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.



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Ordering Information

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

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

Model Number Legend

G5V - _ _ - _ DC _

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 0.5 A at 125 VAC			
	2 A at 30 VDC	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	62.5 VA		
	60W	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 50Ω . 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)	resistance	Coil inductance (Ref. value) (H) Armature OFF Armature ON		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption
		(Ω)			% of rated voltage			(mW)
3	166.70	18	0.04	0.05	75% max.	5% min.		Approx. 500
5	100	50	0.09	0.11			at 23°C	
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)		resistance	Coil inductance (Ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption
	Armature OFF		Armature ON	9	of rated voltage	je	(mW)	
3	50	60	0.18	0.57	75% max.	5% min.	180% max.	Approx. 150
5	30	166.7	0.46	0.71			at 23°C	
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

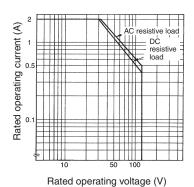
Contact resistance (See note 1)		50 m Ω max. (G5V-2); 100 m Ω max. (G5V-2-H1)		
Operate time (See note 2)		7 ms max. (mean value: approx. 3.5 ms)		
Release time (See note 2)		3 ms max. (mean value: approx. 0.8 ms)		
Operating frequency	Mechanical	36,000 operations/hour		
(max.)	Electrical	1,800 operations/hour (under rated load)		
Insulation resistance (See	note 3)	1,000 M Ω 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/s ² (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), standard models. 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.

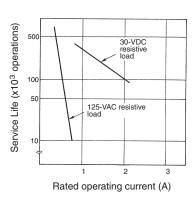
■ Characteristic Data

G5V-2

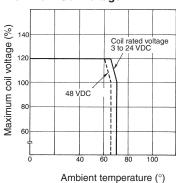
Maximum Switching Capacity



Electrical Service Life



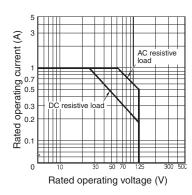
Ambient Temperature vs. Maximum Coil Voltage



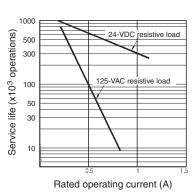
Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

G5V-2-H1

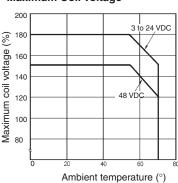
Maximum Switching Capacity



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.

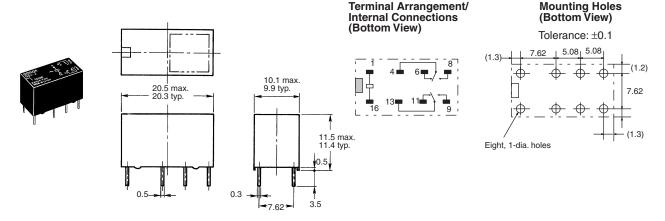
Dimensions

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



■ Approvals

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

Туре	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

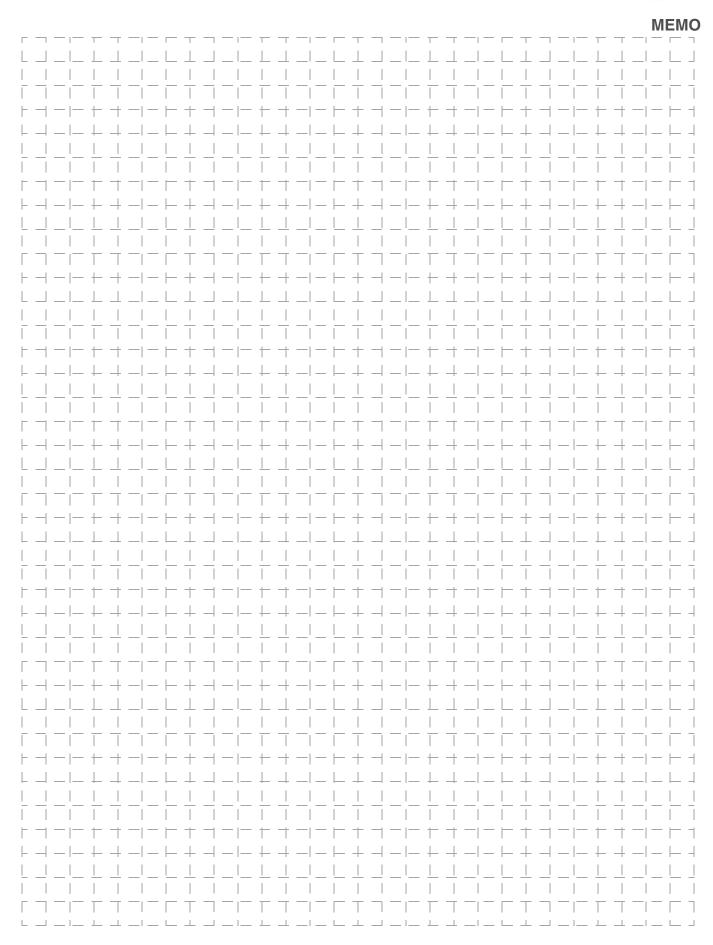
Long-term Continuously ON Contacts

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.

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

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