OMRON

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 F coil insulation available.
- Conforms to UL, CSA, and IEC (TÜV).

Ordering Information

Classification		Enclosure rating	**Model**
Single contact	SPDT	Plastic-sealed	**G5S-1**
	SPST-NO	Plastic-sealed	**G5S-1A**

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
   CF = Class F
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 Ω	202.5 Ω	360 Ω	810 Ω	1,440 Ω	5,760 Ω
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 ±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, cosϕ=0.4 1 A at 250 VAC, cosϕ=0.8 0.8 A at 250 VAC, cosϕ=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 mΩ max.
Operate time (See Note 3.)	10 ms max.
Release time (See Note 3.)	5 ms max.
Insulation resistance (See Note 4.)	1,000 MΩ 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 μs)
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^2 (approx. 100G) Malfunction: Energized: 100 m/s^2 (approximately 10G) Non-energized: 50 m/s^2 (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, cosϕ=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	0.5 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)

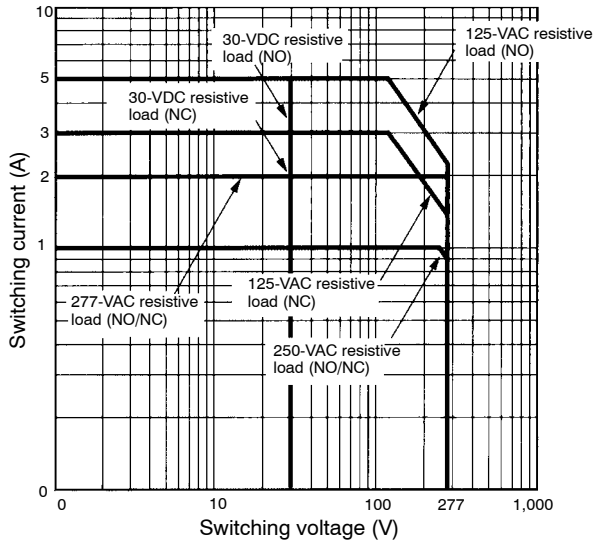
Electrical life tests are performed at 70°C.

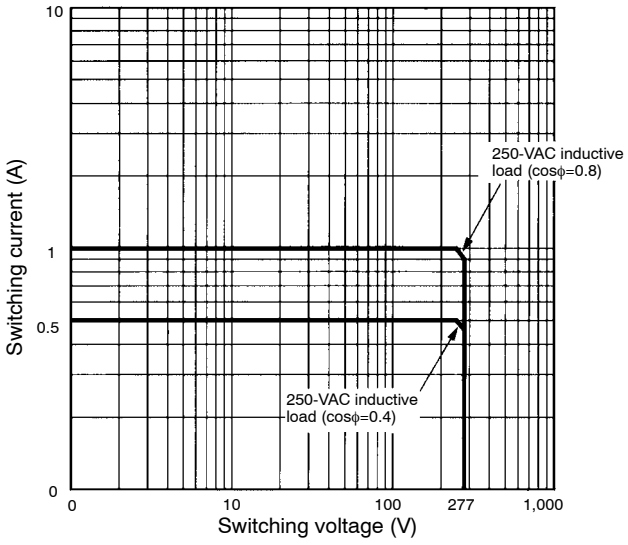
Model	Coil ratings	Contact ratings	Number of test operations
G5S-1 (-CB) G5S-1A (-CB)	5,6,9,12,18,20,24,48	1.5 A, 277 VAC (resistive) 1 A, 250 VAC (resistive) 2 A, 30 VDC (resistive)	30,000 100,000 30,000
		1 A, 250 VAC, cosϕ=0.8 0.5 A, 250 VAC, cosϕ=0.4 1 A, 250 VAC, cosϕ=0.8 (NO only) 1 A, 250 VAC,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

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

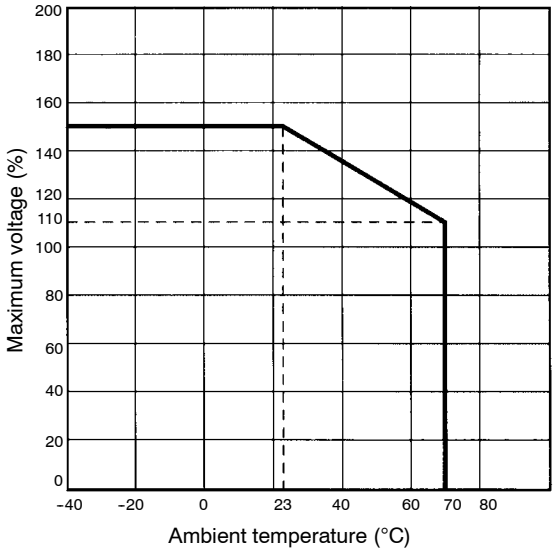
Engineering Data

■ MAX. SWITCHING CAPACITY

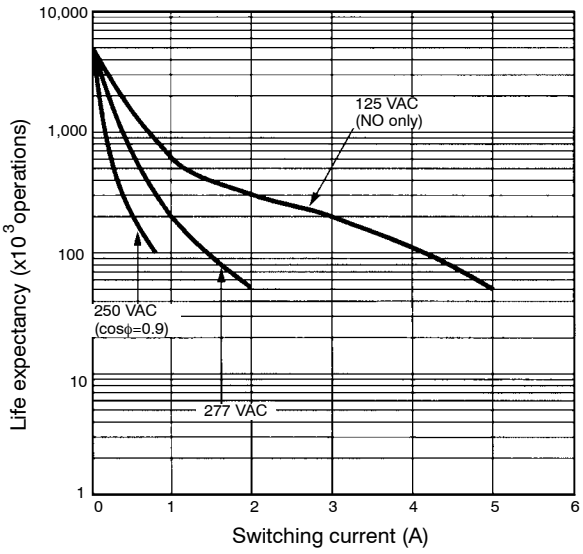




■ AMBIENT TEMPERATURE VS. MAXIMUM VOLTAGE



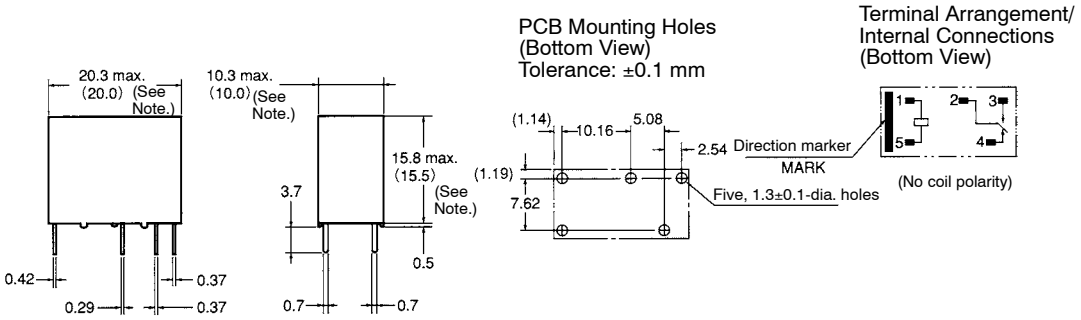
■ LIFE EXPECTANCY



Dimensions

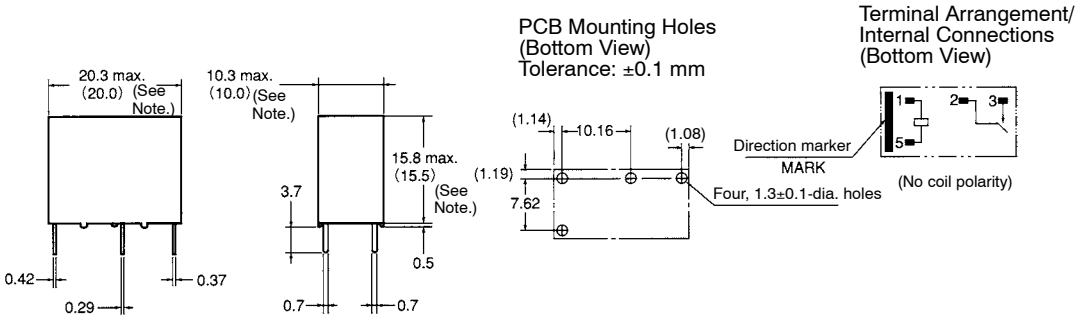
Unit: mm (inch)

■ 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.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, divide by 25.4

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