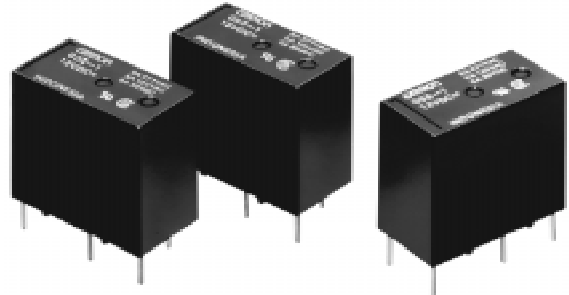


Compact Single-pole Relay for Switching Up To 5 A (Normally Open Contact), Ideal for Fan Control of Air Conditioners, and Heating Control of Small Appliances

- 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 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 $\pm 10\%$.

■ 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 Ω 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 Ω 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 μ 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 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, $\cos\phi=0.9$ 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)

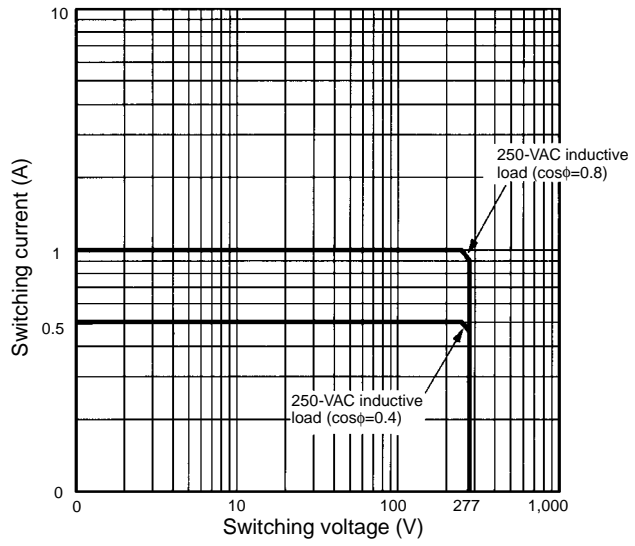
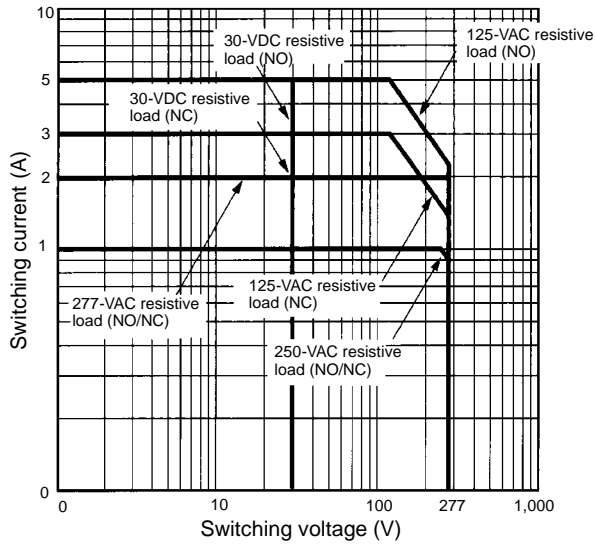
Electrical life tests are performed at 70°C.

| 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) | 30,000 |
| | | 1 A, 250 VAC (resistive) 2 A, 30 VDC (resistive) | 100,000 30,000 |
| | | 1 A, 250 VAC, $\cos\phi=0.8$ | 100,000 |
| | | 0.5 A, 250 VAC, $\cos\phi=0.4$ | 30,000 |
| | | 1 A, 250 VAC, $\cos\phi=0.8$ (NO only) | 200,000 |
| | | 1 A, 250 VAC, $\cos\phi=0.8$ (NC only) | 200,000 |

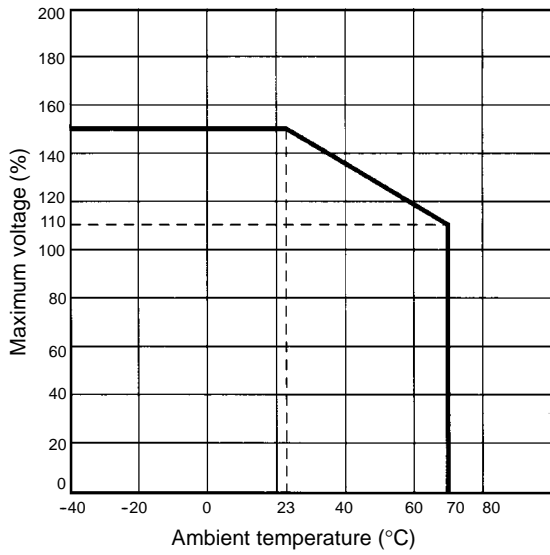
Note: Pollution Degree 2, Overvoltage Category II, Material Group III

Engineering Data

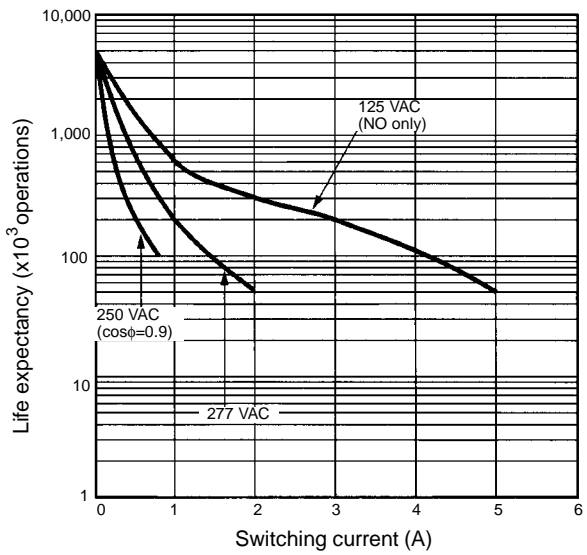
MAX. SWITCHING CAPACITY



AMBIENT TEMPERATURE VS. MAXIMUM VOLTAGE



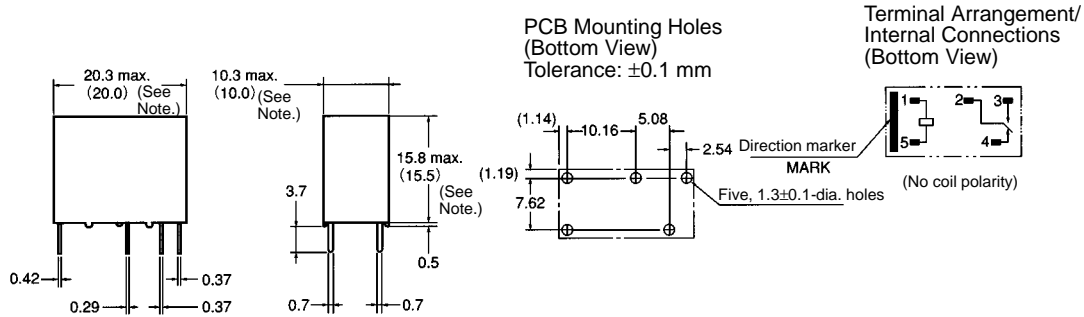
LIFE EXPECTANCY



Dimensions

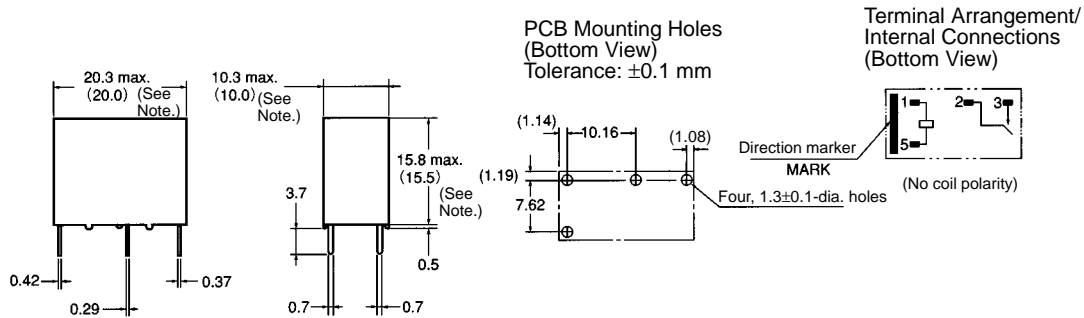
Unit: mm (inch)

■ 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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