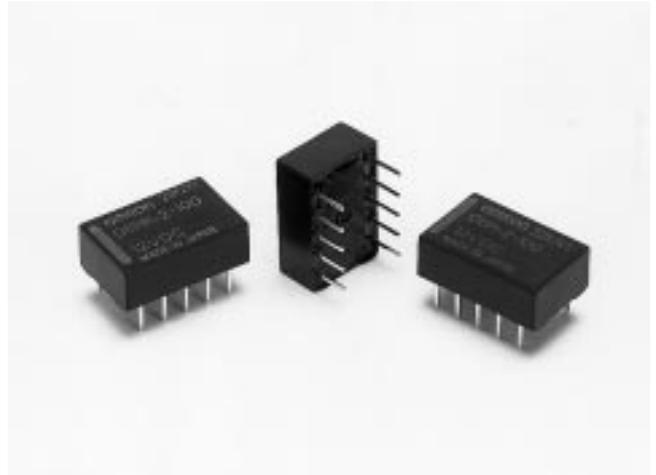


## PCB Relay

## G6H

### Ultracompact, Ultrasensitive DPDT Relay

- Compact size and low 5-mm profile.
- Low power consumption (140 mW for single-side stable, 100 to 300 mW for latching type) and high sensitivity.
- Low thermoelectromotive force.
- Low magnetic interference enables high-density mounting.
- Single- and double-winding latching types also available.



### Ordering Information

Classification		Single-side stable	Single-winding latching	Double-winding latching
DPDT	Plastic sealed	G6H-2	G6HU-2	G6HK-2
	PCB terminal	G6H-2F	---	---

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

Example: G6HK-2 12 VDC

Rated coil voltage

#### Model Number Legend:

G6H   -     -     VDC

1      2      3      4      5

**1. Relay Function**

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

**2. Contact Form**

2: DPDT

**3. Terminal Shape**

None: PCB terminal  
 F: Surface mount terminal

**4. Classification**

U: Ultrasonically cleanable

**5. Rated Coil Voltage**

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

# Specifications

## ■ Coil Ratings

### Single-side Stable Type (G6H-2, G6H-2F)

Rated voltage		3 VDC	5 VDC	6 VDC	9 VDC	12 VDC	24 VDC
Rated current		46.7 mA	28.1 mA	23.3 mA	15.5 mA	11.7 mA	8.3 mA
Coil resistance		64.3 Ω	178 Ω	257 Ω	579 Ω	1,028 Ω	2,880 Ω
Coil inductance (H) (ref. value)	Armature OFF	0.025	0.065	0.11	0.24	0.43	1.2
	Armature ON	0.022	0.058	0.09	0.20	0.37	1.0
Must operate voltage	75% max. of rated voltage						
Must release voltage	10% min. of rated voltage						
Max. voltage	200% of rated voltage at 23°C, 150% at 70°C					170% of rated voltage at 23°C, 130% at 70°C	
Power consumption	Approx. 140 mW					Approx. 200 mW	

Note: 48 VDC (single-side stable) model is also available. Consult OMRON for details.

### Single-winding Latching Type (G6HU-2)

Rated voltage		3 VDC	5 VDC	6 VDC	9 VDC	12 VDC	24 VDC
Rated current		33.3 mA	20 mA	16.7 mA	11.1 mA	8.3 mA	6.25 mA
Coil resistance		90 Ω	250 Ω	360 Ω	810 Ω	1,440 Ω	3,840 Ω
Coil inductance (H) (ref. value)	Armature OFF	0.034	0.11	0.14	0.33	0.60	1.6
	Armature ON	0.029	0.09	0.12	0.28	0.50	1.3
Must operate voltage	75% max. of rated voltage						
Must release voltage	75% min. of rated voltage						
Max. voltage	180% of rated voltage at 23°C, 140% at 70°C						
Power consumption	Approx. 100 mW					Approx. 150 mW	

### Double-winding Latching Type (G6HK-2)

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	12.5 mA
Coil resistance		45 Ω	125 Ω	180 Ω	405 Ω	720 Ω	1,920 Ω
Coil inductance (H) (ref. value)	Armature OFF	0.014	0.042	0.065	0.16	0.3	0.63
	Armature ON	0.0075	0.023	0.035	0.086	0.16	0.33
Must operate voltage	75% max. of rated voltage						
Must release voltage	75% min. of rated voltage						
Max. voltage	160% of rated voltage at 23°C, 130% at 70°C					130% of rated voltage at 23°C, 110% at 70°C	
Power consumption	Approx. 200 mW					Approx. 300 mW	

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

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

## ■ Contact Ratings

Load	Resistive load ( $\cos\phi = 1$ )
Rated load	0.5 A at 125 VAC; 1 A at 30 VDC
Contact material	Ag (Au-clad)
Rated carry current	1 A
Max. switching voltage	125 VAC, 110 VDC
Max. switching current	1 A
Max. switching capacity	62.5 VA, 33 W
Min. permissible load	10 μA at 10 mVDC

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

## ■ Characteristics

<b>Contact resistance</b>	50 mΩ max. (G6H-2-U: 100 mΩ max.; G6H-2F: 60 mΩ max.)
<b>Operate (set) time</b>	Single-side stable types: 3 ms max. (mean value: approx. 2 ms) Latching types: 3 ms max. (mean value: approx. 1.5 ms)
<b>Release (reset) time</b>	Single-side stable types: 2 ms max. (mean value: approx. 1 ms) Latching types: 3 ms max. (mean value: approx. 1.5 ms)
<b>Bounce time</b>	Operate: Approx. 0.5 ms Release: Approx. 0.5 ms Set/reset: Approx. 0.5 ms
<b>Min. set/reset signal width</b>	Latching type: 5 ms min. (at 23°C)
<b>Max. operating frequency</b>	Mechanical: 36,000 operations/hr Electrical: 1,800 operations/hr (under rated load)
<b>Insulation resistance</b>	1,000 MΩ min. (at 500 VDC)
<b>Dielectric withstand voltage</b>	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 750 VAC, 50/60 Hz for 1 min between contacts of same polarity
<b>Impulse withstand voltage</b>	1,500 V 10 x 160 μs between contacts of same polarity (conforms to FCC Part 68)
<b>Vibration resistance</b>	Destruction: 10 to 55 Hz, 5-mm double amplitude Malfunction: 10 to 55 Hz, 3-mm double amplitude
<b>Shock resistance</b>	Destruction: 1,000 m/s <sup>2</sup> (approx. 100G) Malfunction: 500 m/s <sup>2</sup> (approx. 50G)
<b>Life expectancy</b>	Mechanical: 100,000,000 operations min. (at 36,000 operations/hr) Electrical: 200,000 operations min. (at 1,800 operations/hr)
<b>Ambient temperature</b>	Operating: -40°C to 70°C (with no icing) Storage: -40°C to 70°C (with no icing)
<b>Ambient humidity</b>	Operating: 35% to 85% Storage: 35% to 85%
<b>Weight</b>	Approx. 1.5 g

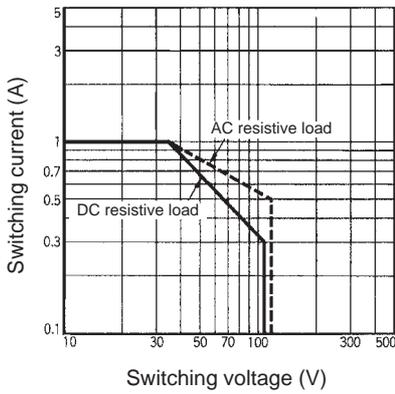
## ■ Approved Standards

UL114, UL478 (File No. E41515)/CSA C22.2 No.0, No.14 (File No. LR31928)

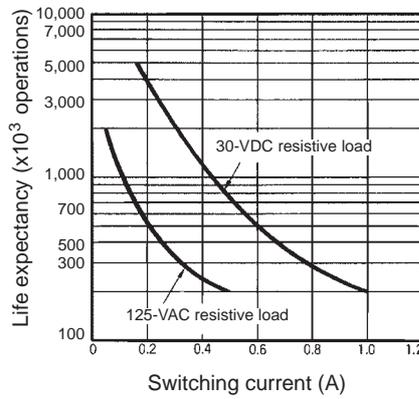
Model	Contact form	Coil ratings	Contact ratings
G6H-2 G6HU-2 G6HK-2 G6H(U/K)-2-U G6H(U/K)-2-100	DPDT	1.5 to 48 VDC	2 A, 30 VDC 0.3 A, 110 VDC 0.5 A, 125 VAC

# Engineering Data

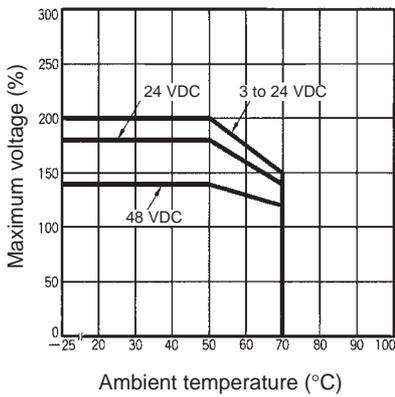
## Max. Switching Capacity



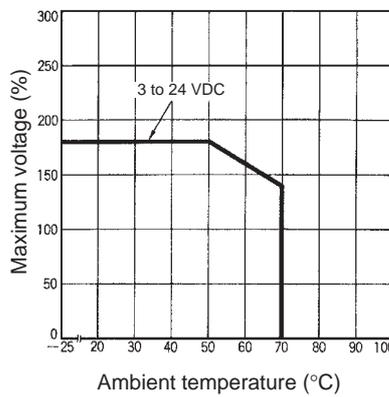
## Life Expectancy



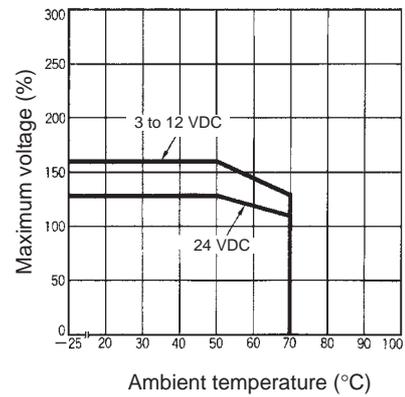
## Ambient Temperature vs. Maximum Voltage Single-side Stable (G6H-2)



## Single-winding Latching (G6HU-2)

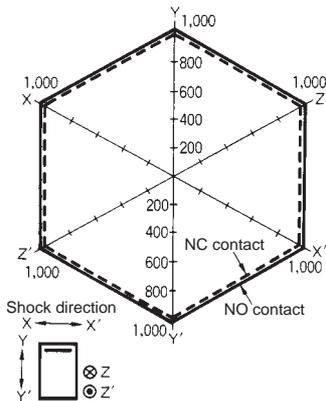


## Double-winding Latching (G6HK-2)



## Malfunctioning Shock Resistance (G6H-2)

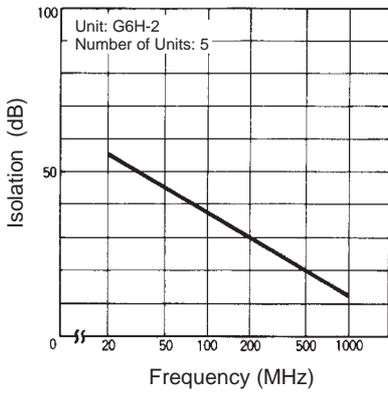
5 VDC  
Number of Units: 10



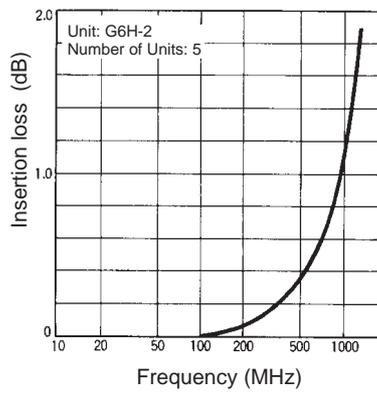
Condition: The Units were shocked at the rate of  $500 \text{ m/s}^2$  (approximately 50G) three times each in the  $\pm X$ ,  $\pm Y$ , and  $\pm Z$  directions with and without voltage imposed on the Units until the Units malfunctioned.

### High-frequency Characteristics

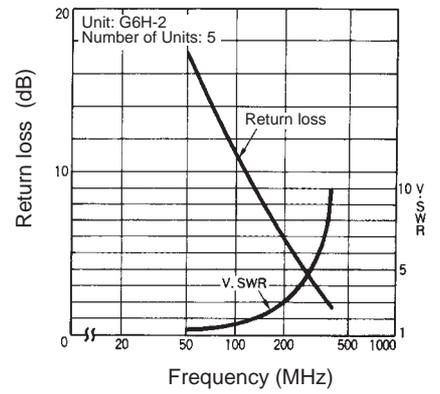
Frequency vs. Isolation



Frequency vs. Insertion Loss

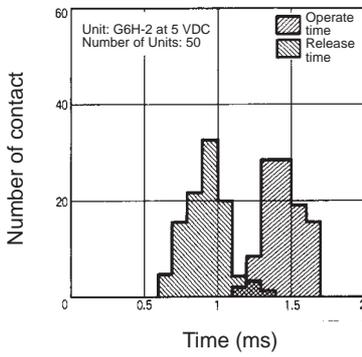


Frequency vs. Return Loss, V.SWR

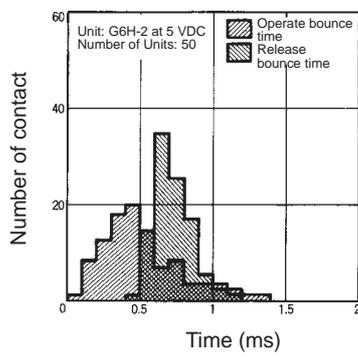


**Note:** The above characteristics were obtained from the Units inserted into test sockets. The characteristics of G6H-2 Units in actual operation may be different from the above characteristics. Check the characteristics of G6H-2 Units under the actual conditions before use.

### Distribution of Operate and Release Time



### Distribution of Bounce Time



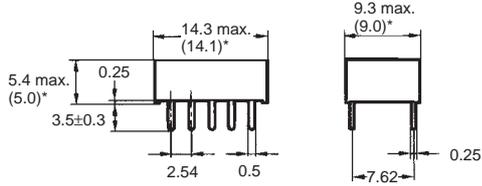
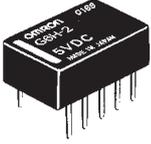
# Dimensions

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

2. Orientation marks are indicated as follows:

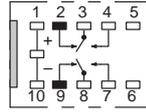
## Single-side Stable Type

### G6H-2(-U)



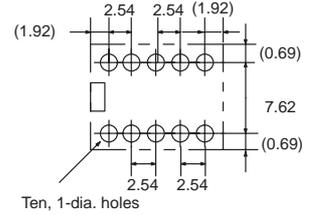
\* Average value

## Terminal Arrangement/ Internal Connections (Bottom View)



## Mounting Holes (Bottom View)

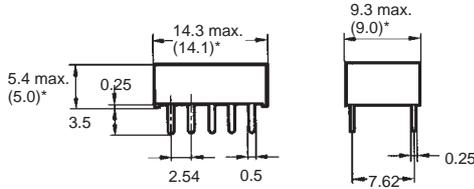
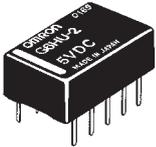
Tolerance:  $\pm 0.1$



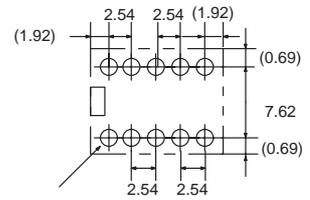
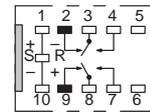
Ten, 1-dia. holes

## Single-winding Latching Type

### G6HU-2(-U)



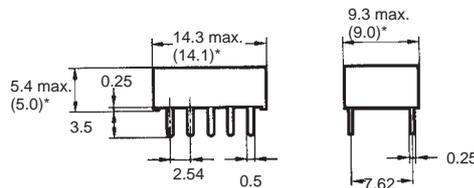
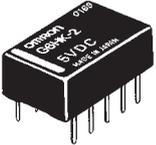
\* Average value



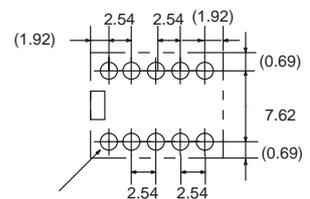
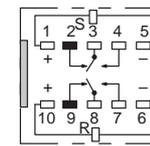
Ten, 1-dia. holes

## Double-winding Latching Type

### G6HK-2(-U)



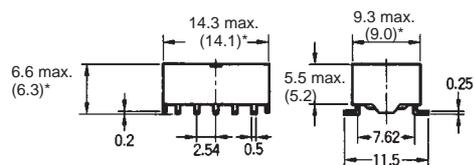
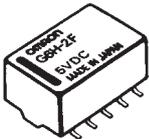
\* Average value



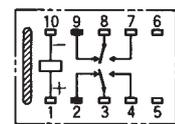
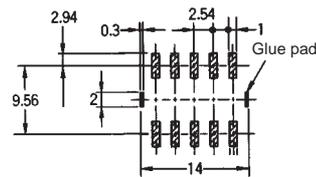
Ten, 1-dia. holes

## Single-side Stable Type

### G6H-2F



\* 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.