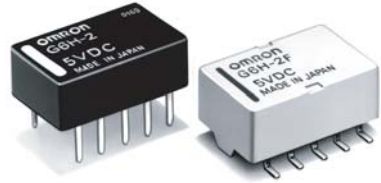


Ultracompact, Ultrasensitive DPDT Relay

- ROHS compliant.
- Compact size and low 5mm 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.



RC

Ordering Information

Classification			Single-side stable	Single-winding latching	Double-winding latching
DPDT	Fully Sealed	PCB terminal	G6H-2	G6HU-2	G6HK-2
		Surface mount 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 Armature OFF	0.025	0.065	0.11	0.24	0.43	1.2
(H) (ref. value) 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					170% of rated voltage at 23°C
Power consumption	Approx. 140 mW					Approx. 200 mW

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

PCB Signal Relay – G6H

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
	Armature ON	0.029	0.09	0.12	0.28	0.50
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					
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	0.63
	Armature ON	0.0075	0.023	0.035	0.086	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% of rated voltage at 23°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 ($\cos\varphi = 1$)
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 power	62.5 VA, 33 W
Failure rate (reference value)	10 μA at 10 mVDC

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

■ Characteristics

Contact resistance	50 mΩ max. (G6H-2-U: 100 mΩ max.; G6H-2F: 60 mΩ max.)
Operate (set) time	Single-side stable types: 3 ms max. (mean value: approx. 2 ms) Latching types: 3 ms max. (mean value: approx. 1.5 ms)
Release (reset) time	Single-side stable types: 2 ms max. (mean value: approx. 1 ms) Latching types: 3 ms max. (mean value: approx. 1.5 ms)
Bounce time	Operate: Approx. 0.5 ms Release: Approx. 0.5 ms Set/reset: Approx. 0.5 ms
Min. set/reset signal width	Latching type: 5 ms min. (at 23°C)
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 withstand voltage	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
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 to 10 Hz, 2.5mm single amplitude (5mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 1.65mm single amplitude (3mm double amplitude)
Shock resistance	Destruction: 1,000 m/s ² Malfunction: 500 m/s ²
Endurance	Mechanical: 100,000,000 operations min. (at 36,000 operations/hr) Electrical: 200,000 operations min. (at 1,800 operations/hr)
Ambient temperature	Operating: -40°C to 70°C (with no icing)
Ambient humidity	Operating: 5% to 85%
Weight	Approx. 1.5 g

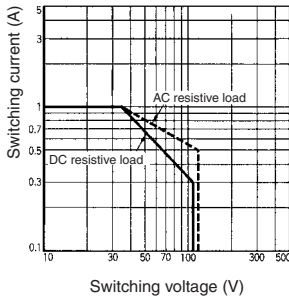
■ Approved Standards

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

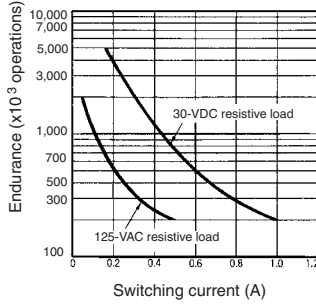
Model	Contact form	Coil ratings	Contact ratings
G6H-2 G6HU-2 G6HK-2 G6H(U/K)-2-U G6H(U/K)-2-100	DPDT	1.5 to 48 VDC	2 A, 30 VDC 0.3 A, 110 VDC 0.5 A, 125 VAC

Engineering Data

Maximum Switching Power

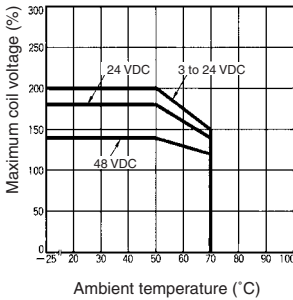


Endurance

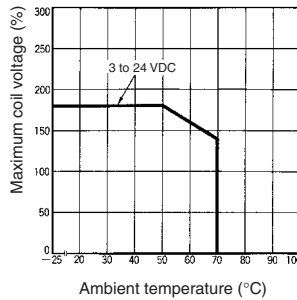


Ambient Temperature vs. Maximum Coil Voltage

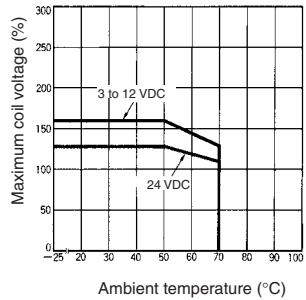
Single-side Stable (G6H-2)



Single-winding Latching (G6HU-2)



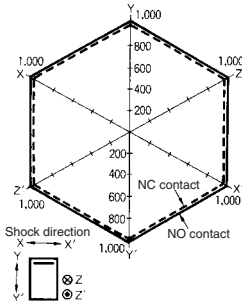
Double-winding Latching (G6HK-2)



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

Malfunctioning Shock Resistance (G6H-2)

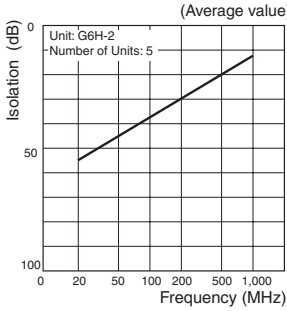
5 VDC
Number of Units: 10



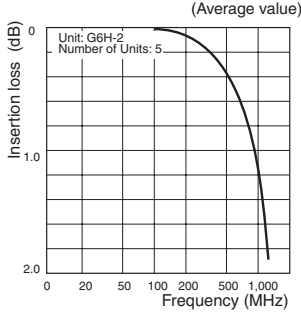
Condition: The Units were shocked at the rate of 500 m/s² three times each in the ±X, ±Y, and ±Z directions with and without voltage imposed on the Units until the Units malfunctioned.

High-frequency Characteristics (See notes 1 and 2.)

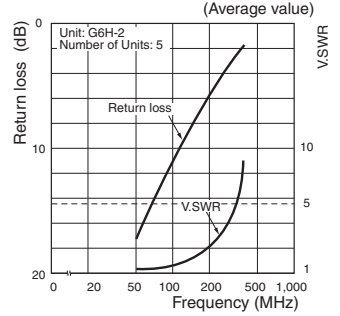
Frequency vs. Isolation



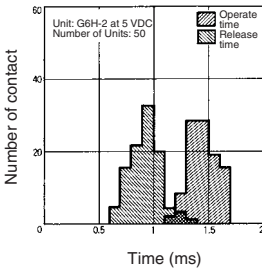
Frequency vs. Insertion Loss



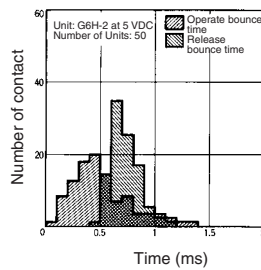
Frequency vs. Return Loss, V.SWR



Distribution of Operate and Release Time (See note 1.)



Distribution of Bounce Time (See note 1.)



Note: 1. The ambient temperature is 23°C.

2. High-frequency characteristics depend on the PCB to which the Relay is mounted. Always check these characteristics, including endurance, in the actual machine before use.

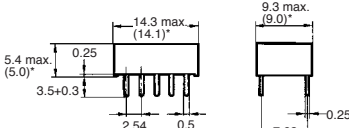
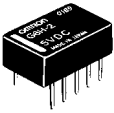
Dimensions

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

2. Orientation marks are indicated as follows:  

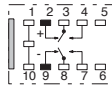
Single-side Stable Type

G6H-2(-U)



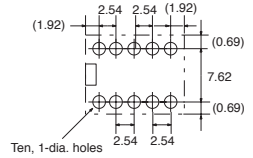
* Average value

Terminal Arrangement/ Internal Connections (Bottom View)



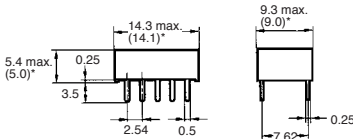
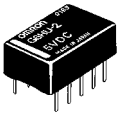
Mounting Holes (Bottom View)

Tolerance: ± 0.1

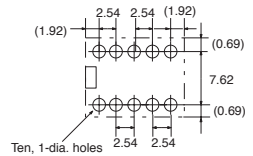
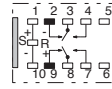


Single-winding Latching Type

G6HU-2(-U)

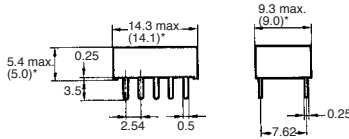
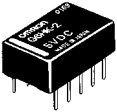


* Average value

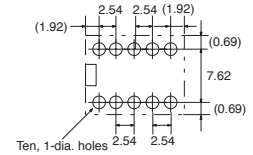
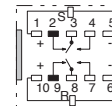


Double-winding Latching Type

G6HK-2(-U)

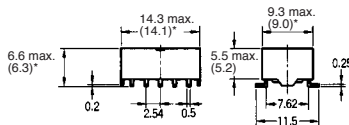


* Average value



Single-side Stable Type

G6H-2F



* Average value

