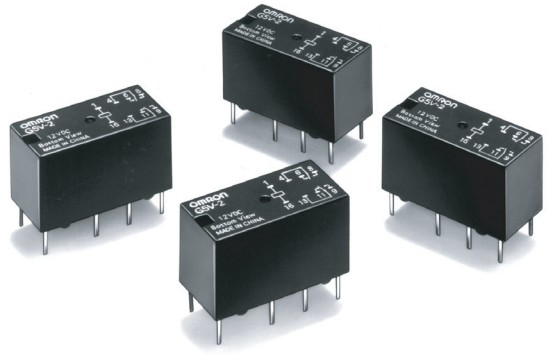
Low Signal Relay
G5V-2

Miniature Relay for Signal Circuits

- Suitable for handling low signals in computer peripherals, telecommunications and security equipment.
- Capable of switching loads 10μA to 2 A.
- Conforms to FCC part 68 1,500 V surge withstand.
- Reliable Ag + Au-clad, bifurcated crossbar contacts.
- Fully-sealed construction.
- RoHS Compliant.



FCC

Ordering Information

To Order: Select the part number and add the desired coil voltage rating (e.g., G5V-2-*DC12*).

Type	Contact form	Construction	Model
Standard	DPDT	Fully-sealed	**G5V-2**
High-sensitivity			**G5V-2-H1**

Model Number Legend

G5V - □ - □ DC □
1 2 3

1. **Contact Form**
   2: DPDT
2. **Coil type**
   Blank: Standard
   H1: High-sensitivity
3. **Rated Coil Voltage**
   3, 5, 6, 9, 12, 24, 48 VDC

Specifications

■ Contact Data

Item	Standard	High-sensitivity
Load	Resistive load (p.f. = 1)	
Rated load	0.50 A at 125 VAC 2 A at 30 VDC	0.5 A at 125 VAC 1 A at 24 VDC
Contact material	Ag (Au clad)	
Carry current	2 A	
Max. operating voltage	125 VAC 125 VDC	
Max. operating current	2 A	1 A
Max. switching capacity	62.5 VA 60W	62.5 VA 24W
Min. permissible load (See note)	10 μA, 10 mVDC	

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}$/operation
This value was measured at a switching frequency of 120 operations/min and the criterion of contact resistance is 50 Ω. This value may vary depending on the switching frequency and operating environment. Always double-check relay suitability under actual operating conditions.

■ Coil Data

Standard Type

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (Ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON	% of rated voltage			
3	166.70	18	0.04	0.05	75% max.	5% min.	120% max. at 23°C	Approx. 500
5	100	50	0.09	0.11				
6	83.30	72	0.16	0.19				
9	55.60	162	0.31	0.49				
12	41.70	288	0.47	0.74				
24	20.80	1,152	1.98	2.63				
48	12	4,000	7.23	10.00				Approx. 580

High-sensitivity Type

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (Ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON	% of rated voltage			
3	50	60	0.18	0.57	75% max.	5% min.	180% max. at 23°C	Approx. 150
5	30	166.7	0.46	0.71				
6	25	240	0.70	0.97				
9	16.70	540	1.67	2.33				
12	12.50	960	2.90	3.99				
24	8.33	2,880	6.72	9.27				Approx. 200
48	6.25	7,680	20.10	26.70			150% max. at 23°C	Approx. 300

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

2. The operating characteristics are measured at a coil temperature of 23°C.

3. The maximum voltage is the highest voltage that can be imposed on the relay coil.

Characteristics

Contact resistance (See note 1)		50 mΩ max. (G5V-2); 100 mΩ max. (G5V-2-H1)
Operate time (See note 2)		7 ms max. (mean value: approx. 3.5 ms)
Release time (See note 2)		3 ms max. (mean value: approx. 0.8 ms)
Operating frequency (max.)	**Mechanical**	36,000 operations/hour
	Electrical	1,800 operations/hour (under rated load)
Insulation resistance (See note 3)		1,000 MΩ min (at 500 VDC)
Dielectric strength		1,000 VAC, 50/60 Hz for 1 minute between coil and contacts 1,000 VAC, 50/60 Hz for 1 minute between contacts of different poles 750 VAC, 50/60 Hz for 1 minute between contacts of same poles (500 VAC, 50/60 Hz for 1 minute between contacts of same poles for high-sensitive type)
Surge withstand voltage		1,500 V (10 X 160 μs) between coil and contacts (conforms to part 68 of FCC rules)
Vibration	**Mechanical durability**	10 to 55 Hz, 1.50 mm double amplitude
	Malfunction durability	
Shock	**Mechanical durability**	1,000 m/s² (approx. 100 G)
	Malfunction durability	200 m/s² (approx. 20 G), 100 m/s² (approx. 10 G) for high-sensitive type
Ambient temperature	**Operating/storage**	-25° to 70°C (“-H1” versions) with no icing -25° to 65°C (standard versions) with no icing
Humidity		5% to 85% RH
Service life	**Mechanical**	15 million operations min. (at operating frequency of 36,000 operations/hour)
	Electrical	100,000 operations min. (at 1,800 operations/hr). See “Characteristic Data”
Weight		Approx. 5 g

Note: 1. The contact resistance was measured with 10 mA at 1 VDC with a fall-of-potential method.

2. Values in parentheses are typical values unless otherwise stated.

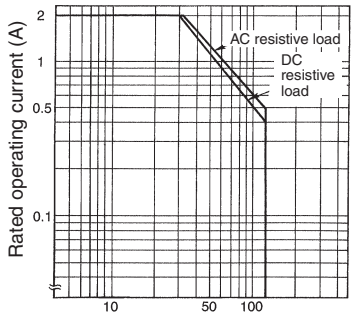
3. The insulation resistance was measured with a 500-VDC megohmmeter applied to the same parts as those for checking the dielectric strength.

4. The above values are initial values.

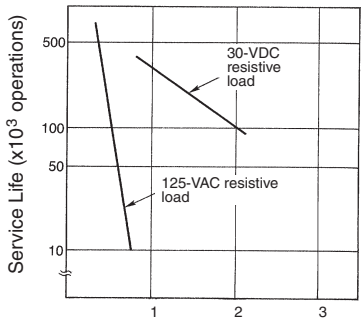
■ Characteristic Data

G5V-2

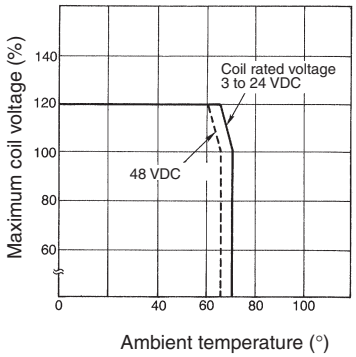
Maximum Switching Capacity



Electrical Service Life



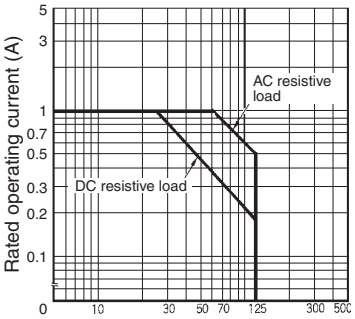
Ambient Temperature vs. Maximum Coil Voltage



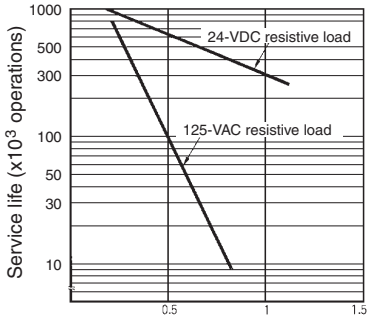
Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

G5V-2-H1

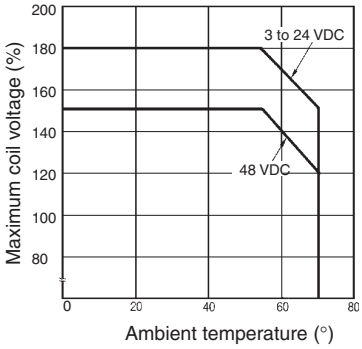
Maximum Switching Capacity



Electrical Service Life



Ambient Temperature vs. Maximum Coil Voltage

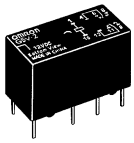


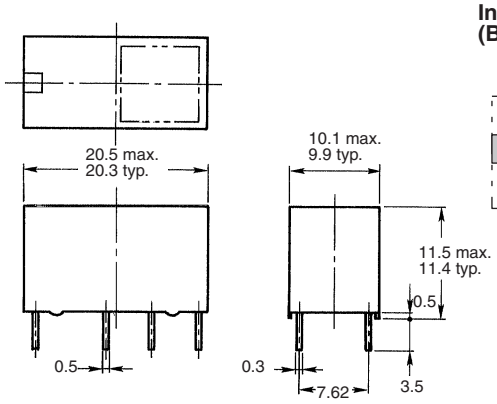
Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

Dimensions

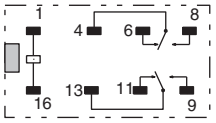
Note: 1. All units are in millimeters unless otherwise indicated.
2. Tolerance: ±0.1
3. Orientation marks are indicated as follows:

G5V-2, G5V-2-H1



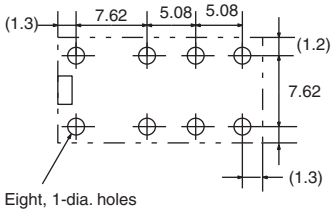


Terminal Arrangement/ Internal Connections (Bottom View)



Mounting Holes (Bottom View)

Tolerance: ±0.1



■ Approvals

UL Recognized (File No. E41515) / CSA Certified (File No. LR31928) - - Ambient Temp. = 40°C

Type	Contact form	Coil rating	Contact ratings
G5V-2	DPDT	3 to 48 VDC	0.6 A at 125 VAC (General Use) 0.6 A at 110 VDC (Resistive) 2 A at 30 VDC (Resistive)
G5V-2-H1		3 to 48 VDC	0.5 A at 125 VAC (General Use) 0.2 A at 110 VDC (Resistive) 1 A at 24 VDC (Resistive)

Note: 1. The rated values approved by each of the safety standards may be different from the performance characteristics individually defined in this catalog.
2. In the interest of product improvement, specifications are subject to change.

Precautions

Long-term Continuously ON Contacts

Using the Relay in a circuit where the Relay will be ON continuously for long periods (without switching) can lead to unstable contacts because the heat generated by the coil itself will affect the insulation, causing a film to develop on the contact surfaces. Be sure to use a fail-safe circuit design that provides protection against contact failure or coil burnout.

Relay Handling

When washing the product after soldering the Relay to a PCB, use a water-based solvent or alcohol-based solvent, and keep the solvent temperature to less than 40°C. Do not put the Relay in a cold cleaning bath immediately after soldering.

Omron Electronic Components, LLC

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1. Definitions: The words used herein are defined as follows.
   (a) Terms: These terms and conditions
   (b) Seller: Omron Electronic Components LLC and its subsidiaries
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   (d) Products: Products and/or services of Seller
   (e) Including: Including without limitation
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   (iii) Use in consumer products or any use in significant quantities.
   (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this product.

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