



■ 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 | 83 |
| High response speed | Case type | High resolution | PWB mounting type/ Soldering reflow | GP1S2xJ0000F series/GP1S092HCPIF/ GP1S9xJ0000F series/ GP1S09xHCZ0F series/ GP1S19xHCZ0F/GP1S19xHCxSF | 83 |
| | | Two-phase PT output | PWB mounting type | GP1S39J0000F | 83 |
| | | General purpose | Snap-in | GP1S566VJ00F | 84 |
| | With connector | High resolution | PWB mounting type, etc. | GP1S5x series/GP1S5xVJ000F series/ GP1S56x series | 84 |
| | | Horizontal slit, High resolution | PWB mounting type | GP1S59J0000F/GP1S525VJ00F | 84 |
| | | General purpose | Snap-in | GP1S74PJ000F | 84 |
| Darlington phototransistor | Case type | General purpose | PWB mounting type, etc. | GP1L5xJ series/GP1L5xV series | 85 |
| High sensitivity | | Wide gap | PWB mounting type | GP1L57J0000F | 85 |
| Digital output | Compact | Low voltage operation | PWB mounting type | GP1A91 series/GP1A98HCZ0F | 85 |
| (OPIC output) | Case type | High resolution | PWB mounting type | GP1A5x series | 86 |
| | | Wide gap | Both-side/PWB mounting type | GP1A5xHR series/GP1A52LRJ00F | 86 |
| | With connector | General purpose | Screw mounting type/Snap-in | GP1A05 series/GP1A7x series/ GP1A07x series | 87 |

<Reflective type>

| Output type | Package type | Outline | Mounting method | Model No. (series) | Page |
|----------------------------|-----------------------------|--|--|--|------|
| Single phototransistor | Compact, DIP | General purpose | PWB mounting type | GP2S2x series | 87 |
| High response speed | | Long focal distance | PWB mounting type | GP2S40J0000F | 87 |
| | Leadless | Long focal distance | PWB mounting type | GP2S700HCP | 87 |
| | Compact, thin (leadless) | General purpose | PWB mounting type | GP2S60 | 87 |
| Darlington phototransistor | Compact, DIP | General purpose | PWB mounting type | GP2L24J0000F | 88 |
| High sensitivity | | | Screw mounting type/ Compact snap-in/ Inverter light countermeasures | GP2A2x series, GP2A200LCS0F/ GP2A231LRSAF, GP2A240LCS0F | 88 |
| OPIC output | With connector | Light modulation type, Sensitivity adjusted | | | |

<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 | 89 | |
| | With connector With actuator (OPIC output) | Snap-in | GP1A44E1J00F | 89 | |
| | Compact, [built-in ball] | (2-phase PT output) 3 direction detection | PWB mounting type | GP1S36J0000F | 90 |
| | | (2-phase PT output) 4 direction detection | PWB mounting type | GP1S036HEZ | 90 |
| | Case type With encoder function | Resolution: Linear scale slit pitch: 0.7 mm | Side mounting type | GP1A3xR series | 90 |
| | Phase A (digital output) Phase B (digital output) | Resolution: Linear scale slit pitch: 0.17/0.14 mm | PWB mounting type | GP1A038RBK0F/GP1A046RBZLF/ GP1A047RBZLF/GP1A038RCK0F/ GP1A044RCKLF | 90 |
| | | Resolution: Linear scale slit pitch: 0.085 | PWB mounting type | GP1A037RDKJF/GP1A047RDZLF | 90 |
| Reflective type | Injection For prism system (Single phototransistor) | Screw mounting | GP2S29SJ000F | 91 | |
| | For amusement industry | - | GP2A221HRKA/GP2A222HCKA | 91 | |



Photointerrupters

<Transmissive type>

◆ Single phototransistor output

<Compact type>

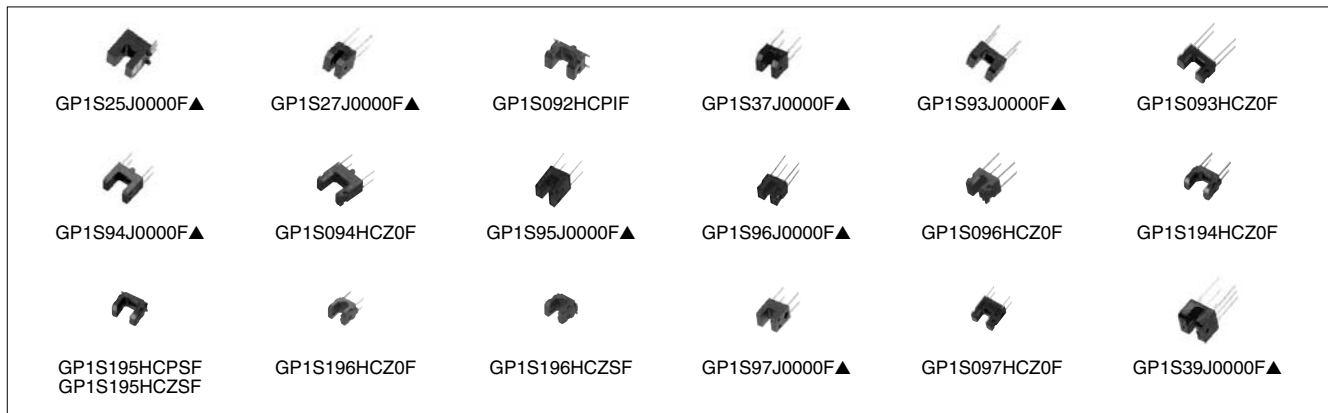
(Ta = 25°C)

| Model No. | Internal connection diagram | Features | Detecting and emitting gap (mm) | Slit width (mm) | Electro-optical characteristics | | | | | | |
|------------------------------|-----------------------------|---|---|-----------------|---------------------------------|---------|---------|---------------|---------|--------|---------|
| | | | | | Current transfer ratio | | | Response time | | | |
| | | | | | CTR (%) MIN. | IF (mA) | VCE (V) | tr (μs) TYP. | Ic (mA) | RL (Ω) | VCE (V) |
| 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 |

* Topr: -25 to +85 °C

*1 Reading pitch

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



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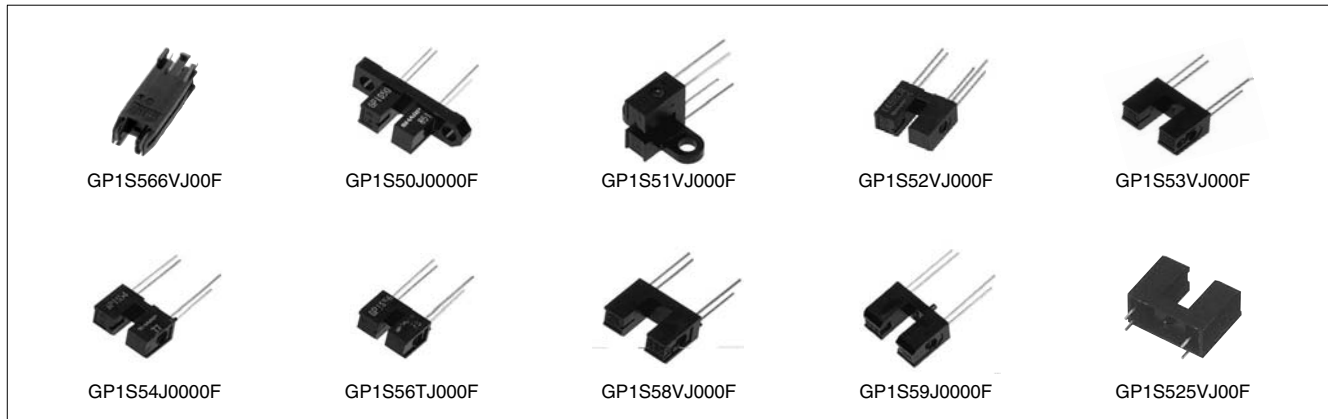
<Case type>

(Ta = 25°C)

| Model No. | Internal connection diagram | Features | Detecting and emitting gap (mm) | Slit width (mm) | Electro-optical characteristics | | | | | | |
|----------------|-----------------------------|--|---------------------------------|-----------------|---------------------------------|---------|---------|---------------|---------|--------|---------|
| | | | | | Current transfer ratio | | | Response time | | | |
| | | | | | CTR (%) MIN. | 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



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◆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) |
| GP1L50J000F | | High resolution, both-side mounting type | 3.0 | 0.5 | 50 | 1 | 2 | 80 | 2 | 100 | 2 |
| GP1L51J000F | | 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 |
| GP1L57J000F | | 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>

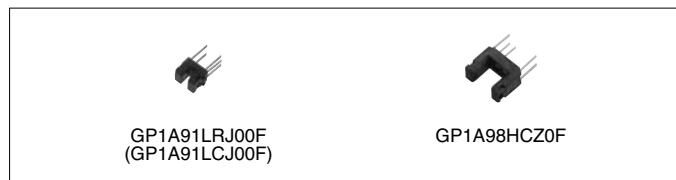
(Ta = 25°C)

| Model No. | Internal connection diagram | Features | Detecting and emitting gap (mm) | Slit width (mm) | Electro-optical characteristics | | | | | | | |
|---------------|-----------------------------|---|---------------------------------|-----------------|---------------------------------|----------------|-----------|------------------------|----------------|---------|-----------------|-----------|
| | | | | | Threshold input current | | | Propagation delay time | | | | |
| | | | | | IFLH (mA) MAX. | IFHL (mA) MAX. | VCC (V) | tPLH (μs) TYP. | tPHL (μs) TYP. | IF (mA) | RL (Ω) | VCC (V) |
| 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 |
| ☆GP1A98HCZ0F | | Compact, PWB mounting | 3.0 | 0.5 | 8 | - | 3.3 to 24 | 10.0 | 2.0 | 10 | 3 900 to 20 000 | 3.3 to 24 |

* Topr = -25 to +85°C

*1 Resolution of detecting portion

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



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<Case type>

(Ta = 25°C)

| Model No. | Internal connection diagram | Features | Detecting and emitting gap (mm) | Slit width (mm) | Electro-optical characteristics | | | | | | | |
|--------------|-----------------------------|---|---------------------------------|-----------------|---------------------------------|----------------|---------|------------------------|----------------|---------|--------|---------|
| | | | | | Threshold input current | | | Propagation delay time | | | | |
| | | | | | IFLH (mA) MAX. | IFHL (mA) MAX. | VCC (V) | tPLH (μs) TYP. | tPHL (μs) TYP. | IF (mA) | RL (Ω) | VCC (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



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

<With 3-pin connector terminal>

(Ta = 25°C)

| Model No. | Internal connection diagram | Features | Detecting and emitting gap (mm) | Slit width (mm) | Electro-optical characteristics | | | | | |
|--------------|-----------------------------|---|---------------------------------|-----------------|------------------------------------|------|--------------------------|--------------------------|----------------------|---------------------|
| | | | | | Supply voltage V _{CC} (V) | | V _{OL} (V) MAX. | Low level output voltage | | |
| | | | | | MIN. | MAX. | | Light cut-off | I _{OL} (mA) | V _{CC} (V) |
| GP1A05AJ000F | | 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 | 5.0 | 0.5 | 4.5 | 5.5 | 0.4 | Yes | 16 | 5 |
| GP1A05E2J00F | | Screw mounting type | 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) | t _r (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 leadless type | 3 | 1.5 | 4 | 2 | 20 | 0.1 | 1 000 | 2 | |
| GP2S60 | | Thin (3.2 × 1.7 × t: 1.1 mm), leadless type | (0.5) | 1.75 ^{*1} TYP. | 4 | 2 | 20 | 0.1 | 1 000 | 2 | |

* Topr: -25 to +85°C

*1 Detection area



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◆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. | IF (mA) | VCE (V) | tr (μs) TYP. | Ic (mA) | RL (Ω) | VCE (V) | |
| GP2L24J0000F | | Compact (DIP), visible light cut-off | 0.7 | 12.5 | 4 | 2 | 80 | 10 | 100 | 2 | |



◆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)

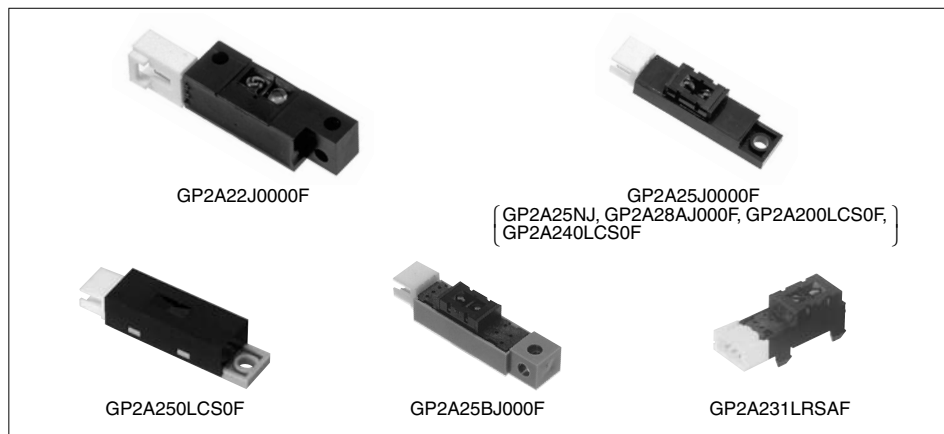
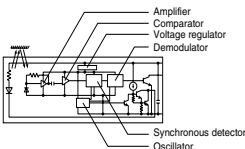
| Model No. | Internal connection diagram | Features | Optimum detecting distance (mm) | Electro-optical characteristics | | | | | |
|---------------|-----------------------------|--|---------------------------------|---------------------------------|------|-----------------------------------|--------------------------|--------------|---------|
| | | | | Supply voltage Vcc (V) | | Dissipation current Icc (mA) MAX. | Low level output voltage | | |
| | | | | MIN. | MAX. | | Vcc (V) | VoL (V) MAX. | Vcc (V) |
| GP2A22J0000F▲ | | 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 |
| GP2A231LRS0F | | 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 |
| GP2A25NJ000F | | Multi types of paper detectable, light modulation type, sensitivity adjusted, applicable to inverter fluorescent lamp, built-in visible light cut filter | 3 to 6 | 4.75 | 5.25 | 30*1 | 5 | 0.4 | 5 |
| GP2A25BJ000F | | Multi types of paper detectable, light modulation type, with connector, sensitivity adjusted | 3 to 7 | 4.75 | 5.25 | 30*1 | 5 | 0.4 | 5 |
| GP2A28AJ000F | | Multi types of paper detectable, light modulation type, with connector, sensitivity adjusted, detecting portion with flat configuration | 3 to 7 | 4.75 | 5.25 | 30*1 | 5 | 0.4 | 5 |

* Top: -10 to +60°C (GP2A22J0000F, GP2A25J0000F, GP2A25BJ000F)

*1 Smoothing value RL = ∞

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

[Internal connection diagram]



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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 | | |
| | | | | Icc1 (mA) | Vcc (V) | Ic1 (μA) | Vcc (V) | Vo (V) | Icc2 (mA) | Vcc (V) | Ic2 (mA) | Vcc (V) | Vo (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 | | | | | | | | | | |
|--------------|-----------------------------|--|--------------------------|-------------------------|------------------------------------|--------------------------------------|------------------------|----------|--------------------------|---------|----------|--------------------------|----------------|---------------------------|---------|---------|
| | | | Supply voltage Vcc (V) | Output current IOL (mA) | | Actuator lever starting torque | Light beam interrupted | | | | | Light beam uninterrupted | | | | |
| | | | | | | | Dissipation current | | Low level output voltage | | | Dissipation current | | High level output voltage | | |
| | | | | | | | Iccl (mA) | Vcc (V) | VOL (V) | Vcc (V) | IOL (mA) | Icch (mA) | Vcc (V) | VOH (V) | Vcc (V) | RL (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



Notice

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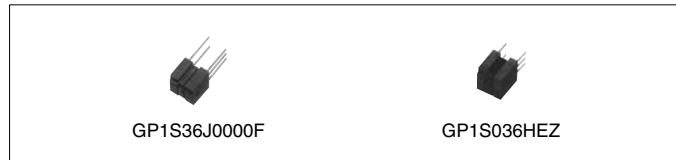
<Compact, 2-phase phototransistor output type>

(Ta = 25°C)

| Model No. | Internal connection diagram | Features | Electro-optical characteristics | | | | | | |
|---------------|-----------------------------|---|---------------------------------|---------|---------|---------------|---------|--------|---------|
| | | | Current transfer ratio | | | Response time | | | |
| | | | CTR (%) MIN. | IF (mA) | VCE (V) | tr (μs) TYP. | IC (mA) | RL (Ω) | VCE (V) |
| GP1S36J0000F▲ | | Built-in ball (2 phase output), compact, PWB mounting type | 1.2 | 5 | 5 | 50 | 0.1 | 1 000 | 5 |
| GP1S036HEZ▲ | | Built-in ball (2 phase output), compact, PWB mounting type, 4-direction detection | 1.1 | 5 | 5 | 50 | 0.1 | 1 000 | 5 |

* Topr: -25 to +85 °C

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



<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. | 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 | | Linear scale slit pitch 0.17 (mm) | 20 | 11 | 5 |
| GP1A038RCK0F*1, *3 | 7 | 0 to +70 | 2.7 to 5.5 | | Linear scale slit pitch 0.14 (mm) | 20 | 11 | 5 |
| GP1A037RDKJF*1, *3 | 7 | 0 to +70 | 2.7 to 5.5 | | Linear scale slit pitch 0.0847 (mm) | 40 | 25 | 10 |
| GP1A044RCKLF*1 | — | -10 to +60 | 2.7 to 5.5 | | Linear scale slit pitch 0.14 (mm) | 20 | 15 | 5 |
| GP1A046RBZLF*1 | — | -10 to +60 | 2.7 to 5.5 | | Linear scale slit pitch 0.17 (mm) | 20 | 20 | 5 |
| GP1A047RBZLF | — | 0 to +60 | 2.7 to 5.5 | | Linear scale slit pitch 0.17 (mm) | 20 | 20 | 7 |
| GP1A047RDZLF | — | -10 to +60 | 2.7 to 5.5 | | Linear scale slit pitch 0.0847 (mm) | 120 | 20 | 7 |

*1 High precision read and low affection of angle error from vibration thanks to the multi-segment PD system

*2 Duty ratio: 50±10%, phase difference: 90±30°

*3 Duty ratio: 50±20%, phase difference: 90±45°

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◆ 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. | IF (mA) | VCE (V) | tr (μs) TYP. | Ic (mA) | RL (Ω) | VCE (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 Icc (mA) | Response frequency f (Hz) |
| GP2A221HRKA | Employs reflective type, pinball detector, connector with lock | 4.5 to 15 | MAX. 10 | MAX. 500 |
| GP2A222HCKA | Employs reflective type, pinball detector, connector with lock In conjunction with an IC, detects beam interruption*1 | 4.5 to 16.5 | MAX. 10 | MAX. 500 |

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



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