

PCB Relay

G5A

Subminiature Relay (16 x 9.9 x 8.4 mm (L x W x H)) with DPDT Contact

- Unique moving-loop armature reduces relay size, magnetic interference and contact bounce time.
- Miniature permissible load: 0.01 mA 10 mVDC.
- Bifurcated gold-clad crossbar contact.
- International 2.54-mm terminal pitch.
- Special models available for FCC Part 68 compliance.



Ordering Information

| Classification | | Single-side stable | Single-winding latching | Double-winding latching |
|----------------|----------------|--------------------|-------------------------|-------------------------|
| DPDT | Plastic-sealed | G5A-234P | G5AU-234P | G5AK-234P |

Note: When ordering, add the rated coil voltage to the model number.

Example: G5A-234P 12 VDC

Rated coil voltage

Model Number Legend:

G5A - - VDC
 1 2 3 4 5 6 7

1. Relay Function

None: Single-side stable
 U: Single-winding latching
 K: Double-winding latching

2. Contact Form

2: DPDT

3. Contact Type

3: Bifurcated crossbar Ag (Au-clad)

4. Enclosure Rating

4: Plastic-sealed

5. Terminals

P: Straight PCB
 C: Self-clinching PCB

6. Special Function

None: General-purpose
 FC: FCC part 68 compliance
 U: For ultrasonically cleanable

7. Rated Coil Voltage

3, 5, 6, 9, 12, 24, 48 VDC

Specifications

■ Coil Ratings

Single-side Stable Types

| | | | | | | | |
|-------------------------------------|---|--------------|--------------|--------------|--------------|----------------|---|
| Rated voltage | 3 VDC | 5 VDC | 6 VDC | 9 VDC | 12 VDC | 24 VDC | 48 VDC |
| Rated current | 66.7 mA | 40 mA | 33.3 mA | 22.2 mA | 16.7 mA | 8.3 mA | 5.8 mA |
| Coil resistance | 45 Ω | 125 Ω | 180 Ω | 405 Ω | 720 Ω | 2,880 Ω | 8,230 Ω |
| Coil inductance (H) (ref. value) | Armature OFF | 0.048 | 0.13 | 0.17 | 0.43 | 0.71 | 2.76 |
| | Armature ON | 0.043 | 0.12 | 0.16 | 0.4 | 0.68 | 2.70 |
| Must operate voltage | 70% max. of rated voltage | | | | | | |
| Must release voltage | 10% min. of rated voltage | | | | | | |
| Max. voltage | 200% of rated voltage at 23°C, 140% at 70°C | | | | | | 170% of rated voltage at 23°C, 110% at 70°C |
| Power consumption | Approx. 200 mW | | | | | | Approx. 280 mW |

Single/Double-winding Latching Types

| | | | | | | |
|-------------------------------------|---|--------------|--------------|--------------|--------------|----------------|
| Rated voltage | 3 VDC | 5 VDC | 6 VDC | 9 VDC | 12 VDC | 24 VDC |
| Rated current | 66.7 mA | 40 mA | 33.3 mA | 22.2 mA | 16.7 mA | 8.3 mA |
| Coil resistance | 45 Ω | 125 Ω | 180 Ω | 405 Ω | 720 Ω | 2,880 Ω |
| Coil inductance (H) (ref. value) | Armature OFF | 0.02 | 0.06 | 0.08 | 0.17 | 0.29 |
| | Armature ON | 0.02 | 0.05 | 0.07 | 0.14 | 0.24 |
| Must operate voltage | 80% max. of rated voltage | | | | | |
| Must release voltage | 80% min. of rated voltage | | | | | |
| Max. voltage | 200% of rated voltage at 23°C, 140% at 70°C | | | | | |
| Power consumption | Approx. 200 mW | | | | | |

- Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 10\%$.
2. Operating characteristics are measured at a coil temperature of 23°C.

■ Contact Ratings

| | | |
|-------------------------|-----------------------------------|--|
| Load | Resistive load ($\cos\phi = 1$) | Inductive load ($\cos\phi = 0.4$) (L/R = 7 ms) |
| Rated load | 0.5 A at 30 VAC; 1 A at 30 VDC | 0.1 A at 30 VAC; 0.2 A at 30 VDC |
| Contact material | Ag (Au-clad) | |
| Rated carry current | 1 A | |
| Max. switching voltage | 125 VAC, 125 VDC | |
| Max. switching current | 1 A | 0.5 A |
| Max. switching capacity | 37.5 VA, 33 W | 12.5 VA, 11 W |
| Min. permissible load | 0.01 mA at 10 mVDC | |

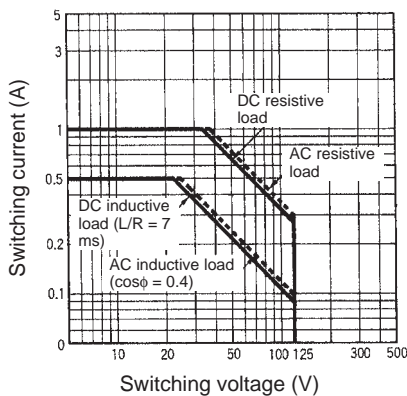
- Note:** P level: $\lambda_{60} = 0.1 \times 10^{-6}/\text{operation}$

■ Characteristics

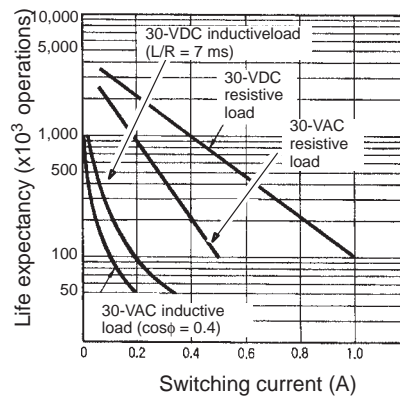
| | |
|------------------------------------|--|
| Contact resistance | 50 mΩ max. |
| Operate (set) time | Single-side stable types: 5 ms max. (mean value: approx. 2.4 ms) Latching types: 5 ms max. (mean value: approx. 2 ms) |
| Release (reset) time | Single-side stable types: 5 ms max. (mean value: approx. 1.1 ms) Latching types: 5 ms max. (mean value: approx. 1.8 ms) |
| Bounce time | Operate: Approx. 0.5 ms Release: Approx. 0.5 ms |
| Min. set/reset signal width | Latching type: 7 ms |
| Max. operating frequency | Mechanical: 36,000 operations/hr Electrical: 1,800 operations/hr (under rated load) |
| Insulation resistance | 1,000 MΩ min. (at 500 VDC) |
| Dielectric strength | 1,000 VAC, 50/60 Hz for 1 min between coil and contacts 1,000 VAC, 50/60 Hz for 1 min between contacts of different polarity 500 VAC, 50/60 Hz for 1 min between contacts of same polarity 100 VAC, 50/60 Hz for 1 min between set and reset coils (double-winding type only) |
| Impulse withstand voltage | 1,500 V 10 × 160 μs between contacts of same polarity (conforms to FCC Part 68) |
| Vibration resistance | Destruction: 10 to 55 Hz, 1.5-mm double amplitude Malfunction: 10 to 55 Hz, 1.5-mm double amplitude |
| Shock resistance | Destruction: 1,000 m/s ² (approx. 100G) Malfunction: 300 m/s ² (approx. 30G) |
| Life expectancy | Mechanical: 50,000,000 operations min. (at 36,000 operations/hr) Electrical: 100,000 operations min. (at 1,800 operations/hr) |
| Ambient temperature | Operating: -40°C to 70°C (with no icing) Storage: -40°C to 70°C (with no icing) |
| Ambient humidity | Operating: 45% to 85% |
| Weight | Approx. 3 g |

Engineering Data

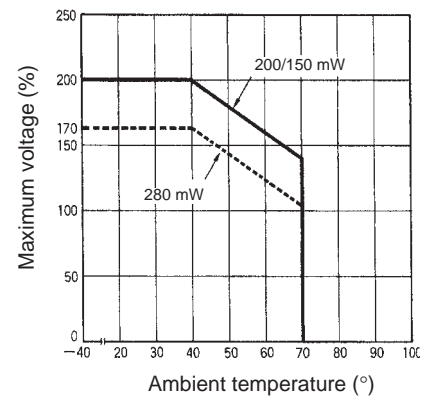
Max. Switching Capacity



Life Expectancy



Ambient Temperature vs. Maximum Voltage



■ Approved Standards

UL114, UL478 (File No.E41515)/CSA C22.2 No.0, No.14 (File No.LR24825)

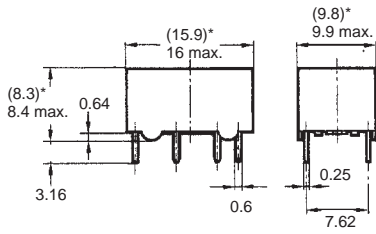
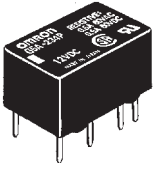
| Model | Contact form | Coil ratings | Contact ratings |
|-----------|--------------|--------------|---|
| G5A-234P | DPDT | 3 to 48 VDC | 0.5 A, 60 VAC 0.5 A, 60 VDC 1 A, 30 VDC |
| G5AU-234P | | 3 to 24 VDC | |
| G5AK-234P | | | |

Dimensions

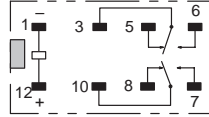
Note: 1. All units are in millimeters unless otherwise indicated.

2. Orientation marks are indicated as follows:  

G5A-234P

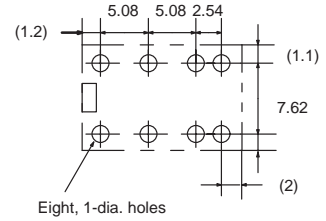


Terminal Arrangement/ Internal Connections (Bottom View)

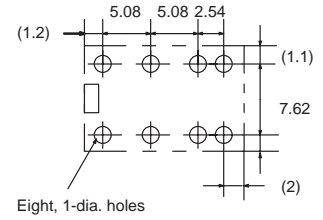
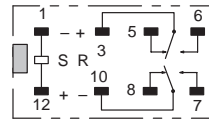
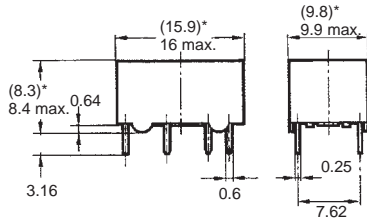
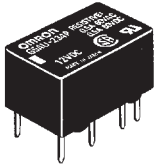


Mounting Holes (Bottom View)

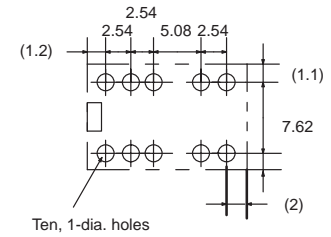
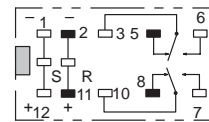
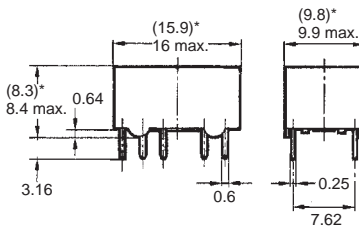
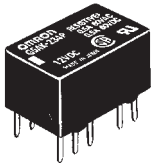
Tolerance: ± 0.1



G5AU-234P



G5AK-234P



S: Set coil
R: Reset coil

*Average value

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.