

### Compact, High Isolation Relay

- Compact single pole relay with high isolation between coil and contacts.
- Up to 10 A 250 VAC switching on the NO contacts.
- Ensures a withstand impulse voltage of 8,000 V between the coil and contacts.
- Low coil power consumption (SPST-NO: 200 mW, SPDT: 400 mW).
- UL class F coil insulation.
- UL, CSA and EN approvals.
- Ideal for appliance and HVAC controls.
- Tracking resistance: CTI > 250.
- Contains no lead inside and features cadmium-free contacts ensuring environmentally friendly use.



## Ordering Information

**To Order:** Select the part number and add the desired coil voltage rating (e.g. G5Q-14-EU-DC12)

| Classification               |         | Enclosure rating | Part number |
|------------------------------|---------|------------------|-------------|
| Single contact, Class F coil | SPST-NO | Vented           | G5Q-1A-EU   |
|                              |         | Sealed           | G5Q-1A4-EU  |
|                              | SPDT    | Vented           | G5Q-1-EU    |
|                              |         | Sealed           | G5Q-14-EU   |

## Specifications

### Coil Ratings

| Rated voltage (V) |      | Rated current | Coil resistance (Ω) | Pick-up voltage | Drop-out Voltage | Maximum voltage | Power consumption (mW) |
|-------------------|------|---------------|---------------------|-----------------|------------------|-----------------|------------------------|
| SPDT              | DC5  | 80            | 63                  | 75% of max.     | 5% of max.       | 190% at 23°C    | 400                    |
|                   | DC12 | 33.3          | 360                 |                 |                  |                 |                        |
|                   | DC24 | 16.7          | 1440                |                 |                  |                 |                        |
| SPST-NO           | DC5  | 40            | 125                 |                 |                  |                 | 200                    |
|                   | DC12 | 16.7          | 720                 |                 |                  |                 |                        |
|                   | DC24 | 8.3           | 2880                |                 |                  |                 |                        |

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

## Contact Rating

| Load                           | SPDT  | SPDT-NO  |
|--------------------------------|---|--|
| <b>Rated load (resistive)</b>  | 10A at 250 VAC (NO)<br>3A at 250 VAC (NO)<br>3A at 125 VAC (NO)<br>5A at 30 VDC (NO)<br>3A at 250 VDC (NC)<br>3A at 125 VDC (NC)<br>3A at 30 VDC (NC) | 10A at 250 VAC<br>3A at 250 VAC<br>3A at 125 VAC<br>5A at 30 VDC |
| <b>Contact material</b>        | Ag Alloy  |  |
| <b>Rated carry current</b>     | AC 10 A – DC 5A (NO)/ AC 3A – DC 3A (NC)  |  |
| <b>Max. switching voltage</b>  | 277 VAC, 30 VDC   |  |
| <b>Max. switching current</b>  | AC: 10 A (NO)/3 A (NC)<br>DC: 5 A (NO)/3 A (NC)   |  |
| <b>Max. switching capacity</b> | 2500 VA, 150 W (NO)<br>750 VA, 90 W (NC)  |  |
| <b>Min. permissible load</b>   | 10 mA at 5 VDC (P level: $\lambda_{60} = 0.1 \times 10^{-6}$ operation)   |  |

## Characteristics

|   |  |
|---|--|
| <b>Contact resistance (see note 2)</b>    | 100 m $\Omega$ max.  |
| <b>Operate time</b>                       | 10 ms max.   |
| <b>Release time</b>                       | 5 ms max.  |
| <b>Insulation resistance (see note 3)</b> | 1,000 M $\Omega$ min.  |
| <b>Dielectric strength</b>                | 4,000 VAC, 50/60 Hz for 1 min between coil and contacts<br>1000 VAC, 50/60 Hz for 1 min between contacts of same polarity  |
| <b>Impulse withstand voltage</b>          | 8 kV (1.2 x 50 ms) between coil and contacts   |
| <b>Vibration resistance</b>               | Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours<br>Malfunction: 10 to 55 Hz, 1.5-mm double amplitude for 5 minutes   |
| <b>Shock resistance</b>                   | Destruction: 1,000 m/s <sup>2</sup> (approx. 100G)<br>Malfunction: 100 m/s <sup>2</sup> (approximately 10G)  |
| <b>Life expectancy (see note 4)</b>       | Mechanical 10,000,000 operations (18,000 operations per hour)<br>Electrical 200,000 operations: 3 A (NO)/3 A (NC) at 125 VAC resistive load<br>100,000 operations: 3 A (NO)/3 A (NC) at 250 VAC<br>5 A (NO)/3 A (NC) at 30 VDC resistive load<br>25,000 operations: 10A (NO) at 250 VAC (900 operations per hour:<br>1 sec ON/3 sec OFF)<br>Switching frequency: 1,800 operations per hour: 1 sec ON/1 SEC OFF |
| <b>Ambient temperature</b>                | Operating & storage: -40°C to 85°C (with no icing)   |
| <b>Ambient humidity</b>                   | Operating & storage: 5% to 85%   |

**Note:** 1. The data shown above are initial value.

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

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

4. 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  |   |
|--------|--------------|--|---|
|        |              | NO contacts  | NO contacts   |
| G5Q-EU | 5-48 VDC     | 10 A, 250 VAC resistive<br>10 A, 30 VDC resistive<br>4 A, 120 VAC resistive,<br>100,000 ops.<br>4 FLA, 4 LRA 120 VAC, definite<br>purpose, 100,000 operations. | 3 A, 250 VAC resistive<br>3 A, 30 VDC resistive<br>4 LRA, 2 FLA, 120 VAC definite<br>purpose, 100,000 operations. |

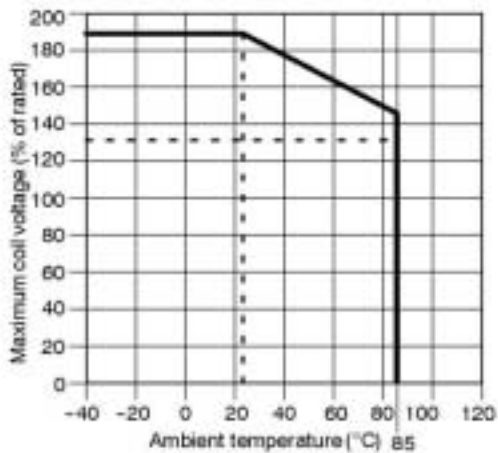
Note: Ratings for both NO contacts and NC contacts are given at 85°C (221°F).

## EN

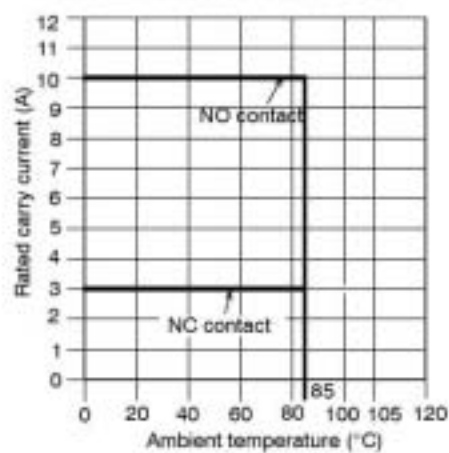
| Model  | Coil ratings | Contact ratings   |
|--------|--------------|---|
| G5Q-EU | 5,12, 24 VDC | 10 A, 250 VAC $\cos\phi=1$ (NO)<br>5 A, 30 VDC L/R=0ms (NO)<br>3 A, 30 VDC L/R=0ms (NC) |

## Engineering Data

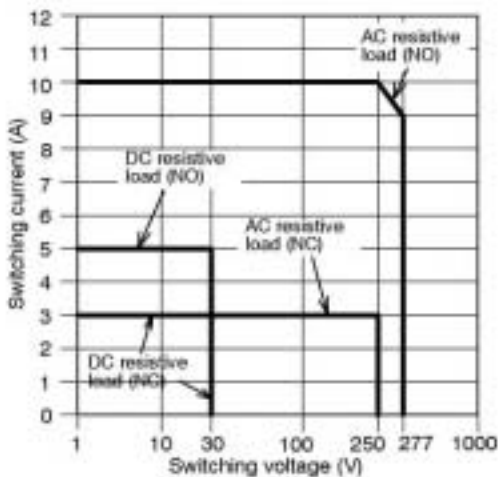
### ■ AMBIENT TEMPERATURE VS. MAXIMUM VOLTAGE



### ■ AMBIENT TEMPERATURE VS. RATED CARRY CURRENT



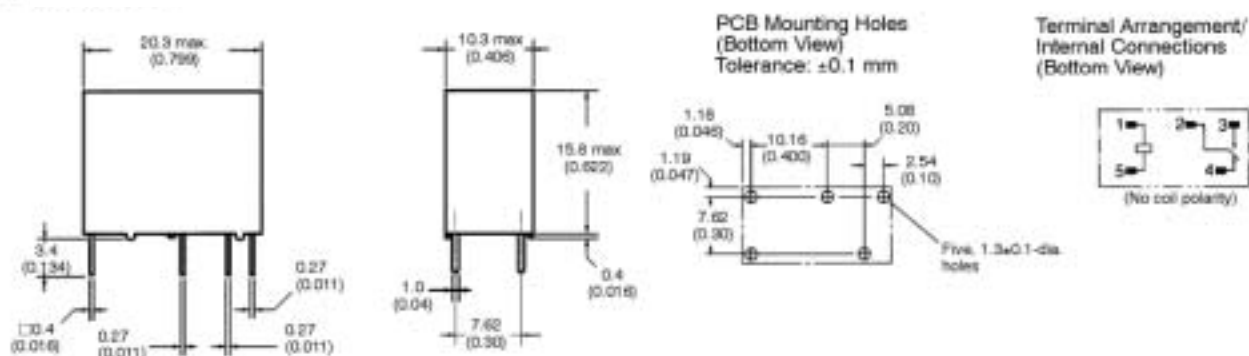
### ■ MAX. SWITCHING CAPACITY



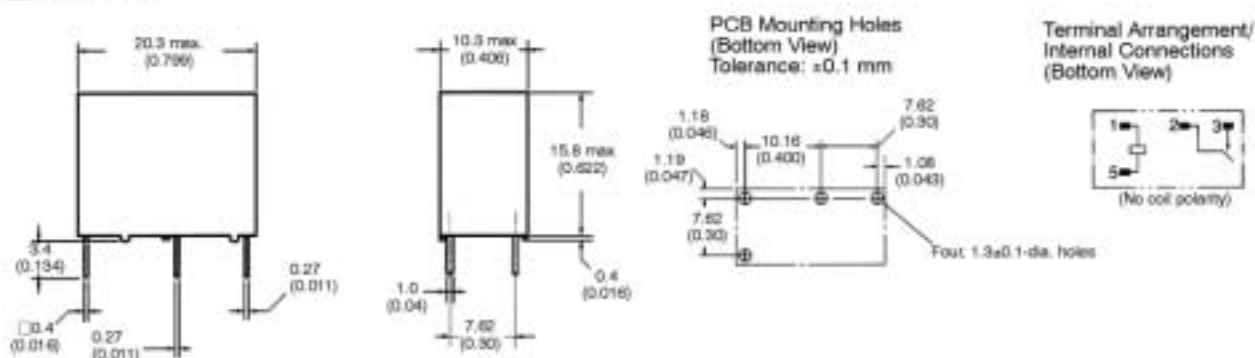
## Dimensions

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

### ■ G5Q-EU SPDT



### ■ SPST-NO



## Precautions



### 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, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. G5Q-EU In the interest of product improvement, specifications are subject to change without notice.

# OMRON

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