP.	t_{PLH} (µs) TYP.	V_{CC} (V)	I_F (mA)	R_{L1} (Ω)	R_{L2} (Ω)
PC942J00000F		For controlling inverter-controlled air-conditioner	○	○	8-pin DIP	25	5.0	0.5	2.0	2.0	6	5	5	10
PC923L0NSZ0F*1		• Built-in drive circuit directly connectable to MOS-FET and IGBT • Low dissipation current (Icc = TYP. 1.3 mA) • High resistance to noise (CMR: MIN. 15 kV/µs)	○	○		20	5.0	0.1	0.3	0.3	24	5	R_G = 47	–
PC924L0NSZ0F*1		• Built-in drive circuit directly connectable to MOS-FET and IGBT • Low dissipation current (Icc = TYP. 1.3 mA) • High resistance to noise (CMR: MIN. 15 kV/µs)	○	○		25	5.0	0.1	1.0	1.0	24	10	R_G = 47	–
PC925L0NSZ0F		• Built-in drive circuit directly connectable to MOS-FET and IGBT • Peak output current: 2.5 A • Low dissipation current (Icc = TYP. 5 mA) • High resistance to noise (CMR: MIN. 15 kV/µs)	○	–		25	5.0	2.5	MAX. 0.5	MAX. 0.5	24	10	R_G = 10	–

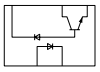
*1 Lead forming type (I type) is also available for surface mounting. Taped package of lead forming type for surface mounting is also available.
*2 A VDE approved type is optionally available.
*3 Please refer to Specification Sheets for model numbers approved by safety standards.

◆OPIC Output

<DIP type, analog/digital output>

○: Approved, △: Under application

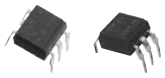
(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*3		Package	Absolute maximum ratings		Electro-optical characteristics							
								Current transfer ratio				Propagation delay time*1			
			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)
PC957L0NSZ0F		High speed (1 Mb/s), high CMR (15 kV/µs), for flow soldering	○	○	8-pin DIP	25	5.0	19	16	0.4	4.5	0.2	0.6	1 900	16

*1 Vcc = 5V
*2 Optionally available.
*3 Please refer to Specification Sheets for title(s) of safety standards.

PC92xL0NSZ0F
(8-pin DIP)

■ 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*4 / S2S5A00F*4	83
				Built-in zero-cross circuit	S2S4000F*4	84
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3ST11NSZAF	83
(4-pin)				Built-in zero-cross circuit	PC3ST21NSZBF*3	84
			Reinforced isolation		PC3SH11YFZAF*4 / PC3SH13YFZAF*4	83
				Built-in zero-cross circuit	PC3SH21YFZBF*3	84
DIP type	AC 100 V lines (V_{DRM} = 400V)	0.1 A	General purpose (5th-pin cut)		PC2SD11NTZAF*4	83
(6-pin)	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose (5th-pin cut)		PC3SD12NTZAF*4 / PC3SD11NTZAF*4 / PC3SD11NTZBF*3 / PC3SD11NTZCF*2 / PC3SD11YTZDF*1 / PC3SD21YTZEF*5	83/84
				Built-in zero-cross circuit	PC3SD21NTZAF*4 / PC3SD21NTZBF*3 / PC3SD21NTZCF*2 / PC3SD21NTZDF*1 / PC3SD23YTZCF*2	84
			Reinforced isolation (5th-pin cut)		PC3SF11YVZAF*4 / PC3SF11YVZBF*3	83
				Built-in zero-cross circuit	PC3SF21YVZAF*4 / PC3SF21YVZBF*3 / PC3SF23YVZSF*3	84
	AC 200 V lines (V_{DRM} = 800V)	0.1 A	General purpose		PC4SD11NTZBF*3 / PC4SD11NTZCF*2	83
				Built-in zero-cross circuit	PC4SD21NTZCF*2 / PC4SD21NTZDF*1	84
			Reinforced isolation		PC4SF11YVZAF*4 / PC4SF11YVZBF*3	83
				Built-in zero-cross circuit	PC4SF21YVZBF*3 / PC4SF21YVZCF*2	84

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

■ Phototriac Couplers

○: Approved, △: Under application

(Ta = 25°C)

Type	Model No.	Internal connection diagram	Features	Approved by safety standards*4			Package	Absolute maximum ratings			Electro-optical characteristics		
				UL	VDE	Others *5		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 (V)	RL (Ω)
For triggering	S2S3000F		200 V lines, compact	○	○*6	○	Mini-flat 4-pin	0.05	600	3.75	10	6	100
	S2S5A00F		200 V lines, compact	○	○*6	○					10	6	100
	PC3ST11NSZAF		200 V lines, compact	○	○*6	○	4-pin DIP	0.1	600	5.0	10	6	100
	PC3SH11YFZAF		200 V lines, compact, reinforced isolation	○	○	○*2					10	6	100
	PC3SH13YFZAF		200 V lines, compact, reinforced isolation, High noise resistance	○	○	○*2					10	6	100
	PC2SD11NTZAF*7		100 V lines	○	–	○	6-pin DIP*1, 3	0.1	400	5.0	10	6	100
	PC3SD12NTZAF*8		200 V lines	○	○*6	○			600		10	6	100
	PC3SD11NTZAF		200 V lines	○	○*6	○					10	6	100
	PC3SD11NTZBF		200 V lines	○	○*6	○					7	6	100
	PC4SD11NTZBF		200 V lines, repetitive peak-OFF-state voltage	○	○*6	○			800		7	6	100
	PC3SD11NTZCF		200 V lines	○	○*6	○			600		5	6	100
	PC3SD11YTZDF		200 V lines, low input drive	○	○	○					3	6	100
	PC4SD11NTZCF		200 V lines, repetitive peak-OFF-state voltage	○	○*6	○			800		5	6	100
	PC3SF11YVZAF		200 V lines, reinforced isolation	○	○	○*2			600		10	6	100
	PC3SF11YVZBF		200 V lines, reinforced isolation	○	○	○*2					7	6	100
	PC4SF11YVZAF		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2			800		10	6	100
	PC4SF11YVZBF		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2					7	6	100

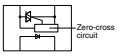
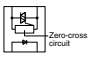
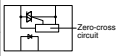
For the notes *1 to *9, see next page.

★Under development

■ Phototriac Couplers (cont'd)

○: Approved, △: Under application

(Ta = 25°C)

Type	Model No.	Internal connection diagram	Features	Approved by safety standards*4			Package	Absolute maximum ratings			Electro-optical characteristics		
				UL	VDE	Others *5		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 (V)	RL (Ω)
For triggering	S2S4000F		200 V lines, compact, built-in zero-cross circuit	○	○*6	○	Mini-flat 4-pin	0.05	600	3.75	10	6	100
	PC3ST21NSZBF		200 V lines, compact, built-in zero-cross circuit	○	○*6	○	4-pin DIP	0.1	600	5.0	7	4	100
	PC3SH21YFZBF		200 V lines, compact, reinforced isolation, built-in zero-cross circuit	○	○	○*2		0.1	600	5.0	7	4	100
	★PC3SD21NTZAF		200 V lines, low zero-cross voltage: MAX. 20 V, built-in zero-cross circuit	○		○	6-pin DIP*1, 3	0.1	600	5.0	10	4	100
	PC3SD21NTZBF		200 V lines, low zero-cross voltage: MAX. 20 V, built-in zero-cross circuit	○	○*6	○		0.1	600	5.0	7	4	100
	PC3SD21NTZCF*9		200 V lines, low zero-cross voltage: MAX. 20 V, built-in zero-cross circuit	○	○*6	○		0.1	600	5.0	5	4	100
	PC3SD23YTZCF		200 V lines, built-in zero-cross circuit, High pulse/noise resistance (TYP. 2 kV)	○	○	○		0.1	600	5.0	5	4	100
	PC3SD21NTZDF		200 V lines, low zero-cross voltage: MAX. 20 V, built-in zero-cross circuit	○	○*6	○		0.1	600	5.0	3	4	100
	PC3SD21YTZEF		200 V lines, built-in zero-cross circuit, Low input drive	○	○	○		0.1	600	5.0	2	4	100
	PC4SD21NTZCF		200 V lines, built-in zero-cross circuit, repetitive peak-OFF-state voltage	○	○*6	○		0.1	800	5.0	5	4	100
	PC4SD21NTZDF		200 V lines, built-in zero-cross circuit, repetitive peak-OFF-state voltage	○	○*6	○		0.1	800	5.0	3	4	100
	PC3SF21YVZAF		200 V lines, reinforced isolation, built-in zero-cross circuit	○	○	○*2		0.1	600	5.0	10	4	100
	PC3SF21YVZBF		200 V lines, reinforced isolation, built-in zero-cross circuit	○	○	○*2		0.1	600	5.0	7	4	100
	PC3SF23YVZSF		200 V lines, reinforced isolation, built-in zero-cross circuit, High pulse/ noise resistance (TYP. 2 kV)	○	○	○*2		0.1	600	5.0	7	4	100
	PC4SF21YVZBF		200 V lines, reinforced isolation, built-in zero-cross circuit, repetitive peak-OFF-state voltage	○	○	○*2		0.1	800	5.0	7	4	100
	PC4SF21YVZCF		200 V lines, reinforced isolation, built-in zero-cross circuit, repetitive peak-OFF-state voltage	○	○	○*2		0.1	800	5.0	5	4	100

*1 Lead forming type for surface mounting is also available.
*2 In conformance with BSI, SEMKO, DEMKO, NEMKO, and FIMKO
*3 These are molded pin No. 5.
*4 Please refer to Specification Sheets for model numbers approved by safety standards.
*5 CSA approval
*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)

PC3ST11NSZAF
(PC3ST21NSZBF)
(4-pin DIP)

PC3SH11YFZAF
(PC3SH21YFZBF, PC3SH13YFZAF)
(4-pin DIP)

RoHS Pb FREE

■ Solid State Relay Lineup

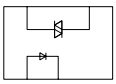
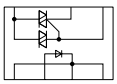
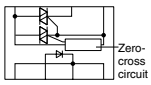
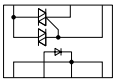
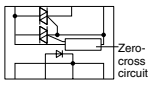
Package	Applied voltage	Features	Model No.	Page
DIP 6-pin	AC 100 V lines	General purpose	PR22MA11NTZF	86
	AC 200 V lines	General purpose	PR31MA11NTZF / PR32MA11NTZF	86
DIP 8-pin	AC 100 V lines	General purpose	PR23MF11NSZF / PR26MF series / PR29MF series	86
		Built-in zero-cross circuit	PR26MF21NSZF / PR29MF21NSZF	86
	AC 200 V lines	General purpose	PR33MF51NSZF / PR36MF series / PR39MF series / PR3BMF11NSZF▲	86
		Built-in zero-cross circuit	PR36MF series / PR39MF series / PR3BMF21NSZF	86
SIP 4-pin	AC 100 V lines	General purpose	S102T01F / S108T01F / S101S05F / S102S01F / S112S01F / S116S01F	87
		Built-in zero-cross circuit	S102T02F / S108T02F / S101S06F / S102S02F / S116S02F	87
Sx0xT0xF series		Built-in snubber circuit	S102S11F	87
		Built-in zero-cross/snubber circuit	S101S16F / S102S12F	87
	AC 200 V lines	General purpose	S202T01F / S208T01F / S202S01F / S212S01F / S216S01F	87
		Built-in zero-cross circuit	S202T02F / S208T02F / S201S06F / S202S02F / S216S02F	87
		Built-in snubber circuit	S202S15F / S202S11F	87/88
		Built-in zero-cross/snubber circuit	S202S12F	88
		Reinforced isolation	S202SE1F▲ / S216SE1F▲	88
		Built-in zero-cross circuit	S202SE2F▲ / S216SE2F▲	88

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

■ Solid State Relays

<DIP type>

○: Approved, △: Under application (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 (V)	RL (Ω)
PR31MA11NTZF		200 V lines, compact	○	○	○	6-pin DIP	0.06	600	5.0	10	6	100
PR22MA11NTZF		100 V lines, 150 mA output in a small package	○	○	○		0.15	400	5.0	10	6	100
PR32MA11NTZF		200 V lines, 150 mA output in a small package	○	○	○			600	5.0	10	6	100
PR23MF11NSZF		100 V lines, compact	○	○	–	8-pin DIP	0.3	400	4.0	10	6	100
PR33MF51NSZF		200 V lines, compact	○	○	○		0.3	600	4.0	10	6	100
PR26MF11NSZF		100 V lines, compact	○	○	–		0.6	400	4.0	10	6	100
PR26MF12NSZF		100 V lines, compact, low input current	○	○	–		0.6	400	4.0	5	6	100
PR29MF11NSZF		100 V lines, compact	○	○	–		0.9	400	4.0	10	6	100
PR29MF12NSZF		100 V lines, compact, low input current	○	○	–		0.9	400	4.0	5	6	100
PR26MF21NSZF		100 V lines, compact (built-in zero-cross circuit)	○	○	–		0.6	400	4.0	10	6	100
PR29MF21NSZF		100 V lines, compact (built-in zero-cross circuit)	○	○	–		0.9	400	4.0	10	6	100
PR36MF51NSZF		200 V lines, compact	○	○	○		0.6	600	4.0	10	6	100
PR36MF12NSZF		200 V lines, compact, low input current	○	○	○		0.6	600	4.0	5	6	100
PR39MF12NSZF		200 V lines, compact, low input current	○	○	○		0.9	600	4.0	5	6	100
PR39MF51NSZF		200 V lines, compact	○	○	○		0.9	600	4.0	10	6	100
PR3BMF11NSZF▲		200 V lines, compact, High-temperature operation (up to +105°C)	○	○	○		1.2	600	4.0	10	6	100
PR36MF22NSZF		200 V lines, compact (built-in zero-cross circuit), low input current	○	○	○	8-pin DIP	0.6	600	4.0	5	6	100
PR39MF22NSZF		200 V lines, compact (built-in zero-cross circuit), low input current	○	○	○		0.9	600	4.0	5	6	100
PR36MF21NSZF		200 V lines, compact (built-in zero-cross circuit)	○	○	○		0.6	600	4.0	10	6	100
PR39MF21NSZF		200 V lines, compact (built-in zero-cross circuit)	○	○	○		0.9	600	4.0	10	6	100
PR3BMF21NSZF		200 V lines, compact (built-in zero-cross circuit)	○	○	○		1.2	600	4.0	10	6	100

*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.

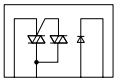
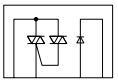
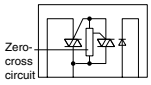
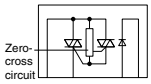
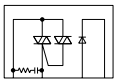
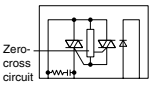
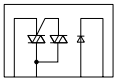
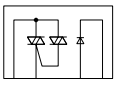
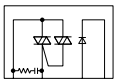
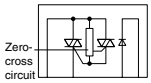

PR22MA11NTZF
(6-pin DIP)


PR26MF21NSZF
(8-pin DIP)

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.

<SIP type> (1)

○: Approved, △: Under application (Ta = 25°C)

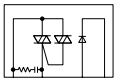
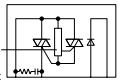
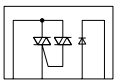
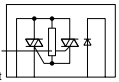
Model No.	Internal connection diagram	Features	Approved by safety standards*6			Package	Absolute maximum ratings			Electrical characteristics		
			UL	CSA	TÜV EN 60950		ON-state current IT (rms) (A)	Repetitive peak OFF-state voltage VDRM(V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current IFT (mA) MAX.	VD (V)	RL (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
S101S05F		100 V lines	○	○	–	4-pin SIP	3*3	400	3.0	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
S102T02F		100 V lines, low profile (built-in zero-cross circuit)	○	○	–	Low profile 4-pin SIP	2	400	3.0	8	12	30
S108T02F		100 V lines, low profile (built-in zero-cross circuit)	–	–	–		8*2			8	12	30
S101S06F		100 V lines (built-in zero-cross circuit)	○	○	–	4-pin SIP	3*3	400	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	400	4.0	8	12	30
S101S16F		100 V lines (built-in snubber circuit, built-in zero-cross circuit)	○	○	–		3*3	400	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
S202S01F		200 V lines	○	○	–	4-pin SIP	8*2	600	4.0	8	12	30
S212S01F		200 V lines	–	–	–		12*4			8	12	30
S216S01F		200 V lines	–	–	–		16*5			8	12	30
S202S15F		200 V lines, built-in snubber circuit	–	–	–		8*2	600	3.0	10	12	30
S202T02F		200 V lines, low profile (built-in zero-cross circuit)	○	○	–	Low profile 4-pin SIP	2	600	3.0	8	12	30
S208T02F		200 V lines, low profile (built-in zero-cross circuit)	–	–	–		8*2			8	12	30
S201S06F		200 V lines (built-in zero-cross circuit)	○	○	–	4-pin SIP	3*3			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

*1 to *6: Please refer to the next page.

<SIP type> (2)

○: Approved, △: Under application

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*6			Package	Absolute maximum ratings			Electrical characteristics		
			UL	CSA	TÜV EN 60950		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)
S202S11F		200 V lines (built-in snubber circuit)	○	○	–	4-pin SIP	8*1	600	4.0	8	12	30
S202S12F	 Zero-cross circuit	200 V lines (built-in snubber circuit, built-in zero-cross circuit)	○	○	–		8*1	600	4.0	8	6	30
S202SE1F▲		200 V lines, reinforced isolation	○	○	○		8*2	600	3.0	8	12	30
S216SE1F▲			–	–	○		16*5			8	12	30
S202SE2F▲	 Zero-cross circuit	200 V lines (built-in zero-cross circuit), reinforced isolation	○	○	○		8*2	600	3.0	8	6	30
S216SE2F▲			–	–	○		16*5			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.

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

S102T01 series
(Low profile 4-pin SIP)

S102S01 series
(4-pin SIP)

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■ Photointerrupter Lineup

<Transmissive type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Compact	High resolution	PWB mounting type/ Soldering reflow	GP1S296HCPSF/GP1S092HCPIF/ GP1S09xHCZ0F series/ GP1S19xHCZ0F/GP1S19xHCxSF	90
High response speed	Case type	General purpose	Snap-in	GP1S566VJ00F	91
		High resolution	PWB mounting type, etc.	GP1S5x series/GP1S5xVJ000F series/ GP1S56x series	91
		Horizontal slit, High resolution	PWB mounting type	GP1S59J0000F/GP1S525VJ00F	91
	With connector	General purpose	Snap-in	GP1S173LCS2F/GP1S74PJ000F	91
Darlington phototransistor	Case type	General purpose	PWB mounting type, etc.	GP1L5xJ series/GP1L5xV series	92
High sensitivity		Wide gap	PWB mounting type	GP1L57J0000F	92
Digital output	Compact	High voltage	PWB mounting type	GP1A98HCZ0F	92
(OPIC output)	Case type	High resolution	PWB mounting type	GP1A5x series	93
		Wide gap	Both-side/PWB mounting type	GP1A5xHR series/GP1A52LRJ00F	93
	With connector	General purpose	Screw mounting type/Snap-in	GP1A05 series/GP1A173LCS2F/ GP1A7x series/GP1A07x series	94

<Reflective type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Compact, DIP	General purpose	PWB mounting type	GP2S2x series	94
High response speed		Long focal distance	PWB mounting type	GP2S40J0000F	94
	Leadless	Long focal distance	PWB mounting type	GP2S700HCP	94
	Compact, thin (leadless)	General purpose	PWB mounting type	GP2S60	94
Darlington phototransistor	Compact, DIP	General purpose	PWB mounting type	GP2L24J0000F▲	95
High sensitivity OPIC output	With connector	Light modulation type, Sensitivity adjusted	Screw mounting type/ Compact snap-in/ Inverter light countermeasures	GP2A2x series, GP2A200LCS0F/ GP2A231LRSAF, GP2A240LCS0F	95

<Application-specific photointerrupter lineup>

Detection type	Outline (Output type etc.)		Mounting method	Model No. (series)	Page
Transmissive type	With connector With actuator (Phototransistor output)		Snap-in	GP1S44S1J00F	96
	With connector With actuator (OPIC output)		Snap-in	GP1A44E1J00F	96
	Compact, (built-in ball)	(2-phase PT output) 3 direction detection	PWB mounting type	GP1S36J0000F▲	97
		(2-phase PT output) 4 direction detection	PWB mounting type	GP1S036HEZ▲	97
	Case type With encoder function	Resolution: Linear scale slit pitch: 0.17/0.14 mm	PWB mounting type	GP1A038RBK0F/GP1A046RBZLF/ GP1A047RBZLF/GP1A038RCK0F/ GP1A044RCKLF	97
	Phase A (digital output) Phase B (digital output)	Resolution: Linear scale slit pitch: 0.085 mm	PWB mounting type	GP1A047RDZLF	97
Reflective type	Injection For prism system (Single phototransistor)		Screw mounting	GP2S29SJ000F	98
	For amusement use		–	GP2A221HRKA/GP2A222HCKA	98

Optoelectronics

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■ Photointerrupters

<Transmissive type>

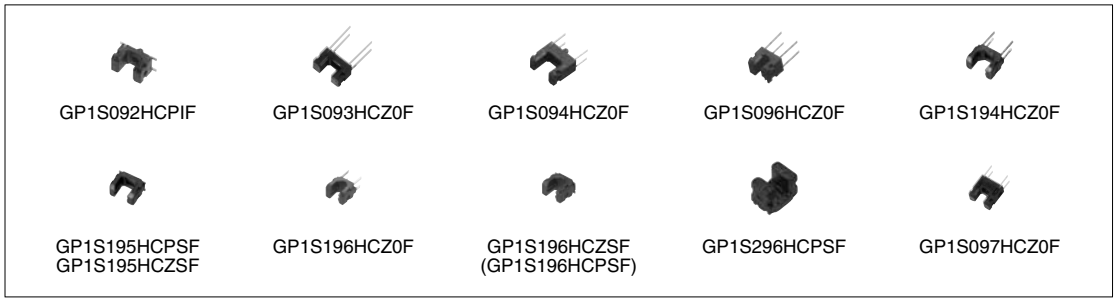
◆Single phototransistor output

<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 (Ω)	V_{CE} (V)
GP1S092HCPIF		Height: 2.9 mm, For soldering reflow, with positioning boss	2.0	0.3	2.0	5	5	50	0.1	1 000	5
GP1S093HCZ0F		Low profile (2.9 mm), wide gap	2.0	0.3	2.0	5	5	50	0.1	1 000	5
GP1S094HCZ0F		Wide gap, with positioning pin, PWB mounting type (5.5 × 2.6 × 4.8 mm)	3.0	0.3	0.8	5	5	50	0.1	1 000	5
GP1S096HCZ0F		Low profile (3.5 × 2.6 × 2.9 mm)	1.0	0.3	2.0	5	5	50	0.1	1 000	5
GP1S194HCZ0F		Compact, wide gap, size: 3.7 × 2.0 × 2.7 mm	1.7	0.3	1.0	5	5	–	–	–	–
GP1S195HCZSF GP1S195HCPSF		Compact, wide gap, surface mount compatible, size: 3.5 × 2.0 × 2.7 mm	1.5	0.3	1.0	5	5	–	–	–	–
GP1S196HCZ0F		Compact, Low profile (3.1 × 2.0 × 2.7 mm)	1.1	0.3	2.0	5	5	50	0.1	1 000	5
GP1S196HCZSF GP1S196HCPSF		Surface mount, for soldering reflow, compact, low profile (3.1 × 2.0 × 2.7 mm)	1.1	0.3	2.0	5	5	50	0.1	1 000	5
☆GP1S296HCPSF		Compact, Low profile (2.5 × 1.8 × 1.9 mm)	1.0	0.2	3.0	5	5	50	0.1	1 000	5
GP1S097HCZ0F		High resolution, wide gap, with mounting hole (4.5 × 2.6 × 4.5 mm)	2.0	0.3	2.0	5	5	50	0.1	1 000	5

✻ Topr: –25 to +85 °C



☆New product

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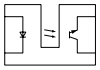
<Case type>

(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)
GP1S566VJ00F		Long case, snap-in mounting type	3.0	0.5	2.5	20	5	3	2	100	2
GP1S50J0000F		High resolution, both-side mounting type	3.0	0.5	2.5	20	5	3	2	100	2
GP1S51VJ000F*1		High resolution, side mounting type	3.0	0.5	2.5	20	5	3	2	100	2
GP1S52VJ000F*1		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
GP1S525VJ00F		Short lead type with easy board mounting, horizontal slit, high precision positioning (lead: within ø1.2 mm)	5.0	0.5	3.25	20	10	3	2	100	2

✻ Topr: –25 to +85 °C
*1 High reliability types: GP1SQ51VJ00F and GP1SQ52J000F are also available.


GP1S566VJ00F


GP1S50J0000F


GP1S51VJ000F


GP1S52VJ000F


GP1S53VJ000F


GP1S54J0000F


GP1S56TJ000F


GP1S58VJ000F


GP1S59J0000F


GP1S525VJ00F

<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

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


GP1S74PJ000F


GP1S173LCS2F

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.

◆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 resolution, both-side mounting type	3.0	0.5	50	1	2	80	2	100	2
GP1L51J0000F		High resolution, side mounting type	3.0	0.5	50	1	2	80	2	100	2
GP1L52VJ000F		High resolution, PWB mounting type	3.0	0.5	50	1	2	80	2	100	2
GP1L53VJ000F		High resolution, PWB mounting type	5.0	0.5	30	1	2	80	2	100	2
GP1L57J0000F		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

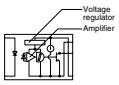
GP1L57J0000F

◆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)

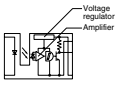
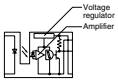
Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics							
					Threshold input current			Propagation delay time				
					I_{FLH} (mA) MAX.	I_{FHL} (mA) MAX.	V_{CC} (V)	t_{PLH} (μs) TYP.	t_{PHL} (μs) TYP.	I_F (mA)	R_L (Ω)	V_{CC} (V)
GP1A98HCZ0F		Compact, PWB mounting	3.0	0.5	8	–	3.3 to 24	10.0	2.0	10	3 900 to 20 000	3.3 to 24

✻ Topr = –25 to +85°C

GP1A98HCZ0F

<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 type	3.0	0.5	5	–	5	3	5	5	280	5
GP1A51HRJ00F		Side mounting type	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

☆New product

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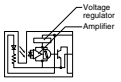
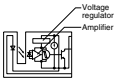
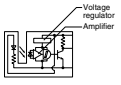
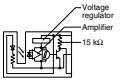
◆OPIC type

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

<With 3-pin connector terminal>

(Ta = 25°C)

Model No.	Internal connection diagram	Features		Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics					
						Supply voltage Vcc (V)		Low level output voltage			
						MIN.	MAX.	VOL (V) MAX.	Light cut-off	IOL (mA)	Vcc (V)
GP1A05AJ000F		with 3-pin connector	Either-side mounting type	5.0	0.5	4.5	5.5	0.35	No	16	5
GP1A05A2J00F			Either-side mounting type	5.0	0.5	4.5	5.5	0.35	No	16	5
GP1A05A5J00F			Either-side mounting type	5.0	0.5	4.5	5.5	0.35	No	16	5
☆GP1A173LCS2F			Snap-in mounting integrated connector type	5.0	0.5	4.5	5.5	0.35	No	4	5
GP1A73AJ000F			Compact, snap-in mounting type	5.0	0.5	4.5	5.5	0.35	No	4	5
GP1A073LCS			Compact, snap-in mounting type, low voltage operation	5.0	0.5	2.7	5.5	0.35	No	4	5
GP1A75EJ000F			Either-side mounting type	5.0	0.5	4.5	5.5	0.35	Yes	16	5
GP1A05EJ000F			Either-side mounting type Screw mounting type	5.0	0.5	4.5	5.5	0.4	Yes	16	5
GP1A05E2J00F				5.0	0.5	4.5	5.5	0.4	Yes	16	5

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

GP1A05AJ000F (GP1A05EJ000F)

GP1A05A2J00F (GP1A05E2J00F)

GP1A05A5J00F

GP1A73AJ000F, GP1A073LCS

GP1A173LCS2F

GP1A75EJ000F

■ Photointerrupters

<Reflective type>

◆Single phototransistor output

<Compact>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Focal distance (mm)	Electro-optical characteristics						
				Current transfer ratio			Response time			
				CTR (%) MIN.	IF (mA)	VCE (V)	tr (μs) TYP.	IC (mA)	RL (Ω)	VCE (V)
GP2S24J0000F▲		Compact (DIP), visible light cut-off	0.7	0.5	4	2	20	0.1	1 000	2
GP2S27J0000F▲		Compact, allow reflow soldering, visible light cut-off	0.7	0.5	4	2	20	0.1	1 000	2
GP2S40J0000F▲		Compact, long focal distance, visible light cut-off	3	2.5	20	5	50	0.1	1 000	2
GP2S700HCP		Compact, long focal distance, surface mounting leadless type	3	1.5	4	2	20	0.1	1 000	2
GP2S60		Thin (3.2 × 1.7 × t: 1.1 mm), leadless type	(0.5)	1.75*1 TYP.	4	2	20	0.1	1 000	2

※ Topr: –25 to +85°C *1 Detection area: 1 mm

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

GP2S24J0000F ▲

GP2S27J0000F ▲

GP2S40J0000F ▲

GP2S700HCP

GP2S60

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

◆Darlington phototransistor output

<Compact>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Focal 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 (Ω)	V_{CE} (V)
GP2L24J0000F▲		Compact (DIP), visible light cut-off	0.7	12.5	4	2	80	10	100	2

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

GP2L24J0000F ▲

◆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.)

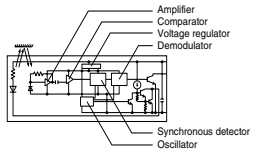
<With 3-pin connector terminal>

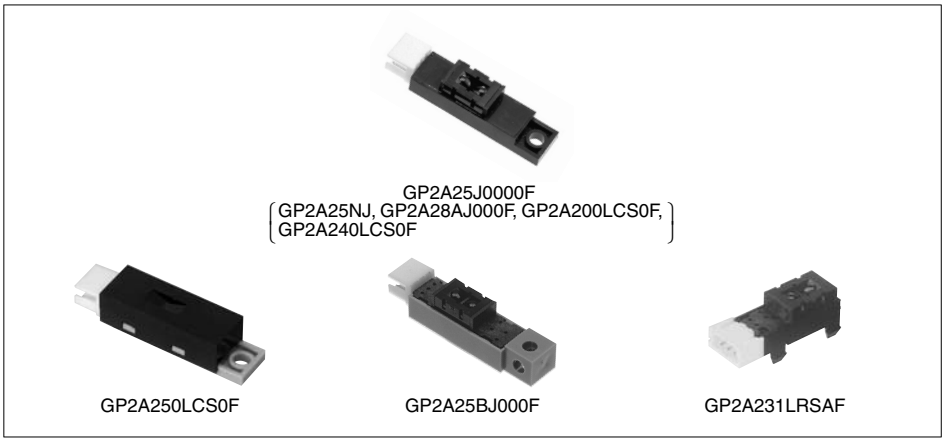
(Ta = 25°C)

	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)
OPIC output	GP2A200LCS0F	(Following diagram)	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		Improved light-resistance characteristic for inverter lighting (500 lx), light modulation type, connector output	5 to 15	4.75	5.25	30*1	5	0.4	5
	GP2A250LCS0F		Static electricity resistant, improved light-resistance characteristic for inverter lighting (500 lx), light modulation type, connector output	5 to 15	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
	GP2A231LRSAF		Compact, hook type, multi types of paper detectable, light modulation type, with connector, sensitivity adjusted	3 to 7	4.75	5.25	20*1	5	0.4	5
	GP2A25NJJ00F		Multi types of paper detectable, light modulation type, sensitivity adjusted, applicable to inverter fluorescent lamp, built-in visible light cut filter	3 to 6	4.75	5.25	30*1	5	0.4	5
	GP2A25BJ000F		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, detecting portion with flat configuration	3 to 7	4.75	5.25	30*1	5	0.4	5

✻ Topr: −10 to +60°C (GP2A25J0000F, GP2A25BJ000F) *1 Smoothing value R_L = ∞

[Internal connection diagram]





GP2A25J0000F
(GP2A25NJ, GP2A28AJ000F, GP2A200LCS0F, GP2A240LCS0F)

GP2A250LCS0F

GP2A25BJ000F

GP2A231LRSAF

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RoHS Pb FREE

■ Photointerrupters for Specific Applications

◆Transmissive type

<Single phototransistor output type with actuator and 3-pin connector terminal>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Actuator lever starting torque (Initial) MAX.	Electro-mechanical characteristics*1									
				Light beam interrupted					Light beam uninterrupted				
				Dissipation current		Collector current			Dissipation current		Collector current		
				I_{CC1} (mA)	V_{CC} (V)	I_{C1} (μA)	V_{CC} (V)	V_O (V)	I_{CC2} (mA)	V_{CC} (V)	I_{C2} (mA)	V_{CC} (V)	V_O (V)
GP1S44S1J00F		Spring lever type actuator United with connector	1×10^{-4} N•m or less	20 MAX.	5	50 MAX.	5	5	20 MAX.	5	0.25 MIN.	5	5

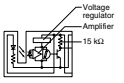
※ Topr: –25 to +75 °C
*1 Operating voltage: 4.5 to 5.5 V

GP1S44S1J00F

<OPIC type with actuator and 3-pin connector terminal>

("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.	Internal connection diagram	Features	Absolute maximum ratings		Electro-mechanical characteristics	Electro-mechanical characteristics*1									
						Light beam interrupted					Light beam uninterrupted				
						Dissipation current		Low level output voltage			Dissipation current		High level output voltage		
			Supply voltage V_{CC} (V)	Output current I_{OL} (mA)	Actuator lever starting torque	I_{CCL} (mA)	V_{CC} (V)	V_{OL} (V)	V_{CC} (V)	I_{OL} (mA)	I_{CCH} (mA)	V_{CC} (V)	V_{OH} (V)	V_{CC} (V)	R_L (kΩ)
GP1A44E1J00F		Spring lever type actuator, united with connector	10	50	1×10^{-4} N•m or less	20 MAX.	5	0.4 MAX.	5	16	20 MAX.	5	Vcc × 0.9 MIN.	5	47

※ Topr: –25 to +75 °C
*1 Operating voltage: 4.5 to 5.5 V

GP1A44E1J00F

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<Compact, 2-phase phototransistor output type>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	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)
GP1S36J0000F▲		Built-in ball (2 phase output), compact, PWB mounting type	1.2	5	5	50	0.1	1 000	5
GP1S036HEZ▲		Built-in ball (2 phase output), compact, PWB mounting type, 4-direction detection	1.1	5	5	50	0.1	1 000	5

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


GP1S36J0000F


GP1S036HEZ

<Case type, with encoder function>

(Ta = 25°C)

Model No.	Absolute maximum ratings		Electro-optical characteristics					
	Vcc (V)	Topr (°C)	Operating voltage Vcc (V)	Output signal	Resolution	Response frequency (kHz) MAX.	Response frequency I_F (mA)	Dissipation current (output side) Icc (mA) MAX.
GP1A038RBK0F*1, *2	7	0 to +70	2.7 to 5.5	Phase A (Digital output) Phase B (Digital output)	Linear scale slit pitch 0.17 (mm)	20	11	5
GP1A038RCK0F*1, *2	7	0 to +70	2.7 to 5.5		Linear scale slit pitch 0.14 (mm)	20	11	5
GP1A044RCKLF*1	—	−10 to +60	2.7 to 5.5		Linear scale slit pitch 0.14 (mm)	20	15	5
GP1A046RBZLF*1	—	−10 to +60	2.7 to 5.5		Linear scale slit pitch 0.17 (mm)	20	20	5
GP1A047RBZLF*1, *3	—	−10 to +60	2.7 to 5.5		Linear scale slit pitch 0.17 (mm)	20	20	7
GP1A047RDZLF*1, *3	—	−10 to +60	2.7 to 5.5		Linear scale slit pitch 0.0847 (mm)	120	20	7

*1 High precision read and low affection of angle error from vibration thanks to the multi-segment PD system
*2 Duty ratio: 50±20%, phase difference: 90±45°
*3 Duty ratio: 50±15%, phase difference: 90±45°


GP1A044RCKLF


GP1A038RBK0F
(GP1A038RCK0F)


GP1A046RBZLF


GP1A047RBZLF
(GP1A047RDZLF)

◆Reflective type

<Case type, phototransistor output>

(Ta = 25°C)

Model No.	Internal connection diagram	Features	Focal 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 (Ω)	V_{CE} (V)
GP2S29SJ000F		Long focal distance (with prism system), compact, screw mounting type	*1	1.0*1	20	5	38	0.5	1 000	2

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

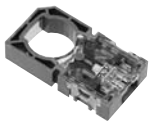
GP2S29SJ000F

<For amusement use>

(Ta = 25°C)

Model No.	Features	Electro-optical characteristics		
		Supply voltage Vcc	Dissipation current Icc (mA)	Response frequency f (Hz)
GP2A221HRKA	Employs reflective type, pinball detector, connector with lock	4.5 to 15	MAX. 10	MAX. 500
GP2A222HCKA	Employs reflective type, pinball detector, connector with lock In conjunction with an IC, detects beam interuption*1	4.5 to 16.5	MAX. 10	MAX. 500

*1 Used together with interface IC for control (IR3N184)



GP2A221HRKA
(GP2A222HCKA)

■ Phototransistor Lineup

Package	Output type	Features	Half sensitivity angle	Model No.	
				Standard	Visible light cut-off
Epoxy resin with lens (ø3 mm)	Single phototransistor	General purpose	±20°	PT380	PT380F
	Darlington phototransistor	High sensitivity	±20°	PT381	PT381F
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/Compact, thin	±35°	PT4810E0000F	PT4810FJE00F
		High sensitivity/Intermediate acceptance	±40°	—	PT491FE0000F
		High sensitivity/Intermediate acceptance/Long lead	±40°	—	PT493FE0000F
TO-18	Single phototransistor	Narrow acceptance	±6°	PT501 ▲	—
	Darlington phototransistor	Narrow acceptance/With base terminal	±6°	PT510 ▲	—
		Narrow acceptance/With base terminal	±6°	PT550 ▲	—
		Wide acceptance/With base terminal	±50°	PT550F ▲	—
Surface mounting leadless type	Single phototransistor	Compact	±60°	PT600T	—
	Darlington phototransistor	Compact (surface mounting type)	±70°	PT200MC0NP	—
		Compact (infrared cut type)	±60°	PT202MR0MP1	—
		Compact (side view/top view mounting possible)	±15°	PT100MC0MP	PT100MF0MP
		Compact	±60°	PT601T	—
		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)				ICEO(A)		Δθ (°)	λp (nm)
			VCEO (V)	PC (mW)	Topr (°C)	MIN.	MAX.	VCE (V)	Ee (mW/cm²)	MAX.	VCE (V)	TYP.	TYP.
Single	PT380	ø3 epoxy resin	35	50	–25 to +85	0.16	1.17	5	Ev, 100 lx	1×10^{-7}	20	±20	800
	PT380F*1		35	50	–25 to +85	0.095	0.9	5	Ev, 100 lx	1×10^{-7}	20	±20	860
	PT600T	Surface mounting leadless type	35	50	–25 to +85	0.7	TYP. 3.5	5	5	1×10^{-7}	20	±60	880
	PT200MC0NP		50	50	–25 to +85	0.016	0.059	5	0.1	1×10^{-7}	20	±70	930
	PT202MR0MP1*2		5	5	–30 to +85	—	TYP. 0.043	1.5	Ev, 100 lx	1×10^{-7}	1.5	±60	620
	PT100MC0MP		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
	PT501 ▲	TO-18	45	75	–25 to +125	2.5	TYP. 10	5	10	1×10^{-7}	30	±6	800
	PT510 ▲		35	75	–25 to +125	2.5	TYP. 20.0	5	10	1×10^{-7}	30	±6	800
Darlington	PT381	ø3 epoxy resin	35	50	–25 to +85	0.12	1.5	10	Ev, 2 lx	1×10^{-6}	10	±20	800
	PT381F*1		35	50	–25 to +85	0.07	1.08	10	Ev, 2 lx	1×10^{-6}	10	±20	860
	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
	PT4810E0000F		35	75	–25 to +85	0.45	7.0	2	0.1	1×10^{-6}	10	±35	800
	PT4810FJE00F*1		35	75	–25 to +85	0.27	6.0	2	0.1	1×10^{-6}	10	±35	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
	PT493FE0000F*1		35	75	–25 to +85	0.2	0.8	2	Ev, 2 lx	1×10^{-6}	10	±40	860
	PT550 ▲	TO-18	35	150	–25 to +125	3	TYP. 20.0	5	0.1	1×10^{-6}	10	±6	800
	PT550F ▲		35	150	–25 to +125	3	TYP. 20.0	5	1.0	1×10^{-6}	10	±50	800
	PT601T	Leadless chip type	35	50	–25 to +85	0.03	0.3	10	0.01	1×10^{-6}	10	±60	880
	PT100MF1MP*1	Surface mounting leadless type	35	75	–30 to +85	0.2	1.2	5	0.01	1×10^{-6}	10	±15	860

*1 Visible light cut-off type *2 Infrared cut-off type

Note) Some products are handled by the Compound Semiconductor Division.

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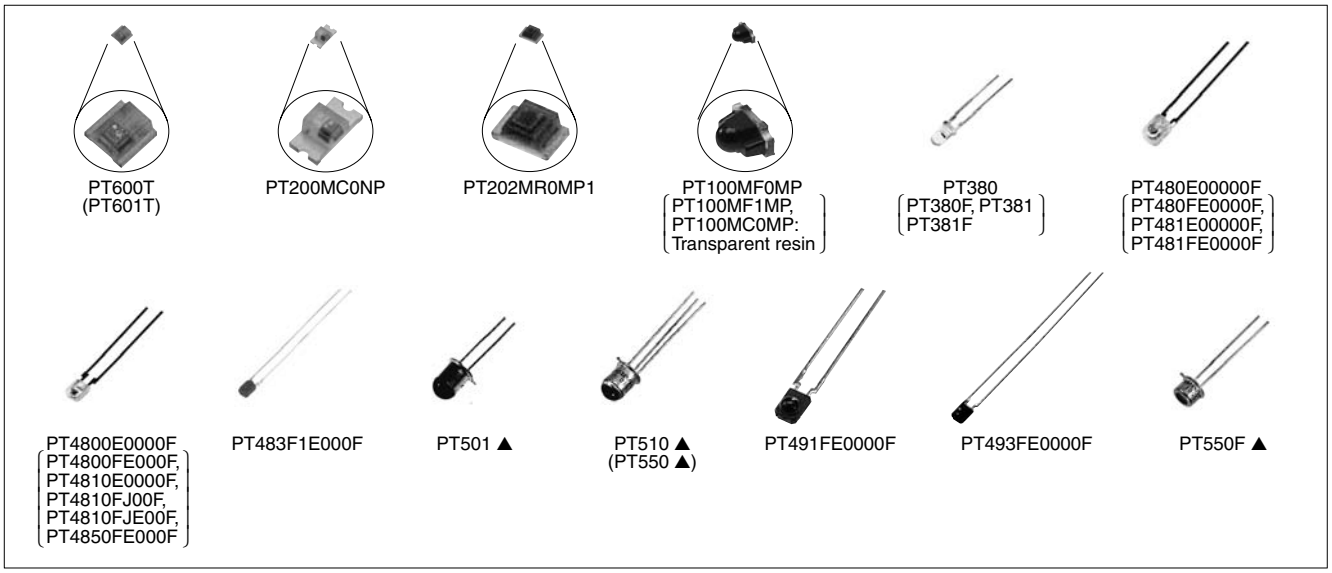

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■ PIN Photodiodes

(Ta = 25°C)

Model No.	Features	Package (Material)	Active area (mm^2)	Topr (°C)	Isc (μA) MIN.	Ev (lx)	Id (A) MAX.	V_R (V)	tr, tf (μs) TYP.	V_R (V)	R_L (kΩ)	λp (nm) TYP.
PD410PI2E00F*1	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		Epoxy resin with transparent condenser (lens)	3.31	–25 to +85	5.0	100	1×10^{-8}	10	0.2	10	1	960
PD412PI2E00F*2		Epoxy resin with transparent condenser (lens)	3.31	–25 to +85	3.5	100	1×10^{-8}	10	0.25	10	1	800
PD413PI2E00F*1	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
PD60T	Chip device type	Transparent resin	–	–25 to +85	TYP. 4	1 000	1×10^{-8}	10	0.1	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*1	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

*1 Visible light cut-off type *2 Tape packaging type (PD412TNE00F)

PD410PIE00F
(PD411PI2E00F: transparent; PD412PI2E00F: transparent, PD413PI2E00F)

PD60T

PD100MC0MP
(PD100MF0MP: black)

■ Blue Sensitive 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)	λp (nm) TYP.
BS520E0F	Planer type	Resin (black)	5.34	–20 to +60	0.4	100	1×10^{-11}	1	560

BS520E0F
(with filter)

■ Laser Power Monitoring Photodiodes for Optical Disc System

(Ta = 25°C)

Model No.	Features	Package (Material)	Active area (mm)	Topr (°C)	Isc (mA) TYP.	Ev (lx)	Id (A) MAX.	V_R (V)	λp (nm) TYP.
PD101SC0SS1F	High response speed (cut-off frequency: 400 MHz)	Transparent epoxy resin	ø0.8	–25 to +85	450	100	1×10^{-9}	5	820

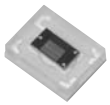
PD101SC0SS1F

☆New product

■ RGB Color Sensor

(Ta = 25°C)

Model No.	Features	Package	Peak sensitivity wavelength (nm)			Light receiving sensitivity (A/W) TYP.			Topr (°C)
			Blue	Green	Red	Blue	Green	Red	
☆PD30CMC31MZ	RGB 3-color LED compatible 3PD structure Filter-on chip structure allows for both infrared light reducing characteristics and a more compact size (1.1 mm thick)	Surface mounting 3 x 4 mm	460	540	620	0.18	0.23	0.16	–40 to +85



PD30CMC31MZ

■ 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 modulating 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 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.
GA220T2L1IZ	2PD, differential type	Transparent epoxy resin 18-pin	4.5 to 5.5	4.9	0.6	±8.5

GA220T2L1IZ

☆New product

<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 Ex (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 = 1000 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 = 1000 lx)	48 (at Ev = 100 lx)
GA1A1S201WP	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Logarithmic current output for illuminance	Compact (2.0 mm × 1.6 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 = 1000 lx)
☆GA1A1S100WP	Built-in amplification circuit Peak sensitivity characteristic close to human visual sensitivity Output characteristic: Linear current output for illuminance		7.0	10	–40 to +85	2.7 to 3.6	10 to 5 000	1 460	555	1420 (at Ev = 1000 lx)	142 (at Ev = 100 lx)

GA1A2S100SS

GA1A2S100LY

GA1A1S201WP
(GA1A1S100WP)

☆New product

<Optical disk devices for RF signal detection>

(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings			Electro-optical characteristics					
								Response frequency		Output noise level	
			Vcc (V)	P (mW)	Topr (°C)	Icc (mA) TYP.	Vcc (V)	fc*1 (MHz) TYP.	Vcc (V)	Vn Main Ch. (dBm) TYP.	f (Hz)
IS1682Q	Built-in amplifier circuit, built-in RF addition amplifier (6-division PINPD + IC), for ×50 CD-ROM	Transparent 10-pin package	6.0	–	–30 to +80	14.8	5	(72/70) 72/70	5	–81	23.1M
GA250T6C3SY GA250T6C4SY	Built-in amplifier circuit (6-division PINPD + IC), for CD player, low operating voltage (MIN. 2.5 V)	Transparent 10-pin package	7.0	–	–20 to +75	6	5	5/0.3	5	(–78)	2.8M
IS1623Q	Built-in amplifier circuit (8-division PINPD + IC), switchable of sensitivity due to playback/ recording mode, for MD player	Transparent flat 10-pin package	6.0	150	–20 to +70	4.2/ 4.6*2	3	5.3/3.8*2	3	–90	720k
IS1684Q	Built-in RF amplifier, for ×6 DVD-ROM drive	Transparent flat 10-pin package	6.0	–	–30 to +80	14.8	5	(70/60) 70/50	5	–81	23.1M
GA210TXV8SY▲*3	For 2-wavelength laser (For DVD player), 10-division PD pattern	Transparent flat 12-pin package (4 x 5.0 mm)	6.0	–	–10 to +70	17	5	–/75	5	–80	23M
GA230TXW6SY	For ×16 DVD-R/RW, +R/W ultra-writable drive High-precision 3-step gain compatible	Transparent flat 14-pin package (4 x 5.0 mm)	6.0	–	–30 to +85	–	5	140	5	–	–
GA230TXR1ZY	DVD-ROM: for MAX. ×16 read only CD-ROM: for MAX. ×52 read only CD-R: for MAX. ×52 writable drive CD-RW: for MAX. ×32 writable drive	Transparent flat 14-pin package	6.0	–	–20 to +85	40	5	140	5	–80	72M
GA202TXV15K▲ GA202TXV15J	For 2-wavelength laser (For DVD player), 10-division PD pattern	Transparent 12-pin package (3 x 4 mm) Gull wing lead / Flat lead	6.0	–	–30 to +80	MAX. 19	5	57/57 50/50	5	–	–
☆GA202TXV17K GA202TXV17M	For 2-wavelength laser (For DVD player), 10-division PD pattern (GA202TXV17M: Moisture-proof package)	Transparent 12-pin package (3 x 4 mm)	6.0	–	–30 to +80	MAX. 19	5	–	–	–	–

*1 (RF/main) ... 650 nm, RF/main ... 780 nm *2 Playback/recording mode
*3 We can supply custom orders for modified PD patterns, packages, and lead shapes for 2-wavelength laser compatible OPIC light detectors.
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

IS1682Q
(IS1684Q, GA250T6C3SY, GA250T6C4SY)

IS1623Q

GA230TXW6SY

GA210TXV8SY▲

GA230TXR1ZY

GA202TXV15K▲/GA202TXV17K

GA202TXV15J

Optoelectronics

<Laser power monitoring diode for optical disc system>*1

(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings			Electro-optical characteristics			
								Response frequency	
			Vcc (V)	P (mW)	Topr (°C)	Icc (mA) TYP.	Vcc (V)	fc (MHz) MIN.	Vcc (V)
GA104T1M1MZ▲	For ×48 CD-R writable drive, built-in amplifier circuit	Leadless chip-type (3.0 x 3.5 mm)	6.0	–	–20 to +70	20	5	50	5

*1 Power monitoring photodiodes are also available. Please refer to the page for photodiodes.
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.

GA104T1M1MZ▲

■ Infrared Emitting Diode Lineup

Type	Package	Features	Half intensity angle	Model No.
Single-end lead	Epoxy resin with lens (ø3 mm type)	General purpose	±13°	GL380
(Top view type)		High output type	±13°	GL381
		High speed signal transmission (12 MHz)	±17°	GL382
	Epoxy resin (Arch type)	General purpose	±18°	GL390 ▲
		Low forward voltage type	±18°	GL390V ▲
Single-end lead	Epoxy resin with lens	General purpose/Narrow beam angle	±13°	GL480E00000F
(Side view type)		Compact and thin	±30°	GL4800E0000F
	Flat epoxy resin	Wide beam angle	±90°	GL4100E0000F
	Epoxy resin with lens	Compact package, bi-directional emitting type	Bidirectional	GL453E00000F ▲
Single-end lead	TO-18	High reliability	±50°	GL513F ▲
(Top view type)		High reliability/Narrow beam angle	±7°	GL514 ▲
	Epoxy resin with lens (ø5 mm type)	Low forward voltage type	±21°	GL560
		Low forward voltage type/Narrow beam angle	±13°	GL561
		High output type	±25°	GL537
		High output type/Narrow beam angle	±13°	GL538
Surface mount type	Leadless	Compact	±60°	GL610T
	Epoxy resin with lens/ leadless	Compact/Narrow beam angle	±10°	GL100MN0MP
	(Mountable for Top view/ Side view type)	High output type (Output: radiant flux/ radiant intensity indicated)	±10°/±9°	GL100MN1MP / GL100MN3MP
		Compact/Wide beam angle	±80°	GL100MD1MP1

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

■ Infrared Emitting Diodes

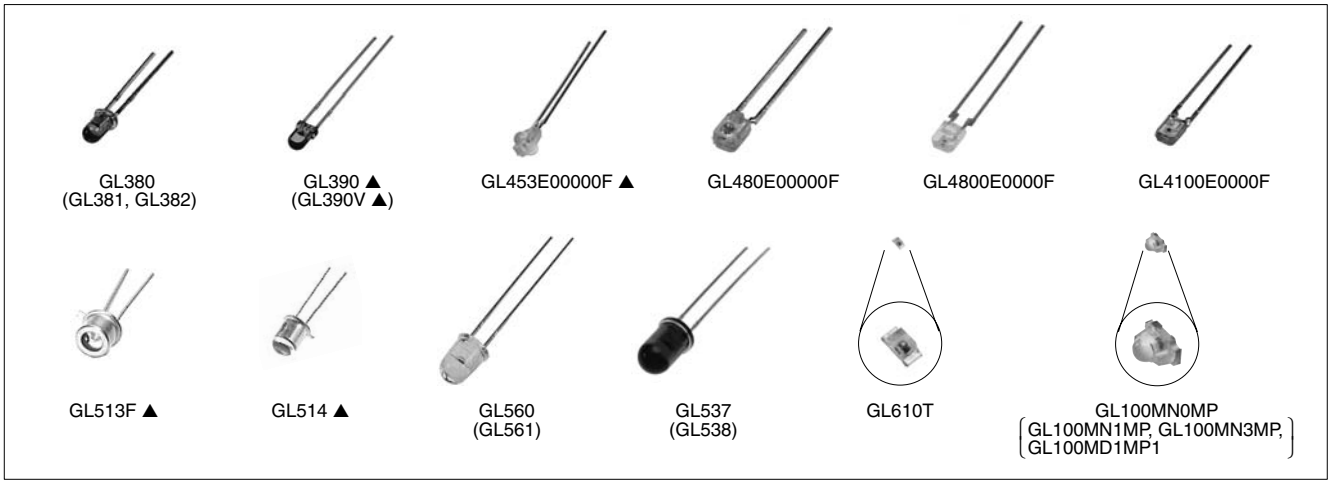
(Ta = 25°C)

Model No.	Package, features	Absolute maximum ratings				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.
GL380	ø3 epoxy resin	60	6	150	–25 to +85	4.5*1	11*1	50	1.3	1.5	50	±13	950
GL381		60	6	150	–25 to +85	8.5*1	20*1	50	1.3	1.5	50	±13	950
GL382	ø3 epoxy resin, for high speed signal transmission:12 MHz	60	4	–	–25 to +85	6	18	50	1.5	1.7	50	±17	880
GL390 ▲	Arch type	60	6	150	–25 to +85	7*1	13*1	50	1.3	1.5	50	±18	950
GL390V ▲		60	6	150	–25 to +85	9*1	16*1	50	1.3	1.5	50	±18	950
GL453E00000F ▲	Epoxy resin with bidirectional lens	50	6	75	–25 to +85	0.85	1.3	20	1.2	1.5	20	(Bidirectional)	950
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
GL4100E0000F	Side-view flat type, epoxy resin	50	6	75	–25 to +85	1.0	–	20	1.2	1.4	20	±90	950
GL513F ▲	TO-18	150	6	250	–40 to +125	1.44	2.88	100	1.35	1.6	100	±50	950
GL514 ▲		150	6	250	–40 to +125	3.31	5.35	100	1.35	1.6	100	±7	950
GL560	ø5 epoxy resin	100	6	150	–25 to +85	5*1	14*1	50	1.25	1.37	50	±21	940
GL561		100	6	150	–25 to +85	12*1	25*1	50	1.25	1.37	50	±13	940
GL537		100	6	150	–25 to +85	6*1	13*1	50	1.3	1.5	50	±25	950
GL538		100	6	150	–25 to +85	15*1	30*1	50	1.3	1.5	50	±13	950
GL610T	Leadless chip type	50	6	150	–25 to +85	0.7	2	20	1.3	1.5	50	±60	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
GL100MN3MP	Surface mounting leadless type, epoxy resin board with lens, high output type	50	6	75	–30 to +85	3.0*1	6.0*1	20	1.25	1.5	20	±9	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

*1 Radiant intensity mW/sr

Note) Some products are handled by the Compound Semiconductor Division.

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



■ Distance Measuring Sensor Lineup

Output	Range of distance measuring	Features		Model No.
1-bit digital output according to distance measuring	3 to 30 cm	1-bit digital output (detected distance: 15/13 cm)		GP2D150AJ00F/GP2Y0D413K0F
	10 to 80 cm	1-bit digital output (detected distance: 24 cm)		GP2D15J0000F
			General purpose	GP2Y0D21YK0F
	20 to 150 cm	1-bit digital output (detected distance: 80 cm)		GP2Y0D02YK0F
		Battery drive compatible, compact, operating supply voltage (2.7 V to 6.2 V), 1-bit digital output (detected distance: 5/10 cm)		GP2Y0D805Z0F/GP2Y0D810Z0F
		Compact, thin 1-bit digital output (detected distance: 10/40 cm)		GP2Y0D310K/GP2Y0D340K
		Compact, operating supply voltage (2.7 V to 6.2 V), 1-bit digital output (detected distance: 1.5 cm) Capable of operation at high temperature		GP2Y5D91S00F
Output according to distance measuring	4 to 30 cm	Analog voltage output		GP2D120XJ00F/GP2Y0A41SK0F
	10 to 80 cm	Analog voltage output		GP2D12J0000F
			General purpose	GP2Y0A21YK0F
	20 to 150 cm	Analog voltage output		GP2Y0A02YK0F
	100 to 550 cm	Analog voltage output		GP2Y0A710K0F

■ Wide Angle Sensor Lineup

Output	Range of distance measuring	Detection angle of view	Model No.
Voltage output according to distance measuring	4 to 30 cm	25° (When using 5 beams)	GP2Y3A001K0F
	20 to 150 cm	25° (When using 5 beams)	GP2Y3A002K0F
	40 to 300 cm	25° (When using 5 beams)	GP2Y3A003K0F

■ 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

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

Output	Features		Model No.
8-bit serial output	1-beam		GP2D06J0000F/GP2D061J000F/ GP2D062J000F
		Thin type (T: 11 mm)	GP2Y2E101K0F
	2-beam		GP2D03J0000F/GP2D032J0000F
	3-beam		GP2D07J0000F/GP2D071J000F
		Thin type (T: 11 mm)	GP2Y2E301K0F
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
	2-beam (detection height: 80 mm)	Thin type (T: 11.5 mm)	GP2Y2A280K0F

■ Dust Sensor Unit Lineup

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

■ Color Toner Concentration (Deposition Amount) Sensor Lineup

Output	Features	Model No.
Analog output	Employs diffuse reflection system	GP2TC1J0000F
	Employs diffuse reflection system + mirror reflection system	GP2Y40010K0F

☆New product

■ Distance Measuring Sensors (1)

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics*1					
		Vcc (V)	Topr (°C)	Distance measuring range (cm)	VOH (V) MIN.	VOL (V) MAX.	Dissipation current		Measured distance (cm)
							Operating (mA)	Standby (μA)	
GP2D12J0000F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, linear voltage output	–0.3 to +7	–10 to +60	10 to 80	VO (TYP.) = 0.4 V (at L = 80 cm), ΔVO (TYP.) = 2.0 V (at L: 80 cm → 10 cm)		MAX. 50	–	–
GP2Y0A21YK0F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, linear voltage output	–0.3 to +7	–10 to +60	10 to 80	VO (TYP.) = 0.4 V (at L = 80 cm), ΔVO (TYP.) = 1.9 V (at L: 80 cm → 10 cm)		MAX. 40	–	–
GP2D120XJ00F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, linear voltage output	–0.3 to +7	–10 to +60	4 to 30	VO (TYP.) = 0.4 V (at L = 30 cm), ΔVO (TYP.) = 2.25 V (at L = 30 cm → 4 cm)		MAX. 50	–	–
GP2Y0D805Z0F	Light detector, infrared LED and signal processing circuit, short distance measuring sensor unit, 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	5
GP2Y0D810Z0F	Light detector, infrared LED and signal processing circuit, short distance measuring sensor unit, 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	10
☆GP2Y5D91S00F	Light detector, infrared LED and signal processing circuit, short distance measuring sensor unit, 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	–	1.5
GP2Y0D310K	Digital voltage output according to the measured distance of GP2Y0D340K	–0.3 to +7	–10 to +60	–	Vcc –0.3	0.6	MAX. 35	–	10
GP2Y0D340K	Compact, thin type (15 x 9.6 x 8.7 mm: sensor part), Light detector, 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. 35	–	40
GP2D15J0000F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, digital voltage output	–0.3 to +7	–10 to +60	10 to 80	Vcc –0.3	0.6	MAX. 50	–	24
GP2Y0D21YK0F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, digital voltage output	–0.3 to +7	–10 to +60	10 to 80	Vcc –0.3	0.6	MAX. 40	–	24
GP2Y0A41SK0F	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	4 to 30	VO (TYP.) = 0.4 V (at L = 30 cm), ΔVO (TYP.) = 2.25 V (at L = 30 cm → 4 cm)		MAX. 22	–	–
GP2D150AJ00F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, digital voltage output	–0.3 to +7	–10 to +60	3 to 30	Vcc –0.3	0.6	MAX. 50	–	15
GP2Y0D413K0F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, digital voltage output	–0.3 to +7	–10 to +60	3 to 30	Vcc –0.3	0.6	–	–	13
GP2Y0D02YK0F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, long distance measuring sensor unit (No external control signal required), digital voltage output according to the measured distance	–0.3 to +7	–10 to +60	20 to 150	Vcc –0.3	0.6	MAX. 50	–	80

*1 Vcc = 5 V

* PSD: Position Sensitive Detector

☆New product

■ Distance Measuring Sensors (2)

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics*1					
		Vcc (V)	Topr (°C)	Distance measuring range (cm)	VOH (V) MIN.	VOL (V) MAX.	Dissipation current		Measured distance (cm)
							Operating (mA)	Standby (μA)	
GP2Y0A02YK0F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit	–0.3 to +7	–10 to +60	20 to 150	VO (TYP.) = 0.4 V (at L = 150 cm), ΔVO (TYP.) = 2.0 V (at L = 150 cm → 20 cm)		MAX. 50	–	–
☆GP2Y0A710K0F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit	–0.3 to +7	–10 to +60	100 to 550	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

GP2Y5D91S00F

GP2Y0D805Z0F (GP2Y0D810Z0F)

GP2Y0D340K (GP2Y0D310K)

GP2D15J0000F
GP2D12J0000F, GP2D120XJ00F, GP2D150AJ00F, GP2Y0A21YK0F, GP2Y0D21YK0F, GP2Y0A41SK0F GP2Y0D413K: without mounting hole

GP2Y0D02YK0F (GP2Y0A02YK0F)

GP2Y0A710K0F

■ Wide Angle Sensors

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings		Electro-optical characteristics				
		Vcc (V)	Topr (°C)	Distance measuring range (cm)	Output terminal voltage (V)	Output voltage difference (V)	Input voltage (V)	
							VINH	LEDL
GP2Y3A001K0F	Distance measuring sensor united with PSD*, infrared LED and signal processing circuit, distance measuring sensor application product, wide range (field of view) detection using 5 infrared beams	–0.3 to +7	–10 to +60	4 to 30	TYP. 2.8*1	TYP. 1.6*4	MIN. 4.5	MAX. 0.5
GP2Y3A002K0F		–0.3 to +7	–10 to +60	20 to 150	TYP. 2.3*2	TYP. 1.6*5	MIN. 4.5	MAX. 0.5
GP2Y3A003K0F		–0.3 to +7	–10 to +60	40 to 300	TYP. 2.2*3	TYP. 1.2*6	MIN. 4.5	MAX. 0.5

* PSD: Position Sensitive Detector
Reflector used: White paper (Gray chart R-27/white surface, made by Kodak Corp., reflectance 90%)

L = Reflector - Sensor distance

*1 L = 4 cm
*2 L = 20 cm
*3 L = 40 cm
*4 Change in output voltage from L = 4 cm to 10 cm
*5 Change in output voltage from L = 20 cm to 80 cm
*6 Change in output voltage from L = 40 cm to 100 cm

GP2Y3A001K0F

GP2Y3A002K0F

GP2Y3A003K0F

■ 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)
GP2D03J0000F GP2D032J0000F*4	8-bit serial output using optical distance measuring method (2-beam)	0 to +60	5 ±0.5	TYP. 60	TYP. 21	MAX. ±6	0.7 or less*1	TYP. 30
GP2D06J0000F GP2D061J000F*2 GP2D062J000F*2	8-bit serial output using optical distance measuring method (1-beam)	0 to +60	5 ±0.5	TYP. 60	–	MAX. ±6	0.7 or less*1	TYP. 33
GP2Y2E101K0F	Thin type (T: 11 mm), 8-bit serial output using optical distance measuring method (1-beam)	0 to +60	5 ±0.5	TYP. 85	–	MAX. ±6	0.7 or less*1	–
GP2Y2D160K0F	Thin type (T: 11.5 mm), using optical distance measuring method (1-beam), digital output (1-bit)	–10 to +60	5 ±0.5	TYP. 60	–	MIN. ±7.5	0.7 or less*1	–
GP2D07J0000F GP2D071J000F*3	8-bit serial output using optical distance measuring method (3-beam)	0 to +60	5 ±0.5	TYP. 60	TYP. 36	MAX. ±6	0.7 or less*1	TYP. 33
GP2Y2E301K0F	Thin type (T: 11 mm), 8-bit serial output using optical distance measuring method (3-beam)	0 to +60	5 ±0.5	TYP. 85	TYP. 33	MAX. ±6	0.7 or less*1	–
GP2Y2A180K0F	Thin type (T: 11.5 mm), analog output using optical distance measuring method (1-beam)	–10 to +60	5 ±0.5	TYP. 80	–	–	–	MAX. 25
GP2Y2A280K0F	Thin type (T: 11.5 mm), analog output using optical distance measuring method (2-beam)	–10 to +60	5 ±0.5	TYP. 80	–	–	–	MAX. 50

※ This table shows the characteristics when configured in the paper size sensor system.
*1 Reflectivity: 18% or more, OD = log (1/T), T: Reflectivity
*2 Paper detection height GP2D061: TYP. 45 mm GP2D062: TYP. 90 mm
*3 Paper detection height GP2D071: TYP. 45 mm
*4 Paper detection height GP2D032: TYP. 45 mm

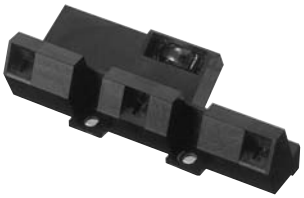
GP2D03J0000F
(GP2D032J000F)

GP2D06J0000F
(GP2D061J000F/GP2D062J000F)

GP2Y2E101K0F

GP2Y2D160K0F

GP2Y2A180K0F



GP2D07J0000F
(GP2D071J000F)

GP2Y2E301K0F

GP2Y2A280K0F

■ High-Precision Displacement Sensor

(Ta = 25°C)

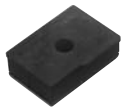
Model No.	Features	Topr (°C)	Operating supply voltage (V)	Dissipation current (mA)	Distance measuring range (mm)	Distance characteristic of output
GP2Y0AH01K0F	Resolution: 50 µm	–10 to +60	4.5 to 5.5	TYP. 20	4.5 to 6.0	TYP. 1.73 V Variation in output over range (4.5 to 6.0 mm)

GP2Y0AH01K0F

■ Dust Sensor Units

(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 V_{OH} (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

■ Color Toner Concentration (Deposition Amount) Sensors

(Ta = 25°C)

Model No.	Features	Topr (°C)	Electro-optical characteristics		
			Dissipation current (mA)	Output voltage V_{O1} (V)	Output voltage V_{O2} (V)
GP2TC1J0000F	Employs diffuse reflection system, high-precision detection of toner concentration on photo-sensitive drum, 2-line analog output	0 to +60	TYP. 4*1	TYP. 1.06*2	TYP. 2.63*2
GP2Y40010K0F	Employs diffuse reflection system + mirror reflection system, high-precision detection of toner concentration on transfer belt, 2-line analog output	0 to +60	MAX. 10	MAX. 1.61	MAX. 3.5

*1 Dissipation current with LED drive current of I_F = 0 mA
*2 With reflection object A (Reflectance: 15.6%)

GP2TC1J0000F

GP2Y40010K0F

■ Fiber Optics Lineup for Audio Equipment

Connector type	Type	Features			Model No.		
					Supply voltage 2.5 V	Supply voltage 3.0 V	Supply voltage 5.0 V
Square connector	Fiber optic transmitter	Compact (without mounting hole)	High speed signal transmission (13.2 Mb/s MAX., 15.5 Mb/s MAX.*, 50 Mb/s MAX.**), With shutter		–	GP1FMV31TK0F*	GP1FMV51TK0F GP1FM55HTZ0F**
(EIAJ RC-5720B)		with mounting hole	High speed signal transmission (13.2 Mb/s MAX. [15.5 Mb/s MAX.*, 50 Mb/s MAX.**])		–	GP1FAV30TK0F*	–
						TTL drive compatible	GP1FAV50TK0F
				With shutter	–	GP1FAV31TK0F*	–
						Vertical mounting type GP1FSV31TK0F*	–
						TTL drive compatible	GP1FAV51TK0F
						–	Vertical mounting type GP1FSV51TK0F
						High speed signal transmission	GP1FAV55TK0F**
	Fiber optic receiver	Compact (without mounting hole)	High speed signal transmission (13.2 Mb/s MAX., 15.5 Mb/s MAX.*), With shutter		–	GP1FMV31RK0F*	GP1FMV51RK0F
		with mounting hole	High speed signal transmission (13.2 Mb/s MAX. [15.5 Mb/s MAX.*, 25 Mb/s MAX.**])		–	GP1FAV30RK0F*	GP1FAV50RK0F
				With shutter	–	GP1FAV31RK0F*	GP1FAV51RK0F
							GP1FA51HRZ0F**
ø3.5 mm Optical mini-jack	Fiber optic transmitter	Thin type (t: 4.2 mm)			GP1FD210TP0F	GP1FD310TP0F/ GP1FD320TP0F	–
(JIS C6560 & EIAJ RC5720B)	Fiber optic receiver	Thin type (t: 4.2 mm)	Low operating voltage		GP1FD210RP0F	–	–

■ Transmission/Reception Devices for MOST*1 Compatible Optical Fiber

Connector type	Type	Features	Transmission speed	Operating voltage	Model No.
MOST ver1.1 standard compatible	Optical transmission device	Wide operating temperature range (–40°C to +105°C)	25Mb/s as optic fiber link (Biphase)	5 V	GP5FM5T01AZ
				3.3 V	GP5FM3T01AZ/ GP5FM3T01BZ (Long-lead type)
	Optical reception device	Wide operating temperature range (–40°C to +105°C)	25Mb/s as optic fiber link (Biphase)	5 V	GP5FM5R01AZ
				3.3 V	GP5FM3R01AZ/ GP5FM3R01BZ (Long-lead type)

*1 “MOST” is a registered trademark of MOST Cooperation.

■ Fiber Optic Transmitters (Square Connector)

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings			Electro-optical characteristics					
		Vcc (V)	Vin (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	Compact (without mounting hole), with shutter, high response speed	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 5.25	180	180	12	±15	15.5
GP1FMV51TK0F	Compact (without mounting hole), with shutter, high response speed	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FM55HTZ0F	Compact (without mounting hole), with shutter, high response speed	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	50
GP1FAV30TK0F	With mounting hole, low voltage drive, high response speed	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 5.25	180	180	12	±15	15.5
GP1FAV50TK0F	With mounting hole, mass-market model, high response speed (up to x2), TTL drive compatible	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25 Input voltage: MIN. 2.0 V	180	180	13	±15	13.2
GP1FAV51TK0F	With mounting hole, mass-market model, high response speed, with shutter, TTL drive compatible	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FSV51TK0F	Vertical mounting, with shutter, low voltage drive, high response speed	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FAV31TK0F	With mounting hole, with shutter, low voltage drive, high response speed	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 5.25	180	180	12	±15	15.5
GP1FSV31TK0F	Vertical mounting, with shutter, low voltage drive, high response speed	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 5.25	180	180	13	±15	15.5
GP1FAV55TK0F	With mounting hole, high response speed (50 Mb/s), with shutter	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	50
GP1FP513TK0F▲	Electric jack/optical connector integrated type	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2

■ Fiber Optic Transmitters (ø3.5 mm Optical Mini-jack)

(Ta = 25°C)

Model No.	Features	Absolute maximum ratings			Electro-optical characteristics					
		Vcc (V)	Vin (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.
GP1FD210TP0F	Compact, Thin type (t: 4.2 mm), Optical mini-jack (low voltage type)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.2 to 3.0	180	180	10	±30	8
GP1FD310TP0F	Compact, Thin type (t: 4.2 mm), Optical mini-jack (low voltage type)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 3.6	180	180	12	±30	8
GP1FD320TP0F	Compact, Thin type (t: 4.2 mm), Optical mini-jack (low voltage type)	–	–	–20 to +70	2.3 to 5.5	–	–	12	–	25

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

■ Fiber Optic Receivers (Square Connector)

(Ta = 25°C)

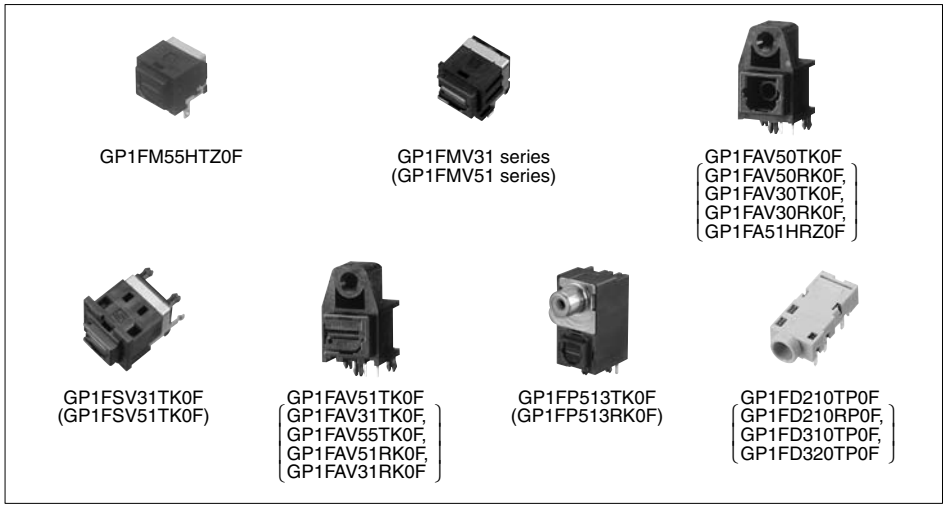
Model No.	Features	Absolute maximum ratings			Electro-optical characteristics					
		Vcc (V)	I_{OL} (mA)	Topr (°C)	Supply voltage (V)	Propagation delay time t_{PLH} (ns) MAX.	Propagation delay time t_{PHL} (ns) MAX.	Dissipation current Icc (mA) MAX.	Pulse width distortion Δtw (ns)	Transmission speed T (Mb/s) MAX.
GP1FMV31RK0F	Compact (without mounting hole), With shutter, High response speed (up to x2)	–0.5 to +7	10	–20 to +70	2.7 to 3.6	180	180	15	±20	15.5
GP1FMV51RK0F	Compact (without mounting hole), With shutter, High response speed (up to x2)	–0.5 to +7	10	–20 to +70	4.75 to 5.25	180	180	25	±20	13.2
GP1FAV30RK0F	With mounting hole, Low voltage drive, High response speed	–0.5 to +7	10	–20 to +70	2.7 to 3.6	180	180	15	±20	15.5
GP1FAV50RK0F	With mounting hole, Mass-market model, High response speed (up to x2)	–0.5 to +7	10	–20 to +70	4.75 to 5.25	180	180	25	±20	13.2
GP1FAV51RK0F	High response speed (up to x2), with shutter	–0.5 to +7	10	–20 to +70	4.75 to 5.25	180	180	25	±20	13.2
GP1FAV31RK0F	With mounting hole, With shutter, Low voltage drive, High response speed (up to x2)	–	–	–20 to +70	2.7 to 3.6	–	–	15	–	15.5
GP1FA51HRZ0F	With mounting hole, High response speed (up to x4), with shutter	–	–	–20 to +70	4.75 to 5.25	–	–	15	–	25
GP1FP513RK0F▲	Electric jack/optical connector integrated type	–0.5 to +7	10	–20 to +70	4.75 to 5.25	180	180	25	±20	13.2

■ Fiber Optic Receiver (ø3.5 mm Optical Mini-jack)

(Ta = 25°C)

Model No.	Jack	Features	Absolute maximum ratings			Electro-optical characteristics					
			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.
GP1FD210RP0F	ø3.5	Thin (thickness: 4.2 mm), optical mini-jack (low voltage drive)	–0.5 to +7	4	–20 to +70	2.4 to 3.0	180	180	7.5	±30	8

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

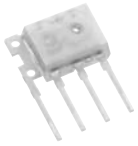


★Under development

■ Optical Transmission Device

Model No.	Features	Operating temperature (°C)	Optic output (dBm)	Dissipation current		Operating voltage (V)	Transmission speed T (Mb/s)
				Operating (mA)	Standby (μA)		
GP5FM5T01AZ	• MOST standard compatible • Wide operating temperature range	–40 to +105	–9 to –1.5	MAX. 20	MAX. 2.5	4.75 to 5.25	25 (Biphase)
★GP5FM3T01AZ	• MOST standard compatible • Wide operating temperature range	–40 to +105	–7.5 to –2	MAX. 20	MAX. 2.5	3.3±5%	25 (Biphase)
★GP5FM3T01BZ	• MOST standard compatible • Wide operating temperature range • Long-lead type	–40 to +105	–7.5 to –2	MAX. 20	MAX. 2.5	3.3±5%	25 (Biphase)

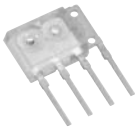
GP5FM5T01AZ



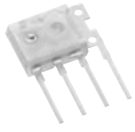
GP5FM3T01AZ
(GP5FM3T01BZ: Long-lead type)

■ Optical Reception Device

Model No.	Features	Operating temperature (°C)	Optic output (dBm)	Dissipation current		Operating voltage (V)	Transmission speed T (Mb/s)
				Operating (mA)	Standby (μA)		
GP5FM5R01AZ	• MOST standard compatible • Wide operating temperature range	–40 to +105	–24 to –2	MAX. 20	MAX. 5	4.75 to 5.25	25 (Biphase)
★GP5FM3R01AZ	• MOST standard compatible • Wide operating temperature range	–40 to +105	–25.5 to –2	MAX. 20	MAX. 5	3.3±5%	25 (Biphase)
★GP5FM3R01BZ	• MOST standard compatible • Wide operating temperature range • Long-lead type	–40 to +105	–25.5 to –2	MAX. 20	MAX. 5	3.3±5%	25 (Biphase)



GP5FM5R01AZ



GP5FM3R01AZ
(GP5FM3R01BZ: Long-lead type)

RoHS Pb FREE

■ Infrared Data Communication Device Lineup

Communication system	Transmission speed	Transmission distance	Features		Operating supply voltage	Model No.
IrDA data	FIR 4 Mb/s	100 cm	Compact, thin (height: 2.5 mm), low voltage operation type, LP/HP mode switching function		2.4 to 3.6 V	GP2W1004YP0F
(IrDA 1.x)			Compact		2.7 to 5.5 V	GP2W1001YP0F
		70 cm	LP/HP mode switching function		2.4 to 3.6 V	GP2W1010YP0F
		50/20 cm	LP/HP mode switching and remote control transmission functions		2.4 to 3.6 V	GP2W3120YP0F
		50/20 cm	LP/HP mode switching function		2.7 to 3.6 V	GP2W1320YP0F
		70/20 cm	LP/MP/HP mode switching and remote control transmission functions		2.6 to 3.3 V	GP2W3104YP0F
	MIR 1.152 Mb/s	100 cm	Compact, low dissipation current		2.4 to 3.6 V	GP2W1002YP0F
		70 cm			2.4 to 3.6 V	GP2W1302YP0F
		50 cm			2.4 to 3.6 V	GP2W1304YP
	SIR 115.2 kb/s	100 cm	Compact, low dissipation current		2.4 to 5.5 V	GP2W0004YP0F/ GP2W0004XP0F
		80 cm	Remote control transmission function, compact, low dissipation current		2.4 to 5.5 V	GP2W3020YP
	SIR LP 115.2 kb/s	20 cm	Built-in LED constant current circuit, 3-state output		2.0 to 3.6 V	GP2W0110VX/ GP2W0110VY
				(Height: 1.5 mm)	2.4 to 3.6 V	GP2W0150YP0F
				(Height: 2.1 mm) Top view type	2.4 to 3.6 V	GP2W0150XP0F
			Remote control transmission function (built-in drive circuit)	λp: 890 nm	2.4 to 3.6 V	GP2W3250YP
				(Height: 1.5 mm)	2.4 to 3.6 V	GP2W3270YP0F
				Top view type	2.4 to 3.6 V	GP2W3270XP0F

■ Infrared Wireless Audio Transmission Device Lineup

Communication system	Features	Operating supply voltage	Model No.
Infrared system (1-bit audio transmission)	For designing compact, low-power-consumption audio transmission systems	2.4 to 3.6 V	GP2WVR01YP0F/ GP2WVC01MP0F (Transmission LSI)

☆New product

RoHS Pb FREE

■ Infrared Data Communication Devices

◆FIR Compliant Devices

Model No.	Communication system	Transmission rate	Description	Transmission distance (cm)	Supply voltage (V DC)	Outline dimensions (mm)
GP2W3120YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	With remote control transmission function, LP/HP mode switching function	50/20*1	2.4 to 3.6	7.16 × 2.73 × 1.82
GP2W1010YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	LP/HP mode switching function	70	2.4 to 3.6	7.9 × 2.85 × 2.15
☆GP2W1004YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	LP/HP mode switching function	100	2.4 to 3.6	7.9 × 2.85 × 2.5
GP2W1001YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	–	100	2.7 to 5.5	10.01 × 4.4 × 3.5
GP2W1320YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	Compact, thin, low dissipation current during shutdown (Icc: TYP. 0.45 mA)	50/20*1	2.7 to 3.6	7.16 × 2.73 × 1.82
GP2W3104YP0F	Bi-directional (half-duplex) communication	9.6 k to 4 Mb/s	Compact, thin, with remote control transmission function, LP/MP/HP mode switching function	70/20*2	2.6 to 3.3	7.9 × 2.85 × 2.5

*1 MIN. 20 cm at 150 mA MIN. 50 cm at 250 mA
*2 MIN. 21 cm at 150 mA MIN. 70 cm at 450 mA


GP2W3120YP0F


GP2W1010YP0F


GP2W1004YP0F
(GP2W3104YP0F)


GP2W1001YP0F


GP2W1320YP0F

◆MIR Compliant Devices

Model No.	Communication system	Transmission rate	Description	Transmission distance (cm)	Supply voltage (V DC)	Outline dimensions (mm)
GP2W1002YP0F	Bi-directional (half-duplex) communication	9.6 k to 1.152 Mb/s		100	2.4 to 3.6	8.0 × 3.0 × 2.5
GP2W1302YP0F	Bi-directional (half-duplex) communication	9.6 k to 1.152 Mb/s	Compact, compatible with 2.15 mm height for mobile phone	70	2.4 to 3.6	7.9 × 2.85 × 2.15
GP2W1304YP	Bi-directional (half-duplex) communication	9.6 k to 1.152 Mb/s	Compact, compatible with 1.82 mm height for mobile phone	50	2.4 to 3.6	7.16 × 2.73 × 1.82


GP2W1304YP


GP2W1302YP0F


GP2W1002YP0F

◆SIR Compliant Front-Ends

Model No.	Communication system	Transmission rate	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.)	100	2.4 to 5.5	9.2 × 3.35 × 2.95
GP2W3020YP	Bi-directional (half-duplex) communication	9.6 k to 115.2 kb/s	With remote control transmission function (Transmission distance TYP. 7 m, I_F = 350 mA) Low dissipation current during shutdown (Icc: 130 μA MAX.)	80	2.4 to 5.5	7.9 × 2.85 × 2.15


GP2W0004YP0F


GP2W0004XP0F


GP2W3020YP

Notice
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*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.

◆SIR LP Compliant Front-Ends

Model No.	Communication system	Transmission rate	Description	Transmission distance (cm)	Supply voltage (V DC)	Outline dimensions (mm)
GP2W0110VX/VY	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Top-view and side view compatible (Model name is prescribed based on the packaging status.), lead-free type available	20	2.0 to 3.6	6.8 × 2.35 × 2.1
GP2W0150YP0F	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Compact, thin, low dissipation current (Icc: 100 µA MAX.)	20	2.4 to 3.6	7.6 × 2.4 × 1.5
GP2W0150XP0F	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Compact, thin, low dissipation current (Icc: 100 µA MAX.) Top view type	20	2.4 to 3.6	8.3 × 2.1 × 1.7
GP2W3250YP	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Remote control transmission function, shared IR communication section (λp = 890 nm)	20	2.4 to 3.6	7.2 × 2.55 × 1.85
GP2W3270YP0F	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Remote control transmission function, shared IR communication section (λp = 890 nm)	20	2.4 to 3.6	7.6 × 2.4 × 1.5
GP2W3270XP0F	Bi-directional (half-duplex) communication	2.4 k to 115.2 kb/s	Remote control transmission function, shared IR communication section (λp = 890 nm) Top view type	20	2.4 to 3.6	8.3 × 2.1 × 1.7

GP2W0110VX
(GP2W0110VY)

GP2W0150YP0F
(GP2W3270YP0F)

GP2W0150XP0F
(GP2W3270XP0F)

GP2W3250YP

■ Infrared Wireless Audio Transmission Device

Model No.	Communication system	Features	S/N ratio	Supply voltage (V DC)	Outline dimensions (mm)
GP2WVR01YP0F (Reception Device)	1-bit audio transmission (1.5 MHz)	Compact, low power consumption type Simple circuit configuration: Used in combination with transmission LSI (GP2WVC01MP0F) and transmission device (GP2W1004YP0F, etc.)	70 dB	2.4 to 3.6	2.5 × 8 × 3

GP2WVR01YP0F

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.

■ IR Detecting Unit for Remote Control Lineup

Type	Package		Features	Model No.		
	Form	Detection position*5 (from PCB)		Operating voltage: 3 V	Operating voltage: 5 V	Operating voltage: 3 to 5 V
IR detecting unit for remote control	Lead L bend with holder	16.0 mm*1	Compact size	GP1UE28XK0VF series	GP1UM28XK0VF series	GP1UE28xXKC1 series
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	GP1UE28RK0VF series	GP1UM28RK0VF series	GP1UE28xRKC1 series
			Low dissipation current			GP1UD28XK00F series
		12.0 mm*2	Compact size	GP1UE27XK0VF series	GP1UM27XK0VF series	GP1UE27xXKC1 series
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	GP1UE27RK0VF series	GP1UM27RK0VF series	GP1UE27xRKC1 series
			Low dissipation current			GP1UD27XK00F series
		6.8 mm*3	Compact size	GP1UE26XK0VF series	GP1UM26XK0VF series	GP1UE26xXKC1 series
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	GP1UE26RK0VF series	GP1UM26RK0VF series	GP1UE26xRKC1 series
			Low dissipation current			GP1UD26XK00F series
	Lead straight with holder	19.0 mm	Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	GP1UE29QK0VF series	GP1UM29QK0VF series	GP1UE29xQKC1 series
		9.6 mm	Compact size	GP1UE28YK0VF series	GP1UM28YK0VF series	GP1UE28xYKC1 series
			Compact size, Strengthened resistance to electromagnetic induction noise (Mesh type)	GP1UE28QK0VF series	GP1UM28QK0VF series	GP1UE28xQKC1 series
			Low dissipation current			GP1UD28YK00F series
	Compact, thin type SMD (4.1 × 3.84 × 0.95 t mm)					GP1US30XP series
	Compact type SMD (6.8 × 2.1 × 2.35 t mm)					GP1UF31 series
	Holderless	Lead straight 6.0 mm		GP1UX31QS series	GP1UX51QS series	GP1UXC1xQS series
		Lead L bend*4 5.3 mm		GP1UX31RK series	GP1UX51RK series	GP1UXC1xRK 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

☆New product

■ IR Detecting Units for Remote Control (1)

(Ta = 25°C)

Series No.	Absolute maximum ratings		Electrical characteristics				Size (mm)	Remarks
	Vcc (V)	Topr (°C)	Icc (mA) *1 MAX.	VOH (V) MIN.	VOL (V) MAX.	fo (kHz) TYP.		
☆GP1UE26xXKC1*8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*9	0.45*9	40*16	5.6 × 9.6 × 6.8	*5, CMOS type
☆GP1UE27xXKC1*8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*9	0.45*9	40*16	5.6 × 9.6 × 12.0	*5, CMOS type
☆GP1UE28xXKC1*8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*9	0.45*9	40*16	5.6 × 9.6 × 16.0	*5, CMOS type
☆GP1UE28xYKC1*8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*9	0.45*9	40*16	5.6 × 8.6 × 12.5(9.6)*2	*5, CMOS type
☆GP1UE26xRKC1*4, 8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.6 × 7.2	*5, CMOS type
☆GP1UE27xRKC1*4, 8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.6 × 12.4	*5, CMOS type
☆GP1UE28xRKC1*4, 8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.6 × 16.4	*5, CMOS type
☆GP1UE28xQKC1*4, 8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.0 × 12.5(9.6)*2	*5, CMOS type
☆GP1UE29xQKC1*4, 8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*14	0.45*14	40*16	5.6 × 16.2 × 21.9(19)*2	*5, CMOS type
GP1UM26XK0VF*12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*10	0.45*10	40*3	5.6 × 9.6 × 6.8	*5
GP1UM27XK0VF*12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*10	0.45*10	40*3	5.6 × 9.6 × 12.0	*5
GP1UM28XK0VF*12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*10	0.45*10	40*3	5.6 × 9.6 × 16.0	*5
GP1UM28YK0VF*12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*10	0.45*10	40*3	5.6 × 8.6 × 12.5(9.6)*2	*5
GP1UM26RK0VF*4, 12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*11	0.45*11	40*3	5.6 × 9.6 × 7.2	*5
GP1UM27RK0VF*4, 12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*11	0.45*11	40*3	5.6 × 9.6 × 12.4	*5
GP1UM28RK0VF*4, 12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*11	0.45*11	40*3	5.6 × 9.6 × 16.4	*5
GP1UM28QK0VF*4, 12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*11	0.45*11	40*3	5.6 × 9.0 × 12.5(9.6)*2	*5
GP1UM29QK0VF*4, 12	0 to 6.0	−10 to +70	0.6 (0.65)*18	Vcc−0.5*11	0.45*11	40*3	5.6 × 16.2 × 21.9(19)*2	*5
GP1UE26XK0VF*8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*9	0.45*9	40*16	5.6 × 9.6 × 6.8	*5
GP1UE27XK0VF*8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*9	0.45*9	40*16	5.6 × 9.6 × 12.0	*5
GP1UE28XK0VF*8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*9	0.45*9	40*16	5.6 × 9.6 × 16.0	*5
GP1UE28YK0VF*8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*9	0.45*9	40*16	5.6 × 8.6 × 12.5(9.6)*2	*5
GP1UE26RK0VF*4, 8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.6 × 7.2	*5
GP1UE27RK0VF*4, 8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.6 × 12.4	*5
GP1UE28RK0VF*4, 8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.6 × 16.4	*5
GP1UE28QK0VF*4, 8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*14	0.45*14	40*16	5.6 × 9.0 × 12.5(9.6)*2	*5
GP1UE29QK0VF*4, 8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*14	0.45*14	40*16	5.6 × 16.2 × 21.9(19)*2	*5
GP1UD26XK00F*8	0 to 6.0	−10 to +70	0.2 (Vcc = 3 V)	Vcc−0.5*9	0.5*9	40*3	7.3 × 13.1 × 6.8	*5
GP1UD27XK00F*8	0 to 6.0	−10 to +70	0.2 (Vcc = 3 V)	Vcc−0.5*9	0.5*9	40*3	7.3 × 13.1 × 12.0	*5
GP1UD28XK00F*8	0 to 6.0	−10 to +70	0.2 (Vcc = 3 V)	Vcc−0.5*9	0.5*9	40*3	7.3 × 13.1 × 16.0	*5
GP1UD28YK00F*8	0 to 6.0	−10 to +70	0.2 (Vcc = 3 V)	Vcc−0.5*9	0.5*9	40*3	7.3 × 8.4 × 13.0(9.6)*2	*5
☆GP1UXC1xQS*8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*14	0.45*14	40*16	5.5 × 5.3 × 7.5	*5, CMOS type, Pin configuration (Pin No. 2: GND)
☆GP1UXC1xRK*8	0 to 6.0	−10 to +70	0.5	Vcc−0.5*14	0.45*14	40*16	5.5 × 5.3 × 7.5	*5, CMOS type, Pin configuration (Pin No. 2: GND), Folded lead
GP1UX51QS*13	0 to 6.0	−10 to +70	0.6	Vcc−0.5*11	0.45*11	40*15	5.5 × 5.3 × 7.5	*5, Pin configuration (Pin No. 2: GND)
GP1UX51RK*13	0 to 6.0	−10 to +70	0.6	Vcc−0.5*11	0.45*11	40*15	5.5 × 5.3 × 7.5	*5, Pin configuration (Pin No. 2: GND), Folded lead
GP1UX31QS*8	0 to 6.0	−10 to +70	0.4	Vcc−0.5*14	0.45*14	40*7	5.5 × 5.3 × 7.5	*5, Pin configuration (Pin No. 2: GND)

* For footnotes, see the next page.

☆New product

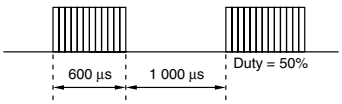
■ IR Detecting Units for Remote Control (2)

(Ta = 25°C)

Series No.	Absolute maximum ratings		Electrical characteristics				Size (mm)	Remarks
	Vcc (V)	Topr (°C)	Icc (mA) *1 MAX.	VOH (V) MIN.	VOL (V) MAX.	fo (kHz) TYP.		
GP1UX31RK*8	0 to 6.0	–10 to +70	0.4	Vcc–0.5*14	0.45*14	40*7	5.5 × 5.3 × 7.5	*5, Pin configuration (Pin No. 2: GND), Folded lead
GP1US30XP*6, 17	0 to 6.0	–30 to +85	0.6	Vcc–0.5*19	0.45*19	40*7	4.1 × 3.95 × 0.95	*5, Surface mount compatible
☆GP1UF31xXP0F*8	0 to 6.0	–30 to +85	0.4	Vcc–0.5*19	0.45*19	40*7	6.8 × 2.1 × 2.35	*5, Surface mount compatible
☆GP1UF31xYP0F*8	0 to 6.0	–30 to +85	0.4	Vcc–0.5*19	0.45*19	40*7	6.8 × 2.1 × 2.35	*5, Surface mount compatible

*1 When no signal is input (during input light).
*2 Figures in parentheses indicate the distance to the light detection center.
*3 In addition to the fo = 40kHz type, types fo = 36, 38, 36.7, 56.8, and 32.75 kHz are also available.
*4 Type with strengthened resistance to electromagnetic induction noise.
*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.
*6 Allows reflow soldering.
*7 In addition to the fo = 40 kHz type, types fo = 36, 38, and 36.7 kHz are also available.
*8 Operating voltage: 2.7 to 5.5 V
*9 Distance to transmitter on optical axis is 0.2 to 10.0 m. Ev < 10 lx when burst wave is input as shown in the right figure.
*10 Distance to transmitter on optical axis is 0.2 to 10.5 m. Ev < 10 lx when burst wave is input as shown in the right figure. (fo = 56.8 kHz: 0.2 to 9.0 m)
*11 Distance to transmitter on optical axis is 0.2 to 8.5 m. Ev < 10 lx when burst wave is input as shown in the right figure. (fo = 56.8 kHz: 0.2 to 7.0 m, fo = 32.75 kHz: 0.2 to 6.5 m)
*12 GP1UM series operating voltage: 4.5 to 5.5 V
*13 Operating voltage: 4.5 to 5.5 V
*14 Distance to transmitter on optical axis is 0.2 to 8.0 m. Ev < 10 lx when burst wave is input as shown in the right figure.
*15 Distance to transmitter on optical axis is 0.2 to 6.5 m. Ev < 10 lx when burst wave is input as shown in the right figure.
*16 In addition to the fo = 40 kHz type, types fo = 32.75, 36, 36.7, and 38 kHz are also available.
*17 Operating voltage: 2.4 to 5.5 V
*18 fo = 56.8 kHz
*19 Distance to transmitter on optical axis is 0.2 to 5.0 m. Ev < 10 lx when burst wave is input as shown in the right figure.

<Burst wave>



GP1UD series, GP1UM series, GP1UE series have different fo values for each model.


GP1UD26XK00F


GP1UD27XK00F


GP1UD28XK00F


GP1UD28YK00F


GP1UM26XK0VF
(GP1UE26XK0VF, GP1UE26xXKC1)


GP1UM27XK0VF
(GP1UE27XK0VF, GP1UE27xXKC1)


GP1UM28XK0VF
(GP1UE28XK0VF, GP1UE28xXKC1)


GP1UM28YK0VF
(GP1UE28YK0VF, GP1UE28xYKC1)


GP1UM26RK0VF
(GP1UE26RK0VF, GP1UE26xRKC1)


GP1UM27RK0VF
(GP1UE27RK0VF, GP1UE27xRKC1)


GP1UM28RK0VF
(GP1UE28RK0VF, GP1UE28xRKC1)


GP1UM28QK0VF
(GP1UE28QK0VF, GP1UE28xQKC1)


GP1UM29QK0VF
(GP1UE29QK0VF, GP1UE29xQKC1)


GP1UX51QS
(GP1UX31QS, GP1UXC1xQS)


GP1US30XP


GP1UF31xXP0F
(GP1UF31xYP0F: Same shape, packaged as a side-view-type at the time of taping)