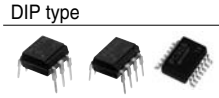
■ Photocoupler Lineup

<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	57
			Low input current	PC367NJ0000F	57
		AC input response		PC354NJ0000F	57
	Darlington phototransistor	High sensitivity,	Low input current	PC364NJ0000F	57
		High collector-emitter voltage		PC355NJ0000F/PC452J00000F	57
			Low input current	PC365NJ0000F	57
Compact, Half pitch (lead space), SMT type	Single phototransistor	General purpose, High collector-emitter voltage, etc.		PC3Hx series	58
			Low input current	PC3H71xNIP0F	58
		High collector-emitter voltage		PC4H510NIP0F	58
		AC input response		PC3H3J00000F/PC3H4J00000F	58
			Low input current	PC3H41xNIP0F	58
		4-channel output		PC3Q62/PC3Q67QJ000F	58
			Low input current	PC3Q71xNIP0F	58
		AC input response		PC3Q63J0000F/PC3Q64QJ000F	58
			Low input current	PC3Q41xNIP0F	58
	Darlington phototransistor	General purpose		PC3H5J00000F	58
			Low input current	PC3H510NIP0F	58
		High collector-emitter voltage		PC4H520NIP0F	58
		4-channel output		PC3Q65J0000F	58
			Low input current	PC3Q510NIP0F	58
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	59
			Low input current	PC1231xNSZ0F	59
		General purpose, High collector-emitter voltage, etc.		PC817XJ0000F/PC847XJ0000F/ PC851XJ0000F	59
			Low input current	PC817xxNSZ0F	59
		AC input response		PC814XJ0000F/PC844XJ0000F	59
			Low input current	PC8141xNSZ0F	59
		Built-in SBD/High response speed		PC81100NSZ0F	59
	Darlington phototransistor	General purpose, High collector-emitter voltage		PC815XJ0000F/PC845XJ0000F/ PC852XJ0000F/PC853XJ0000F	59
			Low input current	PC81510NSZ0F	59
DIP type (6-pin)	Single phototransistor	General purpose, High collector-emitter voltage, etc.		PC7xxV0NSZXF	60
		AC input response		PC733J00000F/PC733HJ0000F	60
	Darlington phototransistor	General purpose, High collector-emitter voltage, etc.		PC7x5V0NSZXF	60
Case type	Single phototransistor	Isolation thickness: 9.5mm or more Creepage distance: 11.5mm or more		PC512J00000F	60

(Approved by safety standards other than UL)

<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/ PC4D1ASNIP0F	61
	Analog/Digital output	High CMR	PC457S0NIP0F/PC457L0NIP0F	62
DIP type	Digital output	General purpose, High response speed, etc.	PC9xxV0NSZXF/PC956L0NSZ0F/ PC910L0NSZ0F/PC911L0NSZ0F/ PC912L0NSZ0F	62
	Built-in base amplifier	For inverter control/For inverter control, Built-in short-circuit protection circuit	PC928J00000F/PC929J00000F/ PC942J00000F/PC92xL0NSZ0F series	63
	Analog/Digital output	High speed, High CMR, etc.	PC957L0NSZ0F	64

■ Photocouplers

◆Phototransistor Output <Compact, SMT type>

○: Approved, △: Under application

(Ta = 25°C)

Output Type	Model No.	Internal connection diagram	Features	Approved by safety standards*2 UL	Package	Absolute maximum ratings: Forward current IF (mA)	Absolute maximum ratings: Isolation voltage (AC) Viso (rms) (kV)	Absolute maximum ratings: Collector-emitter voltage VCEO (V)	Electro-optical characteristics: Current transfer ratio CTR (%) MIN.	Current transfer ratio: IF (mA)	Current transfer ratio: VCE (V)	Response time: tr (μs) TYP.	Response time: IC (mA)	Response time: RL (Ω)	Response time: VCE (V)
Single phototransistor output	PC357NJ0000F		General purpose	○*	Mini-flat 4-pin	50	3.75	80	50	5	5	4	2	100	2
	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
	PC353TJ0000F		With base terminal	○	Mini-flat 5-pin	50	3.75	80	50	5	5	4	2	100	2
	PC367NJ0000F		Low input current, high CMR (MIN. 10kV/μs)	○	Mini-flat 4-pin	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, high resistance to noise*1, AC input response	○		±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
	PC452J00000F		High collector-emitter voltage	○*		50	3.75	350	1 000	1	2	100	20	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.

◆Phototransistor Output
<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						
									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	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
	PC3Q67QJ000F		4-ch type	○*2	Mini-flat 16-pin	50	2.5	80	50	5	5	4	2	100	2
	PC3Q62		High resistance to noise*1, 4-ch type	○		50	2.5	80	20	1	5	4	2	100	2
	PC3Q71xNIP0F		High resistance to noise*1, 4-ch type, low input current	○		10	2.5	80	100	0.5	5	4	2	100	2
	PC3Q63J0000F		AC input response, high resistance to noise* 1, 4-ch type	○		±50	2.5	80	20	±1	5	4	2	100	2
	PC3Q64QJ000F		AC input response, 4-ch type	○*2		±50	2.5	80	20	±1	5	4	2	100	2
	PC3Q41xNIP0F		AC input response, high resistance to noise*1, low input current, 4-ch type	○		±10	2.5	80	50	±0.5	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
	PC3Q65J0000F		4-ch type, high sensitivity	○*2	Mini-flat 16-pin	50	2.5	35	600	1	2	60	2	100	2
	PC3Q510NIP0F		4-ch type, high sensitivity, low input current	○		10	2.5	35	600	0.5	2	60	2	100	2

*1 CMR: MIN.10 kV/μs
*2 A VDE approved type is optionally available.
*3 Please refer to Specification Sheets for model numbers approved by safety standards.

◆Phototransistor Output
<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			
								Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage VCEO (V)	Current transfer ratio		Response time	
				UL	VDE	Others					CTR (%) MIN.	IF (mA)	tr (μs) TYP.	RL (Ω)
Single phototransistor output	PC123J00000F*1		High isolation voltage, long creepage distance	○	○*2	○*3	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	○	○*2	–	4-pin DIP	10	5.0	70	50	0.5	4	100
	PC817XJ0000F*5, *6, *7		High isolation voltage	○	○*2	–	4-pin DIP	50	5.0	80	50	5	4	100
	PC847XJ0000F*5, *9		High isolation voltage (4-ch)	○	○*2	–	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	○	○*2	–	4-pin DIP	±50	5.0	80	20	±1	4	100
	PC844XJ0000F		High isolation voltage, AC input response (4-ch)	○	○*2	–	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		5.0	35	600	1	60	100
	PC845XJ0000F		High isolation voltage, high sensitivity (4-ch)	○	–	–	16-pin DIP		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	○	○*2	–		50	5.0	350	1 000	1	100	100
	PC853XJ0000F*5, *6		High isolation voltage, high collector-emitter voltage	○	○*2	–		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.

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

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

Output Type	Model No.	Internal connection diagram	Features	Approved by safety standards*4		Package	Absolute maximum ratings			Electro-optical characteristics			
				UL	VDE		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage V_{CEO} (V)	Current transfer ratio CTR (%) MIN.	I_F (mA)	Response time tr (μs) TYP.	R_L (Ω)
Single phototransistor output	PC714V0NSZXF*4		High isolation voltage	○	○*3	6-pin DIP	50	5.0	80	50	5	4	100
	PC724V0NSZXF*4		High isolation voltage, large input current	○	–		150	5.0	35	20	100	4	100
	PC713V0NSZXF*4		High isolation voltage	○	○*3		50	5.0	80	50	5	4	100
	PC733J00000F		High isolation voltage, AC input response	○	–		±50	5.0	35	15	±1	4	100
	PC733HJ0000F*1, *2		High isolation voltage, large input current drive, AC input response	○	–		±150	5.0	35	20	±100	4	100
Darlington phototransistor output	PC715V0NSZXF*4		High isolation voltage, high sensitivity	○	○*3		50	5.0	35	600	1	60	100
	PC725V0NSZXF*4		High isolation voltage, high sensitivity, high collector-emitter voltage, high power	○	○*3		50	5.0	300	1 000	1	100	100

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

◆Phototransistor Output <Case 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			
				UL	VDE	Others		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Collector-emitter voltage V_{CEO} (V)	Current transfer ratio CTR (%) MIN.	I_F (mA)	Response time tr (μs) TYP.	R_L (Ω)
Single phototransistor output	PC512J00000F		High isolation voltage, long creepage distance	○	○	○*1	PWB mounting type 4-pin	50	5.0	35	10	20	3	100

*1 BSI, SEMKO, DEMKO, FIMKO, CSA
*2 Please refer to Specification Sheets for model numbers approved by safety standards.

☆New product

◆OPIC* Output <Compact, SMT type> (1-1)

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

○: 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		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 soldering flow	○	○*3		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 soldering flow	○	○*3		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 soldering flow, Solder heat resistance: 270°C	○	○*3	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 soldering flow, Solder heat resistance: 270°C	○	–	SOP 8-pin	–*4	3.75	1	–40 to +85	4	V_{IN} = V_{IL}	–	–	–
PC411L0NIP0F		High speed (15 Mb/s), High CMR (10 kV/μs), For soldering flow	○	○*3	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 soldering flow, Solder heat resistance: 270°C	○	○*3	SOP 8-pin	20	3.75	0.1	–40 to +85	0.02	12	6.0	–	–
☆PC4D10SNIP0F/ ☆PC4D1ASNIP0F		High speed (10 Mb/s), For soldering flow, Solder heat resistance: 270°C 2ch output	○		SOP 8-pin	20	3.75	0.6	–40 to +85	13	5	5/3	–	

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		Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	CTR (%) MIN.	IF (mA)	Vo (V)	VCC (V)	t_{PHL} (µs) TYP.	t_{PLH} (µs) TYP.	RL (Ω)	IF (mA)
PC457L0NIP0F		High speed (1 Mb/s), high CMR (15 kV/µs), For soldering flow	○	○*2	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 soldering flow, Solder heat resistance: 270°C	○	○*2	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.

◆OPIC Output
<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		Forward current IF (mA)	Isolation voltage (AC) Viso (rms) (kV)	V_{OL} (V) MAX.	Ta (°C)	I_{OL} (mA)	IF (mA)	I_{FHL} (mA) MAX.	I_{FLH} (mA) MAX.	RL (Ω)
PC900V0NSZXF*2, *3, *6		Digital output, normal-off operation	○	○*4	6-pin DIP	50	5.0	0.4	0 to +70	16	4	2.0	–	280
PC901V0NSZXF*6		Digital output, normal-on operation	○	○*4		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	○	○*4	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	○	○*4		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	○	○*4		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)	○	○*4		–*5	5.0	1.0	–40 to +85	4	V_{IN} = V_{IL}	–	–	–

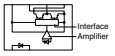
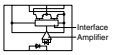
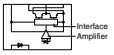
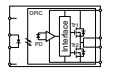
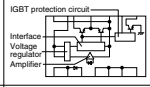
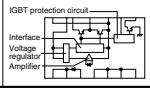
A: Rated voltage circuit
*1 Each item is measured at Vcc=5V.
*2 Lead forming type (I type) is also available for surface mounting.
*3 Taped package of lead forming type for surface mounting is also available.
*4 Optionally available.
*5 No forward current rating due to voltage input. (rated input voltage: –0.5 to 6.0 V)
*6 Please refer to Specification Sheets for model numbers approved by safety standards.

☆New product

◆OPIC Output
<DIP type, built-in base amplifier>

○: Approved, △: Under application

(Ta = 25°C)

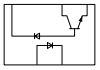
Model No.	Internal connection diagram	Features	Approved by safety standards*3		Package	Absolute maximum ratings			Electro-optical characteristics					
									Propagation delay time					
			UL	VDE		Forward current I_F (mA)	Isolation voltage (AC) Viso (rms) (kV)	Output current I_{O1} (A)	t_{PHL} (µs) TYP.	t_{PLH} (µs) TYP.	V_{CC} (V)	I_F (mA)	R_{L1} (Ω)	R_{L2} (Ω)
PC942J00000F		For controlling inverter-controlled air-conditioner	○	○*2	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)	○	○*2		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)	○	○*2		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)	–	–		–	5.0	2.5	MAX. 0.5	MAX. 0.5	24	10	R_G = 10	–
PC928J00000F		For driving inverter IGBT, built-in short protection circuit	○	○*2	14-pin SMT (Half pitch lead)	25	4.0	0.1	1.0	1.0	24	10	R_G = 47	–
PC929J00000F		For driving inverter IGBT, high speed, built-in short protection circuit	○	○*2		20	4.0	0.1	0.3	0.3	24	5	R_G = 47	–

*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		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)
PC957L0NSZ0F		High speed (1 Mb/s), high CMR (15 kV/µs), for soldering flow	○	○*2	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.


PC357NJ0000F


PC3H2J00000F


PC400J00000F


PC412S0NIP0F
(PC41xS0NIP0F, PC457S0NIP0F, PC4D10SNIP0F)


PC3Q64QJ000F


PC817XJ0000F


PC847XJ0000F
(PC844XJ0000F)


PC713V0NSZXF
(PC7xxV0NSZXF series, PC90xV0NSZ0F)

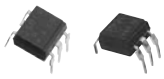

PC733HJ0000F
(PC733J00000F)


PC512J00000F


PC928J00000F
(PC929J00000F)


PC910L0NSZ0F
(PC92xL0NSZ0F)

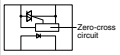
■ Phototriac Coupler Lineup

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	66
				Built-in zero-cross circuit	S2S4000F*4	66
			Reinforced isolation		PC3SG11YIZ0F*4	66
				Built-in zero-cross circuit	PC3SG21YIZ0F*4	66
DIP type	AC 200 V lines (V_{DRM} = 600V)	0.1 A	General purpose		PC3ST11NSZAF	66
(4-pin)				Built-in zero-cross circuit	PC3ST21NSZBF*3	67
			Reinforced isolation		PC3SH11YFZAF*4 / PC3SH13YFZAF*4	66
				Built-in zero-cross circuit	PC3SH21YFZBF*3	67
DIP type	AC 100 V lines (V_{DRM} = 400V)	0.1 A	General purpose (5th-pin cut)		PC2SD11NTZAF*4	66
(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	66/67
				Built-in zero-cross circuit	PC3SD21NTZBF*3 / PC3SD21NTZCF*2 / PC3SD21NTZDF*1	67
			Reinforced isolation (5th-pin cut)		PC3SF11YVZAF*4 / PC3SF11YVZBF*3	66
				Built-in zero-cross circuit	PC3SF21YVZAF*4 / PC3SF21YVZBF*3	67
	AC 200 V lines (V_{DRM} = 800V)	0.1 A	General purpose		PC4SD11NTZBF*3 / PC4SD11NTZCF*2	66
				Built-in zero-cross circuit	PC4SD21NTZCF*2 / PC4SD21NTZDF*1	67
			Reinforced isolation		PC4SF11YVZAF*4 / PC4SF11YVZBF*3	66
				Built-in zero-cross circuit	PC4SF21YVZBF*3 / PC4SF21YVZCF*2	67

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

■ Phototriac Couplers

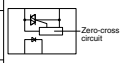
○: Approved, △: Under application (Ta = 25°C)

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	○	○*6	○	Mini-flat 4-pin	0.05	600	3.75	10	6	100
	S2S5A00F		200 V lines	○	○*6	○		0.05	600	3.75	10	6	100
	PC3SG11YIZ0F		200 V lines, reinforced insulation (isolation thickness: 0.4 mm)	○	○	–		0.05	600	3.75	10	6	100
	S2S4000F		200 V lines, built-in zero-cross circuit	○	○*6	○		0.05	600	3.75	10	6	100
	PC3SG21YIZ0F		200 V lines, reinforced insulation (isolation thickness: 0.4 mm), built-in zero-cross circuit	○	○	–		0.05	600	3.75	10	6	100
	PC3SD12NTZAF		200 V lines	○	○*6	○	6-pin DIP*1, 3	0.1	600	5.0	10	6	100
	PC2SD11NTZAF		100 V lines	○	–	○		0.1	400	5.0	10	6	100
	PC3SD11NTZAF		200 V lines	○	○*6	○		0.1	600	5.0	10	6	100
	PC3SD11NTZBF		200 V lines	○	○*6	○		0.1	600	5.0	7	6	100
	PC4SD11NTZBF		200 V lines, repetitive peak-OFF-state voltage	○	○*6	○		0.1	800	5.0	7	6	100
	PC3SD11NTZCF		200 V lines	○	○*6	○		0.1	600	5.0	5	6	100
	PC3SD11YTZDF		200 V lines, low input drive	○	○	○		0.1	600	5.0	3	6	100
	PC4SD11NTZCF		200 V lines, repetitive peak-OFF-state voltage	○	○*6	○		0.1	800	5.0	5	6	100
	PC3SF11YVZAF		200 V lines, reinforced isolation	○	○	○*2		0.1	600	5.0	10	6	100
	PC3SF11YVZBF		200 V lines, reinforced isolation	○	○	○*2		0.1	600	5.0	7	6	100
	PC4SF11YVZAF		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2		0.1	800	5.0	10	6	100
	PC4SF11YVZBF		200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	○	○	○*2		0.1	800	5.0	7	6	100
	PC3ST11NSZAF		200 V lines, compact	○		○	4-pin DIP	0.1	600	5.0	10	6	100
	PC3SH11YFZAF		200 V lines, compact, reinforced isolation	○	○	○*2		0.1	600	5.0	10	6	100
	PC3SH13YFZAF		200 V lines, compact, reinforced isolation, High noise resistance	○	○	○*2		0.1	600	5.0	10	6	100

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

■ 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 VDRM (V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current IFT (mA) MAX.	VD (V)	RL (Ω)
For triggering	PC3SD21NTZBF		200 V lines, low zero-cross voltage: MAX. 20 V, built-in zero-cross circuit	○	○*6	○	6-pin DIP*1, 3	0.1	600	5.0	7	4	100
	PC3SD21NTZCF		200 V lines, low zero-cross voltage: MAX. 20 V, built-in zero-cross circuit	○	○*6	○		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*7		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
	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
	PC3ST21NSZBF		200 V lines, compact, built-in zero-cross circuit	○	○*6	○	4-pin DIP	0.1	600	5.0	7	6	100
	PC3SH21YFZBF		200 V lines, compact, reinforced isolation, built-in zero-cross circuit	○	○	○*2		0.1	600	5.0	7	6	100

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

S2S3000F
(S2S4000F, S2S5000F, PC3SG11YIZ0F, PC3SG21YIZ0F)

PC2SD series
(PC3SD series, PC4SD series)

PC3SF series
(PC4SF series)

PC3ST11NSZAF
(PC3ST21NSZBF)

PC3SH11YFZAF
(PC3SH21YFZBF, PC3SH13YFZAF)

■ Solid State Relay Lineup

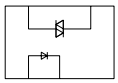
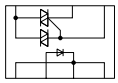
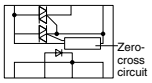
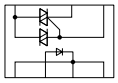
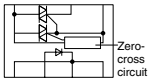
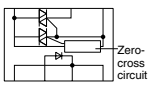
Package	Applied voltage	Features	Model No.	Page
DIP 6-pin	AC 100 V lines	General purpose	PR22MA11NTZF	69
	AC 200 V lines	General purpose	PR31MA11NTZF / PR32MA11NTZF	69
DIP 8-pin	AC 100 V lines	General purpose	PR23MF11NSZF / PR26MF series / PR29MF series	69
		Built-in zero-cross circuit	PR26MF21NSZF / PR29MF21NSZF	69
	AC 200 V lines	General purpose	PR33MF11NSZF / PR36MF series / PR39MF series / PR49MF11NSZF	69
		Built-in zero-cross circuit	PR36MF series / PR39MF series	69
DIP 16-pin ▲	AC 100 V lines	General purpose	S101D01F ▲ / S101DH1F ▲	70
		Built-in zero-cross circuit	S101D02F ▲ / PR21HD22NSZF ▲	70
	AC 200 V lines	General purpose	S201D01F ▲ / S201DH1F ▲ / S201DH1H ▲	70
		Built-in zero-cross circuit	S201D02F ▲ / PR31HD22NSZF ▲	70
SIP 4-pin	AC 100 V lines	General purpose	S102T01F / S108T01F / S101S05F / S102S01F / S112S01F / S116S01F	71
		Built-in zero-cross circuit	S102T02F / S108T02F / S101S06F / S102S02F / S116S02F	71
Sx0xT0xF series		Built-in snubber circuit	S102S11F	71
		Built-in zero-cross/snubber circuit	S101S16F / S102S12F	71
	AC 200 V lines	General purpose	S202T01F / S208T01F / S202S01F / S212S01F / S216S01F	71
		Built-in zero-cross circuit	S202T02F / S208T02F / S201S06F / S202S02F / S216S02F	71
		Built-in snubber circuit	S202S15F / S202S11F	71/72
		Built-in zero-cross/snubber circuit	S202S12F	72
		Reinforced isolation	S202SE1F / S216SE1F	72
		Built-in zero-cross circuit	S202SE2F / S216SE2F	72

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

■ Solid State Relays

<DIP type> (1)

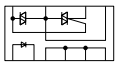
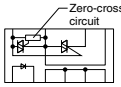
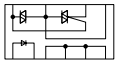
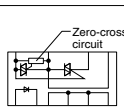
○: Approved, △: Under application (Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*1			Package	Absolute maximum ratings			Electrical characteristics		
			UL	CSA	VDE		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	△	△	*2○	6-pin DIP	0.06	600	5.0	10	6	100
PR22MA11NTZF		100 V lines, 150 mA output in a small package	△	△	*2○		0.15	400	5.0	10	–	–
PR32MA11NTZF		200 V lines, 150 mA output in a small package	△	△	*2○		0.15	600	5.0	10	–	–
PR23MF11NSZF		100 V lines, compact	○	○	–	8-pin DIP	0.3	400	4.0	10	6	100
PR33MF11NSZF		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
PR36MF11NSZF		200 V lines, compact	○	○	–		0.6	600	4.0	10	6	100
PR36MF11YSZF		VDE standard compatible, 200 V lines, compact	○	○	*2○		0.6	600	4.0	10	6	100
PR36MF12NSZF		200 V lines, compact, low input current	○	○	–		0.6	600	4.0	5	6	100
PR36MF12YSZF		VDE standard compatible, 200 V lines, compact, low input current	○	○	*2○		0.6	600	4.0	5	6	100
PR39MF11NSZF		200 V lines, compact	○	○	–		0.9	600	4.0	10	6	100
PR39MF11YSZF		VDE standard compatible, 200 V lines, compact	○	○	*2○		0.9	600	4.0	10	6	100
PR39MF12NSZF		200 V lines, compact, low input current	○	○	–		0.9	600	4.0	5	6	100
PR39MF12YSZF		VDE standard compatible, 200 V lines, compact, low input current	○	○	*2○		0.9	600	4.0	5	6	100
PR39MF51NSZF		200 V lines, compact	–	–	–		0.9	800	4.0	10	6	100
PR49MF11NSZF		200 V lines, compact, high isolation voltage	–	–	–		0.9	800	4.0	10	–	–
PR36MF22NSZF		200 V lines, compact (built-in zero-cross circuit), low input current	○	○	–		0.6	600	4.0	5	6	100
PR36MF22YSZF		VDE standard compatible, 200 V lines, compact (built-in zero-cross circuit), low input current	○	○	*2○		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
PR39MF22YSZF		VDE standard compatible, 200 V lines, compact (built-in zero-cross circuit), low input current	○	○	*2○		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
PR36MF21YSZF		VDE standard compatible, 200 V lines, compact (built-in zero-cross circuit)	○	○	*2○		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
PR39MF21YSZF		VDE standard compatible, 200 V lines, compact (built-in zero-cross circuit)	○	○	*2○		0.9	600	4.0	10	6	100

*1 Please refer to Specification Sheets for model numbers approved by safety standards.
*2 VDE (EN60747-5-2) compatible.

<DIP type> (2)

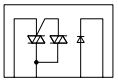
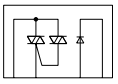
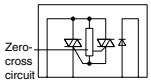
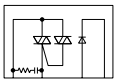
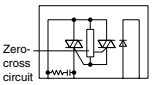
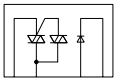
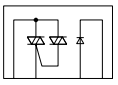
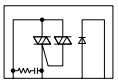
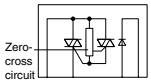
○: Approved, △: Under application (Ta = 25°C)

Model No.	Internal connection diagram	Features	Approved by safety standards*1			Package	Absolute maximum ratings			Electrical characteristics		
			UL	CSA	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)
S101D01F ▲		100 V lines, compact	○	○	–	16-pin DIP	1.2	400	4.0	10	6	100
S101DH1F ▲		100 V lines, compact, high output	○	○	–		1.5	400	4.0	10	6	100
S101D02F ▲		100 V lines, compact (built-in zero-cross circuit)	○	○	–		1.2	400	4.0	10	6	100
PR21HD22NSZF ▲		100 V lines, compact, high output (built-in zero-cross circuit), low input current	–	–	–		1.5	400	4.0	5	6	100
S201D01F ▲		200 V lines, compact	○	○	–		1.2	600	4.0	10	6	100
S201DH1F ▲		200 V lines, compact, high output	○	○	–		1.5	600	4.0	10	6	100
S201DH1H ▲		200 V lines, compact, high output, TÜV approved product	–	–	○		1.5	600	3.0	10	6	100
S201D02F ▲		200 V lines, compact (built-in zero-cross circuit)	○	○	–		1.2	600	4.0	10	6	100
PR31HD22NSZF ▲		200 V lines, compact, high output (built-in zero-cross circuit), low input current	–	–	–		1.5	600	4.0	5	6	100

*1 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.

<SIP type> (1)

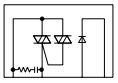
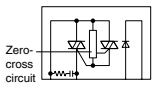
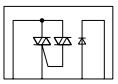
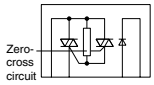
○: Approved, △: Under application (Ta = 25°C)

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 I_T (rms) (A)	Repetitive peak OFF-state voltage V_{DRM}(V)	Isolation voltage (AC) Viso (rms) (kV)	Min. trigger current I_{FT} (mA) MAX.	V_D (V)	R_L (Ω)
S102T01F		100 V lines, low profile	○	○	–	4-pin SIP	2	400	3.0	8	12	30
S108T01F		100 V lines, low profile	–	–	–		8*2	400	3.0	8	12	30
S101S05F		100 V lines	○	○	–		3*3	400	3.0	15	12	30
S102S01F		100 V lines	○	○	–		8*2	400	4.0	8	12	30
S112S01F		100 V lines	○	○	–		12*4	400	4.0	8	12	30
S116S01F		100 V lines	○	○	–		16*5	400	4.0	8	12	30
S102T02F		100 V lines, low profile (built-in zero-cross circuit)	○	○	–		2	400	3.0	8	12	30
S108T02F		100 V lines, low profile (built-in zero-cross circuit)	–	–	–		8*2	400	3.0	8	12	30
S101S06F		100 V lines (built-in zero-cross circuit)	○	○	–		3*3	400	3.0	15	6	30
S102S02F		100 V lines (built-in zero-cross circuit)	○	○	–		8*2	400	4.0	8	6	30
S116S02F		100 V lines (built-in zero-cross circuit)	○	○	–		16*5	400	4.0	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	400	4.0	8	6	30
S202T01F		200 V lines, low profile	○	○	–		2	600	3.0	8	12	30
S208T01F		200 V lines, low profile	–	–	–		8*2	600	3.0	8	12	30
S202S01F		200 V lines	○	○	–		8*2	600	4.0	8	12	30
S212S01F		200 V lines	–	–	–		12*4	600	4.0	8	12	30
S216S01F		200 V lines	–	–	–		16*5	600	4.0	8	12	30
S202S15F		200 V lines, built-in snubber circuit	–	–	–		8*6	600	3.0	10	12	30
S202T02F		200 V lines, low profile (built-in zero-cross circuit)	○	○	–		2	600	3.0	8	12	30
S208T02F		200 V lines, low profile (built-in zero-cross circuit)	–	–	–		8*2	600	3.0	8	12	30
S201S06F		200 V lines (built-in zero-cross circuit)	○	○	–		3*3	600	3.0	15	6	30
S202S02F		200 V lines (built-in zero-cross circuit)	○	○	–		8*2	600	4.0	8	6	30
S216S02F		200 V lines (built-in zero-cross circuit)	–	–	–		16*5	600	4.0	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		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	600	3.0	8	12	30
S202SE2F		200 V lines (built-in zero-cross circuit), reinforced isolation	○	○	○		8*2	600	3.0	8	6	30
S216SE2F			–	–	○		16*5	600	3.0	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.

PR22MA11NTZF
(PR31MA11NTZF, PR32MA11NTZF)

PR26MF21NSZF
{PR23MF series, PR33MF series, PR26MF series, PR36MF series, PR29MF series, PR39MF series, PR49MF11NSZF, PR3BMF11NSZF}

S101D01 ▲ series
{S101DH1 series ▲, PR21HD22NSZF ▲, PR31HD22NSZF ▲}

S102T01 series

S102S01 series

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.

■ Photointerrupter Lineup

<Transmissive type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Compact	General purpose	PWB mounting type	GP1S2x series/GP1S37J0000F	74
High response speed		High resolution	PWB mounting type/ Soldering reflow	GP1S2xJ0000F series/GP1S092HCPIF/ GP1S9xJ0000F series/ GP1S09xHCZ0F series/ GP1S19xHCZ0F/GP1S19xHCxSF	74
		Two-phase PT output	PWB mounting type	GP1S39J0000F	74
	Case type	General purpose	Snap-in	GP1S566VJ00F	75
		High resolution	PWB mounting type, etc.	GP1S5x series/GP1S5xVJ000F series/ GP1S56x series	75
		Horizontal slit, High resolution	PWB mounting type	GP1S59J0000F/GP1S525VJ00F	75
	With connector	General purpose	Snap-in	GP1S74PJ000F	75
Darlington phototransistor	Case type	General purpose	PWB mounting type, etc.	GP1L5xJ series/GP1L5xV series	75
High sensitivity		Wide gap	PWB mounting type	GP1L57J0000F	75
Digital output	Compact	Low voltage operation	PWB mounting type	GP1A6xL series/GP1A91 series	76
(OPIC output)	Case type	High resolution	PWB mounting type	GP1A5x series	77
		Wide gap	Both-side/PWB mounting type	GP1A5xHR series/GP1A52LRJ00F	77
	With connector	General purpose	Screw mounting type/Snap-in	GP1A05 series/GP1A7x series/ GP1A07x series	77

<Reflective type>

Output type	Package type	Outline	Mounting method	Model No. (series)	Page
Single phototransistor	Compact, DIP	General purpose	PWB mounting type	GP2S2x series	78
High response speed		Long focal distance	PWB mounting type	GP2S40J0000F	78
	Leadless	Long focal distance	PWB mounting type	GP2S700HCP	78
	Compact, thin (leadless)	General purpose	PWB mounting type	GP2S60	78
	Case type	Long focal distance	Snap-in	GP2S28	78
Darlington phototransistor	Compact, DIP	General purpose	PWB mounting type	GP2L24J0000F	79
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	80

<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	81
	With connector With actuator (OPIC output)		Snap-in	GP1A44E1J00F	81
	Compact, [built-in ball]	(2-phase PT output) 3 direction detection	PWB mounting type	GP1S36J0000F	81
		(2-phase PT output) 4 direction detection	PWB mounting type	GP1S036HEZ	81
	Case type With encoder function	Resolution: Disk slit pitch: 0.7 mm	Side mounting type	GP1A3xR series	82
	Phase A (digital output) Phase B (digital output)	Resolution: Linear scale slit pitch: 0.17/0.14 mm	PWB mounting type	GP1A038RBK0F/GP1A038RCK0F/ GP1A044RCKLF/GP1A046RBZLF	82
		Resolution: Linear scale slit pitch: 0.085/0.071 mm	PWB mounting type	GP1A037RDKJF/GP1A046REZLF	82
Reflective type	Injection For prism system (Single phototransistor)		Screw mounting	GP2S29SJ000F	83
	For amusement industry		–	GP2A220HRKA/GP2A221HRKA	83

☆New product
★Under development

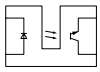
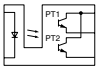
■ Photointerrupters

<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)
GP1S22J0000F		High resolution, with mounting hole, PWB mounting type	1.2	0.3	2.0	5	5	50	0.1	1 000	5
GP1S23J0000F		High resolution, with mounting hole, PWB mounting type	2.0	0.3	0.8	5	5	50	0.1	1 000	5
GP1S24J0000F		High resolution, wide gap, with positioning pin, PWB mounting type	3.0	0.3	0.8	5	5	50	0.1	1 000	5
GP1S25J0000F		Side lead type, For soldering reflow	1.6	0.3	1.0	5	5	35	0.1	1 000	5
GP1S27J0000F		PWB mounting type	0.9	0.8	4.3	1.5	5	50	0.1	1 000	5
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
GP1S37J0000F		PWB mounting type	2.0	0.8	1	3	5	50	0.1	1 000	5
GP1S93J0000F		Wide gap, low profile (3.1 mm)	2.0	0.3	2.0	5	5	50	0.1	1 000	5
GP1S093HCZ0F		Wide gap, low profile (2.9 mm)	2.0	0.3	2.0	5	5	50	0.1	1 000	5
GP1S94J0000F		Wide gap, with positioning pin	3.5	0.3	0.8	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
GP1S95J0000F		High resolution, thin detector type	1.6	0.3	1.0	5	5	35	0.1	1 000	5
GP1S96J0000F		Low profile (3.5 × 2.6 × 3.1 mm)	1.0	0.3	2.0	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		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
GP1S97J0000F		High resolution, wide gap, with mounting hole, PWB mounting type	2.2	0.3	1.6	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
GP1S39J0000F		PWB mounting type, two-phase output type	1.5	0.6*1	3.3	4	5	50	0.1	1 000	5

※ Topr: –25 to +85 °C
*1 Reading pitch

<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.	IF (mA)	VCE (V)	tr (µs) TYP.	IC (mA)	RL (Ω)	VCE (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.

<With connector type>

(Ta = 25°C)

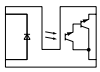
Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics						
					Current transfer ratio			Response time			
					CTR (%) MIN.	IF (mA)	VCE (V)	tr (µs) TYP.	IC (mA)	RL (Ω)	VCE (V)
GP1S74PJ000F		Snap-in mounting type with connector Applicable to 3 kinds of thickness of mounting boards	5.0	0.5	2.5	20	5	3	2	100	2

※ Topr: –25 to +85 °C

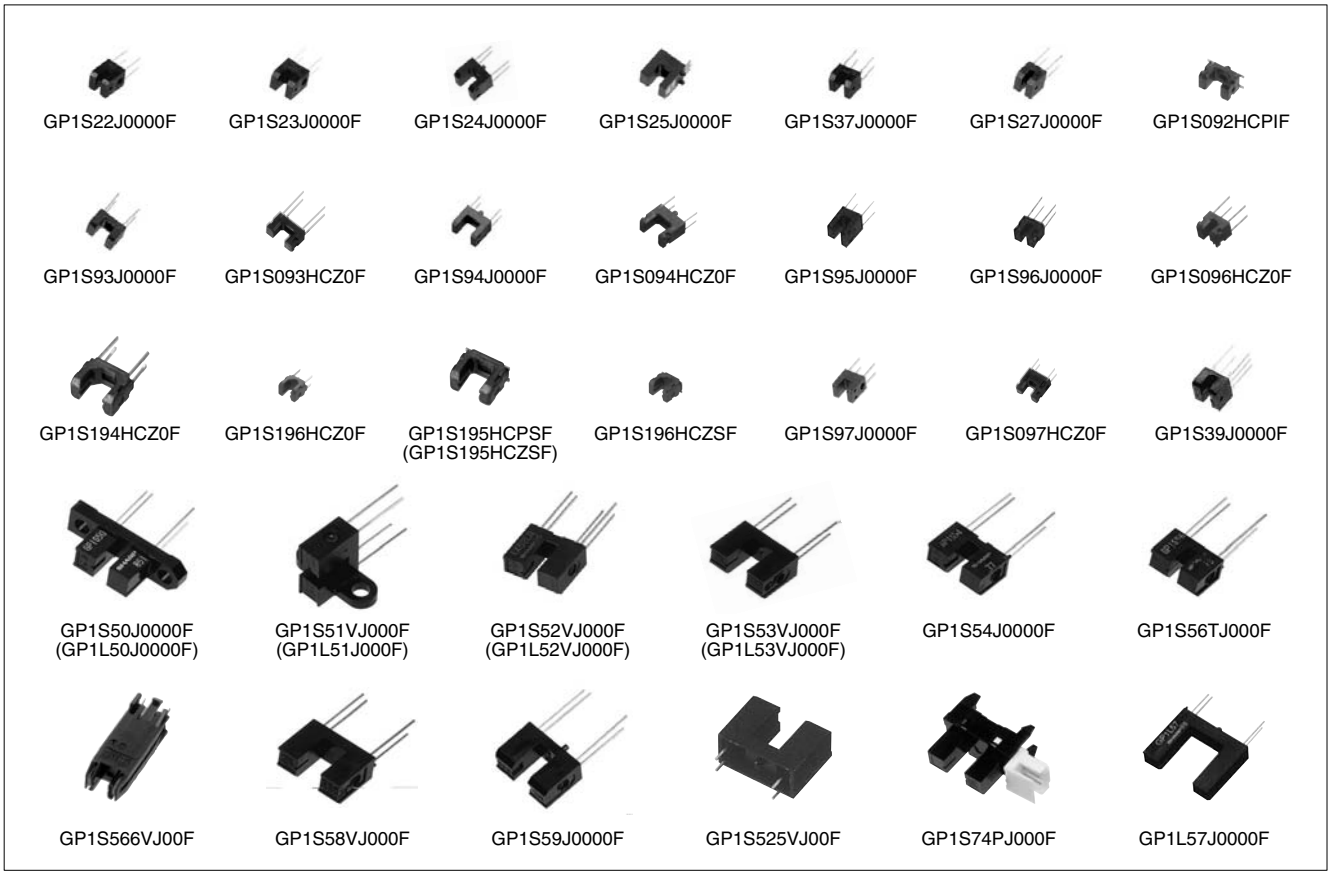
◆Darlington phototransistor output

<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.	IF (mA)	VCE (V)	tr (µs) TYP.	IC (mA)	RL (Ω)	VCE (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

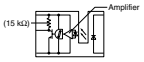
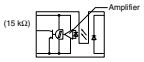


◆OPIC type

("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)

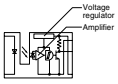
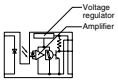
Model No.	Internal connection diagram	Features	Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics							
					Threshold input current			Propagation delay time				
					I_{FLH} (mA) MAX.	I_{FHL} (mA) MAX.	V_{CC} (V)	t_{PLH} (µs) TYP.	t_{PHL} (µs) TYP.	I_F (mA)	R_L (Ω)	V_{CC} (V)
GP1A68LJ000F		Compact, PWB mounting, low operating voltage (1.4 V to 7.0 V), low dissipation current	0.9	(0.3) *1	–	2.5	3	10.0	3.0	5	3 000	3
GP1A91LRJ00F		Compact, PWB mounting, low operating voltage (1.4 V to 7.0 V)	1.2	(0.23) *1	–	3.5	3	10.0	3.0	5	3 000	3
GP1A91LCJ00F		Compact, PWB mounting, low operating voltage (1.4 V to 7.0 V)	1.2	(0.23) *1	–	3.5	3	10.0	3.0	5	2 500	3

※ Topr = –25 to +85°C
*1 Resolution of detecting portion

☆New product

<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

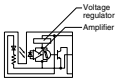
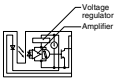
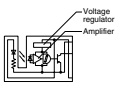
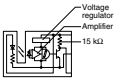
※ Topr = –25 to +85°C

◆OPIC type

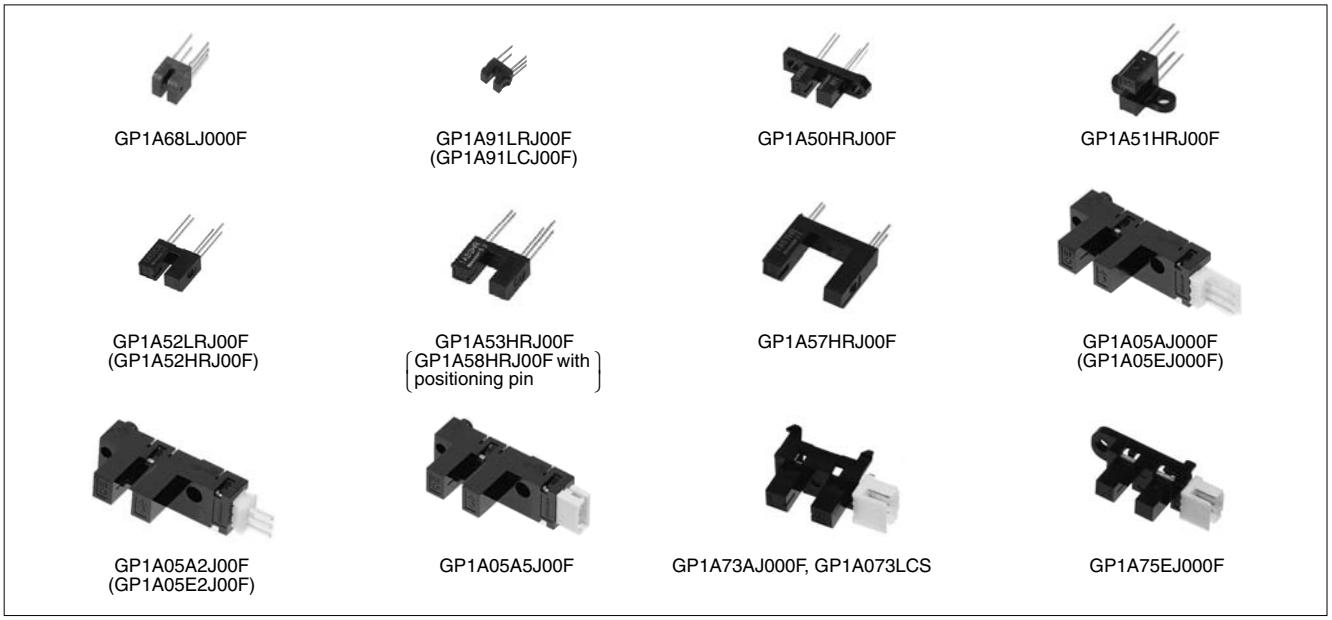
("OPIC" (Optical IC) is a trademark of SHARP Corporation. An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.)

<With 3-pin connector terminal>

(Ta = 25°C)

Model No.	Internal connection diagram	Features		Detecting and emitting gap (mm)	Slit width (mm)	Electro-optical characteristics					
						Supply voltage V_{CC} (V)		Low level output voltage			
						MIN.	MAX.	V_{OL} (V) MAX.	Light cut-off	I_{OL} (mA)	V_{CC} (V)
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
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



■ 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.	I_F (mA)	V_{CE} (V)	tr (μs) TYP.	I_C (mA)	R_L (Ω)	V_{CE} (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 lead-less 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

<Case type>

(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)
GP2S28		Long focal distance, compact, Snap-in mounting	6	0.2	20	5	20	0.1	100	2

※ Topr: –25 to +85°C

◆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

GP2S24J0000F
(GP2L24J0000F)

GP2S27J0000F

GP2S40J0000F

GP2S60

GP2S700HCP

GP2S28

☆New product

◆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>

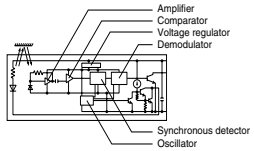
(Ta = 25°C)

	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	GP2A22J0000F	(Following diagram)	Multi types of paper detectable, light modulation type, with connector, sensitivity adjusted	9 to 15	4.75	5.25	30*1	5	0.4	5
	GP2A200LCS0F		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
	GP2A28		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 (GP2A22J0000F, GP2A25J0000F, GP2A25BJ000F)

*1 Smoothing value R_L = ∞

[Internal connection diagram]



GP2A22J0000F

GP2A25J0000F
{GP2A25NJ, GP2A28, GP2A200LCS0F, GP2A240LCS0F}

GP2A250LCS0F

GP2A25BJ000F

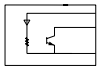
GP2A231LRSAF

■ Photointerrupters for Specific Applications

◆Transmissive type

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

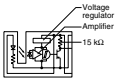
(Ta = 25°C)

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

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

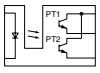
(Ta = 25°C)

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

<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

☆New product
★Under development

<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 IF (mA)	Dissipation current (output side) Icc (mA) MAX.
GP1A30RJ000F ▲	7	0 to +70	4.5 to 5.5	Phase A (Digital output) Phase B (Digital output)	Disk slit pitch 0.7 (mm)	5	30	20
GP1A038RBK0F*1, *3	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, *3	7	0 to +70	2.7 to 5.5	Phase A (Digital output) Phase B (Digital output)	Linear scale slit pitch 0.14 (mm)	20	11	5
GP1A037RDKJF*1, *3	7	0 to +70	2.7 to 5.5	Phase A (Digital output) Phase B (Digital output)	Linear scale slit pitch 0.0847 (mm)	40	25	10
GP1A044RCKLF*1	—	–10 to +60	2.7 to 5.5	Phase A (Digital output) Phase B (Digital output)	Linear scale slit pitch 0.14 (mm)	20	15	5
☆GP1A046RBZLF*1	—	–10 to +60	2.7 to 5.5	Phase A (Digital output) Phase B (Digital output)	Linear scale slit pitch 0.17 (mm)	20	20	5
★GP1A046REZLF*1	—	0 to +60	2.7 to 5.5	Phase A (Digital output) Phase B (Digital output)	Linear scale slit pitch 0.0706 (mm)	50	25	—

*1 High precision read and low affection of angle error from vibration thanks to the multi-segment PD system
*2 Duty ratio: 50±10%, phase difference: 90±30°
*3 Duty ratio: 50±20%, phase difference: 90±45°
The model marked with ▲ may not be available in the near future. Contact with SHARP for details before use.


GP1S44S1J00F


GP1A44E1J00F


GP1S36J0000F


GP1S036HEZ


GP1A30RJ000F ▲


GP1A044RCKLF


GP1A038RBK0F
(GP1A038RCK0F, GP1A037RDKJF)


GP1A046REZLF
(GP1A046RBZLF)

◆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.

<For the amusement industry>

(Ta = 25°C)

Model No.	Features	Electro-optical characteristics			
		Supply voltage Vcc	Dissipation current		Response frequency f (Hz)
			Icc (mA)	Iccp (mA)	
GP2A220HRKA	Employs reflective type, pinball detector	4.5 to 15	MAX. 10	MAX. 65	MAX. 500
GP2A221HRKA	Employs reflective type, pinball detector, connector with lock	4.5 to 15	MAX. 10	–	MAX. 500

GP2S29SJ000F

GP2A220HRKA

GP2A221HRKA

■ 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.

☆New product

■ Phototransistors

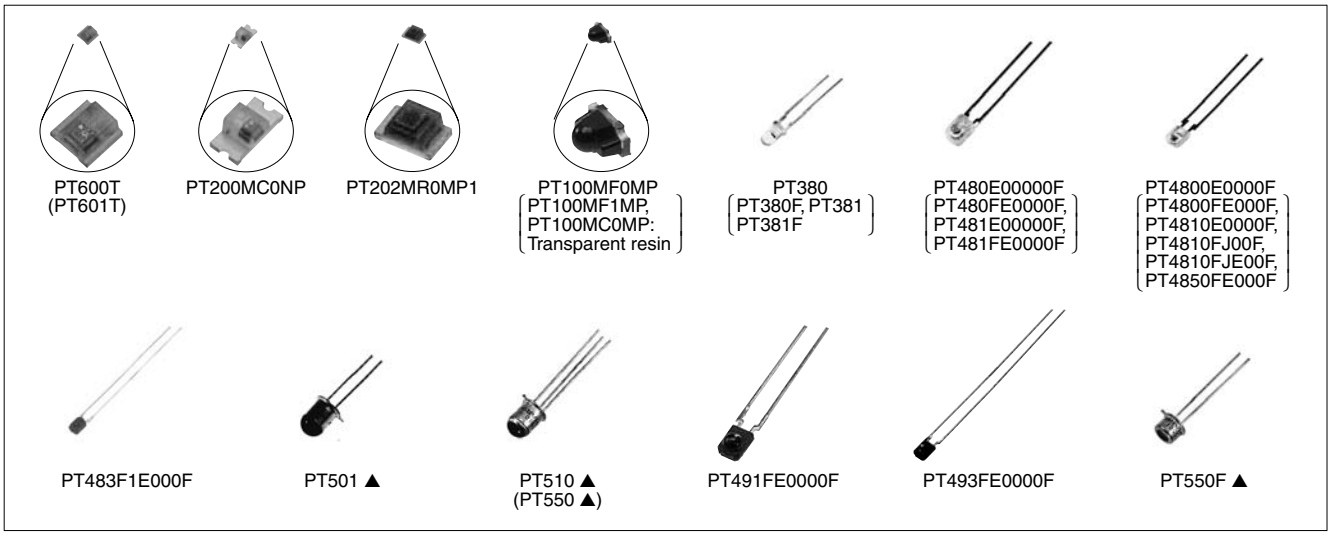
(Ta = 25°C)

Type	Model No.	Package	Absolute maximum ratings			Ic (mA)				ICEO(A)		Dq (°)	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
	PT481E0000F	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.

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



■ 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.
PD49PIE0000F*1	PIN type	Visible light cut-off epoxy resin	7.73	–25 to +85	2.4	100	3×10^{-8}	10	0.2	10	1	1 000
PD410PI2E00F*1		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
PD481PIE000F*1	PIN type	Visible light cut-off epoxy resin	7.73	–25 to +85	3.5	100	3×10^{-8}	10	0.2	3	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)

■ PSD (Position Sensitive Detector)

(Ta = 25°C)

Model No.	Features	Package (Material)	Active area (mm^2)	Topr (°C)	I_L (μA) MIN.	Ev (lx)	Interelectrode resistance (kΩ) TYP.	V_R (V)	tr, tf (μs) TYP.	V_R (V)	R_L (kΩ)	Position detection error (μm) MAX.
PD3122FE000F	Position sensitive detector With mounting hole	Visible light cut-off epoxy resin	1.2 (1.0 × 1.2 mm)	–25 to +85	6.4	1 000	110 to 170	1	5	1	1	±25

Custom-made products (detecting portion changed products) are also available.

PD49PIE0000F
(PD481PIE000F)

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

PD60T

PD100MC0MP
(PD100MF0MP: black)

PD3122FE000F

■ 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)

PD101SC0SS0F

■ Laser Power Monitoring Photodiodes for Optical Disc System

Also listed on P. 135 “Device for Optical Discs”.

(Ta = 25°C)

Model No.	Features	Package (Material)	Active area (mm)	Topr (°C)	Isc (mA) TYP.	Ev (lx)	Id (A) MAX.	VR (V)	λp (nm) TYP.
PD101SC0SS0F	High response speed (cut-off frequency: 400 MHz)	Transparent epoxy resin	ø0.8	–25 to +85	450	100	1×10^{-9}	5	820

■ OPIC Light Detectors

(“OPIC” (Optical IC) is a trademark of the 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							
			VCC (V)	P (mW)	IO (mA)	Topr (°C)	EVLH (lx) MAX.	EVHL (lx) MAX.	VCC (V)	tPLH (µs) TYP.	tPHL (µs) TYP.	VCC (V)	EV (lx)	RL (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

<Low-voltage operation>

(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings			Electro-optical characteristics								
			P (mW)	IO (mA)	Topr (°C)	Operating supply voltage (V)	EVLH (lx) MAX.	EVHL (lx) MAX.	VCC (V)	tPLH (µs) TYP.	tPHL (µs) TYP.	VCC (V)	EV (lx)	RL (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

<Model employing a light modulating system>

(Ta = 25°C)

Model No.	Type	Package	Absolute maximum ratings				Electro-optical characteristics*2						External disturbing light illuminance EVDX(lx) TYP.
			VCC (V)	P (mW)	IO (mA)	Topr (°C)	VOL (V) MAX.	VOH (V) MIN.	tPLH (µs) TYP.	tPHL (µs) TYP.	VCC (V)	RL (Ω)	
IS471FE*1, *3	Built-in pulse driver circuit at the emitter side, synchronous detector circuit, amplifier circuit and demodulator circuit	Visible light cut-off epoxy resin	–0.5 to +16	250	50	–25 to +60	0.35	4.97	400	400	5	280	7 000

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

<For laser beam printers (laser origin detection)>

(Ta = 25°C)

Model No.	Type	Package	Electro-optical characteristics			
			Recommended supply voltage VCC (V)	VOH (V) MIN.	VOL (V) MAX.	H → L delay time variation ΔtPHL (ns) MAX.
GA220T2L1IZ	2PD, differential type	Transparent epoxy resin 18-pin	4.5 to 5.5	4.9	0.6	±8.5

☆New product

<Optical disk devices for RF signal detection>

Also listed on P. 134 “Device for Optical Discs”.

(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	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
GA230TXW1SY	For ×16 DVD-R/RW, +R/W ultra-writable drive High-precision 3-step gain compatible	Transparent flat 14-pin package	6.0	–	–20 to +80	–	5	140	5	–	–
☆GA260TXW1SY	Designed for recordable DVD ×8 writing (WPP system)	Transparent flat 16-pin package	6.0	–	–30 to +80	–	5	90	5	–	–
GA202TXV0ZY*3	For 2-wavelength laser (For DVD player), 10-division PD pattern	Transparent 12-pin package (3 x 4 mm)	6.0	–	–30 to +80	20	5	(57/57) 50/50	5	–78	27M
GA201TXR1ZY	For ×20 CD-R writable drive, for ×8 DVD-ROM read only (For slim combo drive)	Transparent flat 12-pin package (3.2 × 4.0 mm)	6.0	–	–10 to +80	21	5	(90/75) 80/75	5	–85	45M
GA301TXW5MZ	For ×16 DVD-R/RW, +R/W ultra-writable drive For MAX. ×60 CD-R writable drive (For HiHi combo drive), settling time: 13 ns DVD-ROM: for MAX. ×16 read only, built-in bypass condenser for power supply, WPP system (Gain ×4 switching)	Leadless chip-type	6.0	–	–20 to +85	38	5	110	5	(–78)	72M
GA103TXR1MZ	For ×8 DVD-R/RW, +R/W writable drive For MAX. ×60 CD-R writable drive (For HiHi combo drive), settling time: 7 ns DVD-ROM: for MAX. ×16 read only CD-ROM: for MAX. ×60 read only, built-in bypass condenser for power supply	Leadless chip-type	–	–	–20 to +80	–	5	MIN. 90/ MIN. 60	–	–	–
GA100TXR1MZ	For MAX. ×60 CD-R writable drive, DVD-ROM: for MAX. ×16 read only CD-ROM: for MAX. ×60 read only, DVD-RAM: for writable drive, built-in bypass condenser for power supply	Leadless chip-type	–	–	–20 to +80	–	5	MIN. 90/ MIN. 60	–	–	–
GA100TX02MZA	Built-in RF amplifier, built-in bypass condenser for power supply, for ×16 DVD-ROM drive, 12-division PD type	Leadless chip-type	6.0	–	–10 to +80	–	5	(130/115) 115/100	5	–80	72M

*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.
*4 L gain mode/M gain mode

<Laser power monitoring diode for optical disc system>

Also listed on P. 135 "Device for Optical Discs".

(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.

IS485E
(IS486E, IS489E)

IS471FE

GA220T2L1IZ

IS1682Q
(IS1684Q, GA250T6C3SY, GA250T6C4SY)

IS1623Q

GA230TXW1SY

GA260TXW1SY

GA210TXV8SY

GA202TXV0ZY

GA201TXR1ZY

GA100TX02MZA
(GA100TXR1MZ)

GA103TXR1MZ

GA301TXW5MZ

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	GL450E00000F ▲ / 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
GL450E00000F ▲	Resin with bidirectional lens	50	6	75	–25 to +85	0.7	1.0	20	1.2	1.4	20	(Bidirectional)	950
GL453E00000F ▲		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.


GL380
(GL381, GL382)


GL390
(GL390V)


GL450E00000F ▲


GL453E00000F ▲


GL480E00000F


GL4800E0000F


GL4100E0000F


GL513F ▲


GL514 ▲


GL560
(GL561)


GL537
(GL538)


GL610T


GL100MN0MP
(GL100MN1MP, GL100MN3MP, GL100MD1MP1)

■ 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: 15/17.5/13 cm)		GP2D150AJ00F/GP2D150MJ00F/ 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
		Compact, thin 1-bit digital output (detected distance: 10/40 cm)		GP2Y0D310K/GP2Y0D340K
Output according to distance measuring	4 to 30 cm	Analog voltage output		GP2D120XJ00F
	10 to 80 cm	8-bit serial (External control signal required)		GP2D02J0000F
		Analog voltage output		GP2D12J0000F
			General purpose	GP2Y0A21YK0F
	20 to 150 cm	Analog voltage output		GP2Y0A02YK0F
	100 to 500 cm	Analog voltage output		GP2Y0A700K0F

■ 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/ GP2D072J000F
		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	With peak-hold circuit	GP2U06J0000F
	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	GP2TC2J0000F

☆New product

■ Distance Measuring Sensors

(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	
							Operating (mA)	Standby (μA)
GP2D02J0000F	Distance measuring sensor united with PSD※, infrared LED and signal processing circuit, 8-bit serial output	–0.3 to +10	–10 to +60	10 to 80	Vcc –0.3	0.3	MAX. 35	MAX. 8
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	–
GP2Y0D310K	Digital voltage output according to the measured distance (at 10 cm) of GP2Y0D340K	–0.3 to +7	–10 to +60	–	Vcc –0.3	0.6	MAX. 35	–
GP2Y0D340K	Compact, thin type (15 x 9.6 x 8.7 mm: sensor part), Distance measuring sensor united with PSD※, infrared LED and signal processing circuit, Digital voltage output according to the measured distance (at 40 cm)	–0.3 to +7	–10 to +60	–	Vcc –0.3	0.6	MAX. 35	–
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	–
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	–
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	–
GP2D150MJ00F	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	–
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	–	–
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 (at 80 cm)	–0.3 to +7	–10 to +60	20 to 150	Vcc –0.3	0.6	MAX. 50	–
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	–
☆GP2Y0A700K0F	Distance measuring sensor united with PSD※, infrared LED and signal processing circuit	–	–10 to +70	100 to 500	–		TYP. 33	–

※ PSD: Position Sensitive Detector
*1 Vcc = 5 V

☆New product

■ 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)	
							V_{INH}	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

■ 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

■ 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)


GP2D02J0000F


GP2Y0D340K
(GP2Y0D310K)


GP2D15J0000F
{GP2D12J0000F, GP2D120XJ00F, GP2D150AJ00F, GP2Y0A21YK0F, GP2Y0D21YK0F
GP2D150MJ00F, GP2Y0D413K: without mounting hole}


GP2Y0D02YK0F
{GP2Y0A02YK0F, GP2Y0D680K0F}


GP2Y0A700K0F


GP2Y3A001K0F


GP2Y3A002K0F


GP2Y3A003K0F


GP2D03J0000F
(GP2D032J000F)

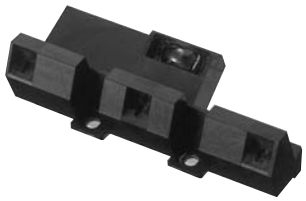

GP2D06J0000F
{GP2D061J000F, GP2D062J000F}


GP2Y2E101K0F


GP2Y2A180K0F


GP2Y2D160K0F


GP2Y2A280K0F


GP2D07J0000F
(GP2D071J000F)


GP2Y2E301K0F


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/m³)	Output voltage at no dust Voc (V)	Output voltage range VOH (V)
GP2U06J0000F	Built-in infrared emitting diode, photodiode and signal processing circuit	–10 to +65	4.5 to 5.5	TYP. 15	TYP. 0.5	MAX. 1	MIN. 3.2
GP2Y1010AU0F	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

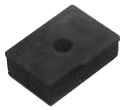
■ Color Toner Concentration (Deposition Amount) Sensors

(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
GP2TC2J0000F	Employs diffuse reflection system + mirror reflection system, high-precision detection of toner concentration on transfer belt, 2-line analog output	0 to +60	TYP. 4	TYP. 1.17*2	TYP. 2.81*2

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


GP2U06J0000F


GP2Y1010AU0F


GP2TC1J0000F


GP2TC2J0000F

■ 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		–	GP1FM313TZ0F*/ GP1FMV31TK0F*	GP1FM513TZ0F/ GP1FM55HTK0F**
(EIAJ RC-5720B)		with mounting hole	High speed signal transmission (13.2 Mb/s MAX. [15.5 Mb/s MAX.*, 25 Mb/s MAX.**, 50 Mb/s MAX.***])		–	GP1FA352TZ0F*/ GP1FAV30TK0F*	GP1FA553TZ0F
						TTL drive compatible	GP1FA554TZ0F/ GP1FAV50TK0F
				With shutter	–	GP1FA313TZ0F*/ GP1FAV31TK0F*	GP1FA513TZ0F
						TTL drive compatible	GP1FA514TZ0F/ GP1FAV51TK0F
						High speed signal transmission	GP1FAV55TK0F***/ GP1FA51HTZ0F**
						TTL drive compatible	GP1FA52HTZ0F**
		Electric jack integrated type (Transmission speed 13.2 Mb/s)		With shutter	–	–	GP1FP513TK0F
	Fiber optic receiver	Compact (without mounting hole)	High speed signal transmission (13.2 Mb/s MAX., 15.5 Mb/s MAX.*), With shutter		–	GP1FM313RZ0F*/ GP1FMV31RK0F*	GP1FM513RZ0F/ GP1FMV51RK0F
		with mounting hole	High speed signal transmission (13.2 Mb/s MAX. [15.5 Mb/s MAX.*, 25 Mb/s MAX.**])		–	GP1FA352RZ0F*/ GP1FAV30RK0F*	GP1FA553RZ0F/ GP1FAV50RK0F
				With shutter	–	GP1FA313RZ0F*/ GP1FAV31RK0F*	GP1FA513RZ0F/ GP1FAV51RK0F
							GP1FA51HRZ0F**
		Electric jack integrated type (Transmission speed 13.2 Mb/s)		With shutter	–	–	GP1FP513RK0F
ø3.5 mm Optical mini-jack	Fiber optic transmitter	Thin type (t: 4.4 mm)	Low operating voltage	Reflow compatible		GP1FC300TP0F	
(JIS C6560 & EIAJ RC5720B)		Thin type (t: 4.2 mm)			GP1FD210TP0F	GP1FD310TP0F/ GP1FD320TP0F	–
	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	Optic transmission device	Wide operating temperature range (–40°C to +105°C)	25Mb/s as optic fiber link (Biphase)	5 V	GP5FM5T01AZ
	Optic reception device	Wide operating temperature range (–40°C to +105°C)	25Mb/s as optic fiber link (Biphase)	5 V	GP5FM5R01AZ

*1 "MOST" is a registered trademark of MOST Cooperation.

☆New product

■ 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.
GP1FM313TZ0F	Compact (without mounting hole), With shutter, High response speed (up to x2)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 3.6	180	180	12	±15	15.5
☆GP1FMV31TK0F	Compact (without mounting hole), With shutter, High response speed (up to x2)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 3.6	180	180	12	±15	15.5
GP1FM513TZ0F	Compact (without mounting hole), With shutter, High response speed (up to x2)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
☆GP1FMV51TK0F	Compact (without mounting hole), With shutter, High response speed (up to x2)	–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 (up to x2)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	50
GP1FA352TZ0F	With mounting hole, Low voltage drive, High response speed (up to x2)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 3.6	180	180	12	±15	15.5
GP1FAV30TK0F	With mounting hole, Low voltage drive, High response speed (up to x2)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 5.25	180	180	12	±15	15.5
GP1FA553TZ0F	With mounting hole High response speed (up to x2)	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FA554TZ0F	With mounting hole, 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
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
GP1FA513TZ0F	With mounting hole, High response speed (up to x2), With shutter	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	4.75 to 5.25	180	180	13	±15	13.2
GP1FA514TZ0F	With mounting hole, 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
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
GP1FA313TZ0F	With mounting hole, With shutter, Low voltage drive, High response speed	–	–	–20 to +70	2.7 to 3.6	–	–	12	–	15.5
GP1FAV31TK0F	With mounting hole, With shutter, Low voltage drive, High response speed	–	–	–20 to +70	2.7 to 5.25	–	–	12	–	15.5
GP1FA51HTZ0F	With mounting hole, High response speed (up to x4), With shutter	–	–	–20 to +70	4.75 to 5.25	–	–	13	–	25
GP1FA52HTZ0F	With mounting hole, High response speed (up to x4), With shutter, TTL drive compatible	–	–	–20 to +70	4.75 to 5.25 Input voltage: MIN. 2.0 V	–	–	13	–	25
GP1FAV55TK0F	With mounting hole, High response speed (50 Mb/s), With shutter	–	–	–20 to +70	4.75 to 5.25	–	–	13	–	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

☆New product

■ 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.
GP1FC300TP0F	Thin type, optical mini-jack (low voltage drive), for reflow soldering	–0.5 to +7	–0.5 to Vcc + 0.5	–20 to +70	2.7 to 3.6	180	180	12	±30	8
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

■ 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.
GP1FM313RZ0F	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
☆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
GP1FM513RZ0F	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
☆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
GP1FA352RZ0F	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
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
GP1FA553RZ0F	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
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
GP1FA513RZ0F	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
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
GP1FA313RZ0F	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
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

★Under development

■ Fiber Optic Receivers (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

GP1FM313 series
(GP1FM513 series)

GP1FMV31 series
(GP1FMV51 series)

GP1FA553TZ0F
{GP1FA553RZ0F, GP1FA352 series, GP1FA554TZ0F}

GP1FAV50TK0F
{GP1FAV50RK0F, GP1FAV30TK0F, GP1FAV30RK0F}

GP1FA513TZ0F
{GP1FA513, GP1FA313, GP1FA51H series, GP1FA52HTZ0F}

GP1FAV51TK0F
{GP1FAV51RK0F, GP1FAV55TK0F, GP1FAV31TK0F, GP1FAV31RK0F}

GP1FP513TK0F
(GP1FP513RK0F)

GP1FD210TP0F
{GP1FD210RP0F, GP1FD310TP0F, GP1FD320TP0F}

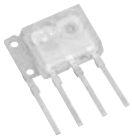
GP1FC300TP0F

■ Transmission Device for Optic Fiber

Model No.	Features	Operating temperature (°C)	Optic output (dBm)	Operating voltage (V)	Transmission speed T (Mb/s)
★GP5FM5T01AZ	• MOST standard compatible • Wide operating temperature range	–40 to +105	–9 to –1.5	4.75 to 5.25	25 (Biphase)

■ Reception Device for Optic Fiber

Model No.	Features	Operating temperature (°C)	Optic output (dBm)	Operating voltage (V)	Transmission speed T (Mb/s)
★GP5FM5R01AZ	• MOST standard compatible • Wide operating temperature range	–40 to +105	–24 to –2	4.75 to 5.25	25 (Biphase)



GP5FM5T01AZ

GP5FM5R01AZ