

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	7.44
	Armature ON	0.043	0.12	0.16	0.4	0.68	2.70	7.25
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	1.1
	Armature ON	0.02	0.05	0.07	0.14	0.24	0.85
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	

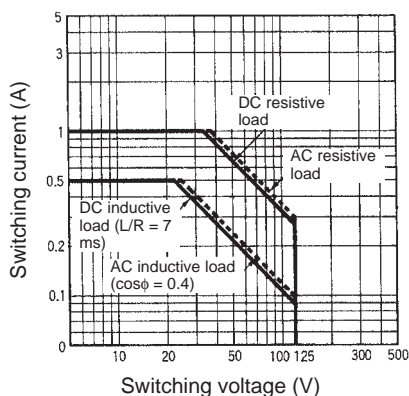
Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}/\text{operation}$

■ Characteristics

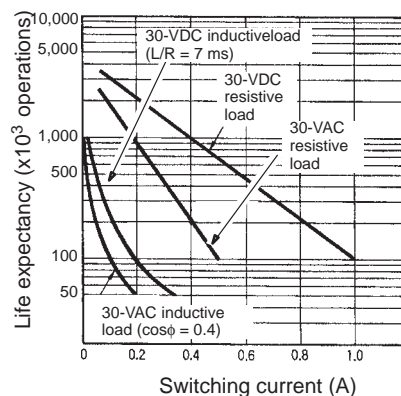
Contact resistance	50 mΩ max.
Operate (set) time	Single-side stable types: 5 ms max. (mean value: approx. 2.4 ms) Latching types: 5 ms max. (mean value: approx. 2 ms)
Release (reset) time	Single-side stable types: 5 ms max. (mean value: approx. 1.1 ms) Latching types: 5 ms max. (mean value: approx. 1.8 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 x 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

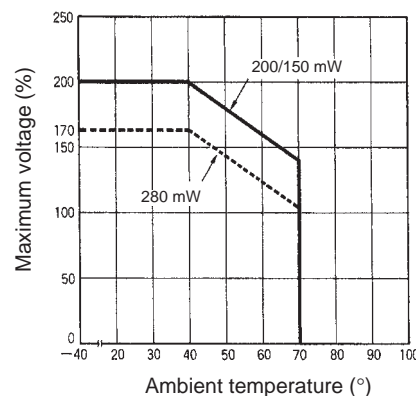
Max. Switching Capacity



Life Expectancy



Ambient Temperature vs. Maximum Voltage





■ Approved Standards

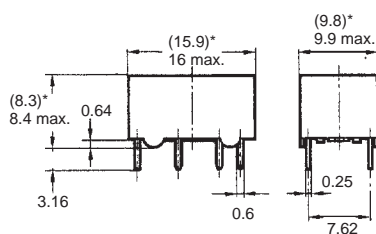
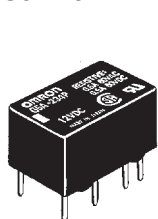
UL114, UL478 (File No.E41515)/CSA C22.2 No.0, No.14 (File No.LR24825)

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

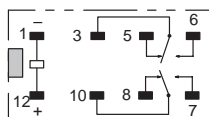
Dimensions

- Note:** 1. All units are in millimeters unless otherwise indicated.
2. Orientation marks are indicated as follows:  

G5A-234P

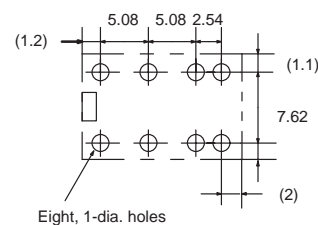


Terminal Arrangement/ Internal Connections (Bottom View)

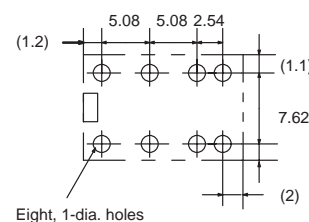
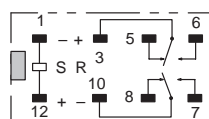
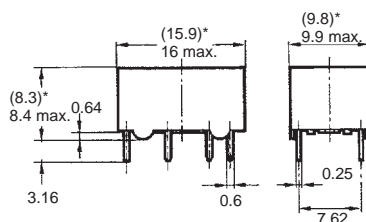
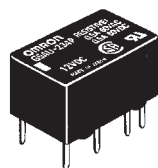


Mounting Holes (Bottom View)

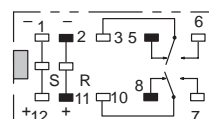
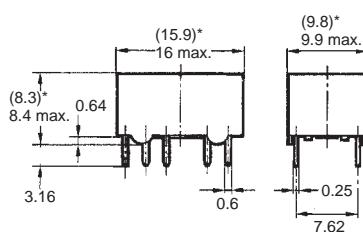
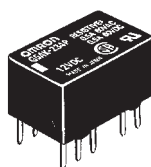
Tolerance: ± 0.1



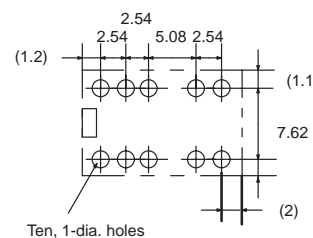
G5AU-234P



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.