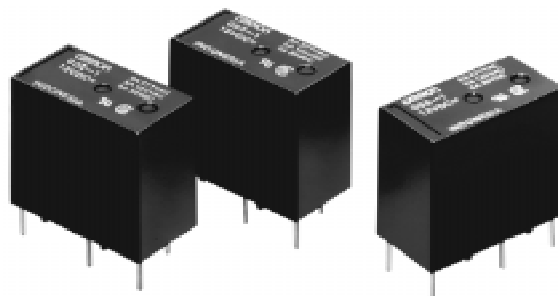


## PCB Relay

## G5S

Compact Single-pole Relay for Switching Up To 5 A (Normally Open Contact), Ideal for Fan Control of Air Conditioners, and Heating Control of Small Appliances

- Compact relay with high insulation between coil and contacts
- Up to 5A switching on the NO contacts
- Ensures a withstand impulse voltage of 8,000 V between the coil and contacts
- Class B coil insulation available
- Conforms to UL, CSA, and IEC (TÜV)



## Ordering Information

Classification		Enclosure rating	Part number
Single contact	SPDT	Plastic-sealed	G5S-1 (-CB for Class B)
	SPST-NO	Plastic-sealed	G5S-1A (-CB for class B)

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

Example: G5S-1 DC12  
 \_\_\_\_\_  
 Rated coil voltage

### MODEL NUMBER LEGEND

G5S-□□-□□-□□-DC□  
 1 2 3 4 5

1. Contact Pole  
 1: Single pole

2. Contact Form  
 nil = 1 form C  
 A = 1 form A

3. Insulation class  
 nil = standard  
 CB = Class B

4. Enclosure  
 nil = plastic sealed  
 v = vented

5. Rated Coil Voltage  
 5, 9, 12, 18, 24, 48 VDC

# Specifications

## ■ COIL RATINGS

Rated voltage	5 VDC	9 VDC	12 VDC	18 VDC	24 VDC	48 VDC
Rated current	80 mA	44.4 mA	33.3 mA	22.2 mA	16.7 mA	8.3 mA
Coil resistance	62.5 $\Omega$	202.5 $\Omega$	360 $\Omega$	810 $\Omega$	1,440 $\Omega$	5,760 $\Omega$
Must operate voltage	75% max. of rated voltage					
Must release voltage	5% min. of rated voltage					
Max. voltage	150% of rated voltage at 23°C, 110% of rated voltage at 70°C					
Power consumption	Approx. 400 mW					

Note: Rated current and coil resistance are measured at 23°C with a tolerance of  $\pm 10\%$ .

## ■ CONTACT RATINGS

Load	Resistive load	Inductive load
Rated load	2 A (NO)/2 A (NC) at 277 VAC 5 A (NO)/3 A (NC) at 125 VAC 5 A (NO)/3 A (NC) at 30 VDC	0.5 A at 250 VAC, $\cos\phi=0.4$ 1 A at 250 VAC, $\cos\phi=0.8$ 0.8 A at 250 VAC, $\cos\phi=0.9$
Contact material	Ag	
Rated carry current	5 A (NO)/3 A (NC)	
Max. switching voltage	277 VAC, 30 VDC	
Max. switching current	5 A (NO)/3 A (NC)	1 A
Max. switching capacity	625 VA, 150 W (NO) 375 VA, 90 W (NC)	250 VA
Min. permissible load	10 mA at 5 VDC	

Note: P level:  $\lambda 60=0.1 \times 10^{-6}$  operation (with an operating frequency of 120 operations/min.)

## ■ CHARACTERISTICS

Contact resistance (See Note 2.)	100 m $\Omega$ max.
Operate time (See Note 3.)	10 ms max.
Release time (See Note 3.)	5 ms max.
Insulation resistance (See Note 4.)	1,000 M $\Omega$ min.
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min between coil and contacts 750 VAC, 50/60 Hz for 1 min between contacts of same polarity
Impulse withstand voltage	8 kV (1.2 x 50 $\mu$ s)
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours Malfunction: 10 to 55 Hz, 1.5-mm double amplitude for 5 minutes
Shock resistance	Destruction: 1,000 m/s <sup>2</sup> (approx. 100G) Malfunction: Energized: 100 m/s <sup>2</sup> (approximately 10G) Non-energized: 50 m/s <sup>2</sup> (approximately 5G)

(This table continues on the next page.)

Characteristics Table - continued from previous page

Life expectancy (See Note 5.)	Mechanical	5,000,000 operations (18,000 operations per hour)
	Electrical	200,000 operations: 1 A (NO)/1 A (NC) at 277-VAC resistive load 3 A (NO)/3 A (NC) at 125-VAC resistive load 100,000 operations: 0.8 A (NO)/0.8 A (NC) at 250 VAC, $\cos\phi=0.9$ 5 A (NO)/3 A (NC) at 30-VDC resistive load 50,000 operations: 2 A (NO)/2 A (NC) at 277-VAC resistive load 5 A (NO)/3 A (NC) at 125-VAC resistive load
	Switching frequency	1,800 operations per hour
Ambient temperature	Operating & storage	-40°C to 70°C (-40°F to 158°F) with no icing or condensation -40°C to 85°C (class B) (-40°F to 185°F)
Ambient humidity	Operating & storage	35% to 85%
Weight		Approx. 8.0 g

Note: 1. The data shown above are initial values.

2. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.

3. The operating time is possible with the rated voltage imposed with no contact bounce at an ambient temperature of 23°C.

4. The insulation resistance is possible between coil and contacts and between contacts of the same polarity at 500 VDC.

5. The electrical life data items shown are possible at 23°C.

## ■ APPROVED STANDARDS

**UL508 (File No. E41515)**

**CSA C22.2 (No. 14) (File No. LR31928)**

Model	Coil ratings	Contact ratings	Number of test operations
G5S-1 (-CB) G5S-1A (-CB)	5-48 VDC	0.8 A, 277 VAC (resistive) 0.5 A, 250 VAC (resistive) 2 A, 120 VAC (resistive) 2 A, 30 VDC (resistive) 5 A, 125 VAC (resistive) 1/10 HP, 125 VAC 5 A, 277 VAC (resistive) 1/6 HP, 277 VAC 0.3 A, 110 VDC (resistive) 5 A, 30 VDC (resistive)	6,000

**TÜV (IEC 255, VDE0435 File No. R9650783)**

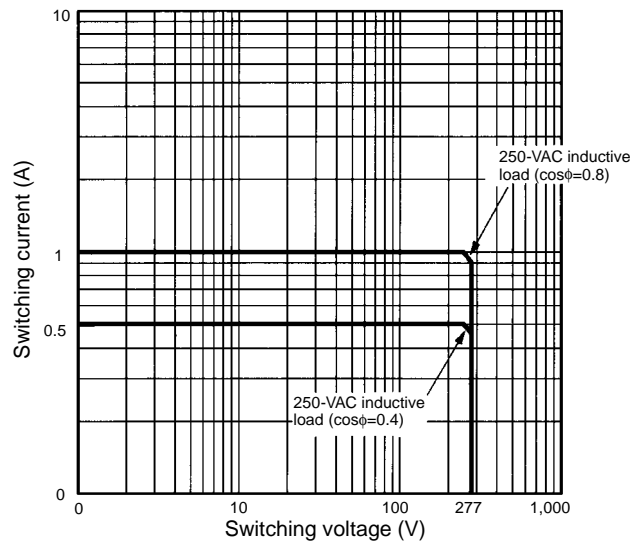
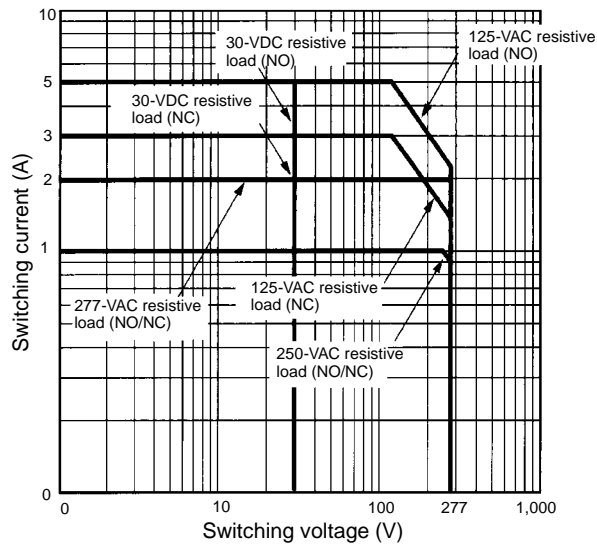
Electrical life tests are performed at 70°C.

Model	Coil ratings	Contact ratings	Number of test operations
G5S-1 (-CB) G5S-1A (-CB)	5,6,9,12,18,20,24,48	1.5 A, 277 VAC (resistive) 1 A, 250 VAC (resistive) 2 A, 30 VDC (resistive)	30,000 100,000 30,000
		1 A, 250 VAC, $\cos\phi=0.8$ 0.5 A, 250 VAC, $\cos\phi=0.4$ 1 A, 250 VAC, $\cos\phi=0.8$ (NO only) 1 A, 250 VAC, $\cos\phi=0.8$ (NC only)	100,000 30,000 200,000 200,000

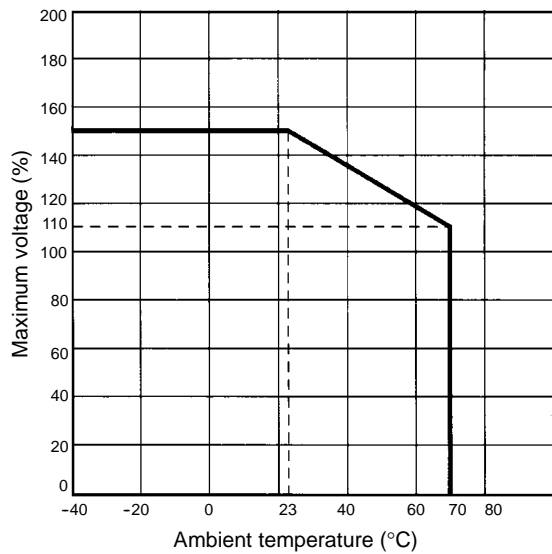
Note: Pollution Degree 2, Overvoltage Category II, Material Group III

## Engineering Data

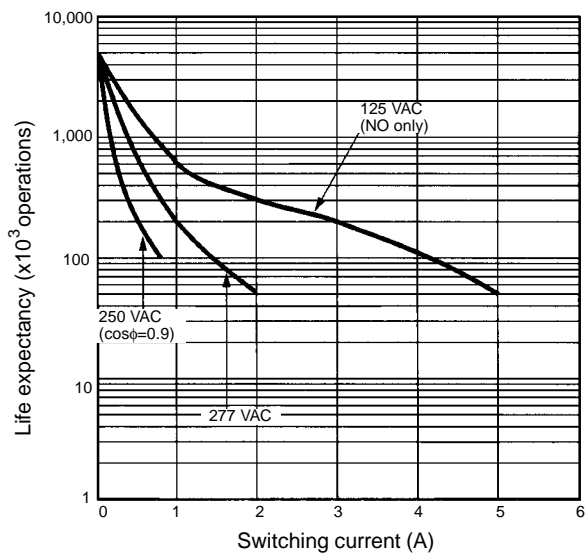
## ■ MAX. SWITCHING CAPACITY



## ■ AMBIENT TEMPERATURE VS. MAXIMUM VOLTAGE



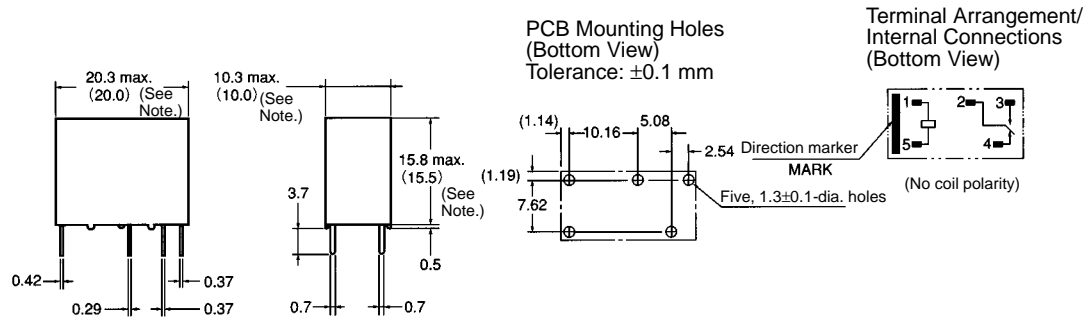
## ■ LIFE EXPECTANCY



## Dimensions

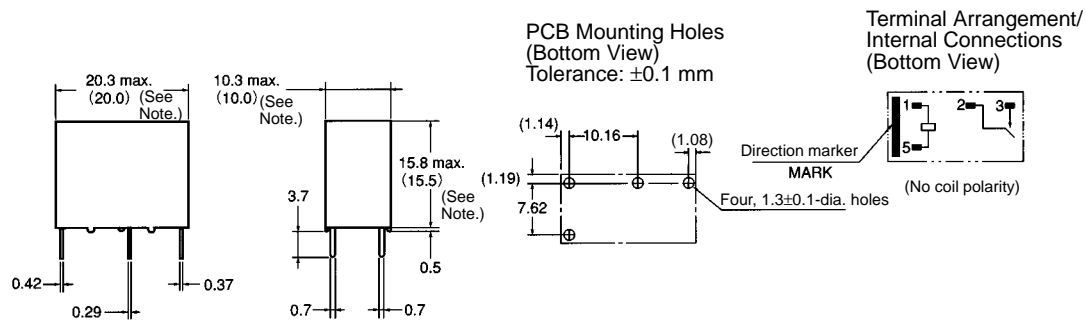
Unit: mm (inch)

### ■ G5S SPDT



Note: Values in parentheses are average values.

### ■ SPST-NO



Note: Values in parentheses are average values.

## Precautions

For general precautions on PCB Relays, refer to the precautions provided in *General Information of the Relay Product Data Book*.



### Caution

Do not touch the terminals of the Relay or the charted part of the socket when power is supplied to the Relay. Otherwise, an electric shock may occur.

**NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.**

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