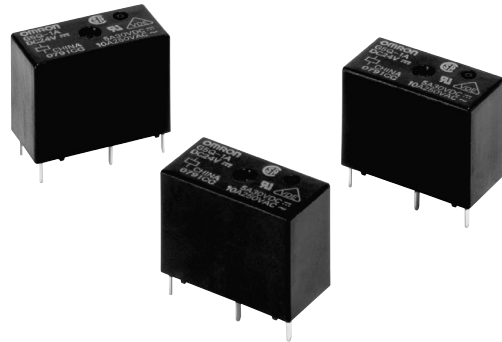


Compact, Single-pole, 10-A Switching PCB Relays

- Compact, SPST-NO and SPDT relays.
- Excellent switching performance for a variety of loads.
- Withstand impulse rating of 8,000 V between the coil and contacts.
- UL class F coil insulation on all models.
- UL, CSA, and VDE approved.

RoHS Compliant



Ordering Information

| Classification Enclosure rating | Standard models | | | |
|------------------------------------|--------------------|--------|--------------------|---------|
| | Flux protection | | Fully sealed | |
| | Rated coil voltage | Model | Rated coil voltage | Model |
| SPST-NO | 5 VDC | G5Q-1A | 5 VDC | G5Q-1A4 |
| | 9 VDC | | 9 VDC | |
| | 12 VDC | | 12 VDC | |
| | 24 VDC | | 24 VDC | |
| SPDT | 5 VDC | G5Q-1 | 5 VDC | G5Q-14 |
| | 9 VDC | | 9 VDC | |
| | 12 VDC | | 12 VDC | |
| | 24 VDC | | 24 VDC | |

Model Number Legend:

G5Q-

1 2 3

1. Number of Poles

1: 1 pole

2. Contact Form

None: SPDT

A: SPST-NO

3. Enclosure Rating

None: Flux protection

4: Fully sealed

Specifications

■ Coil Ratings

| Contact form | Item | | Rated current (mA) | Coil resistance (Ω) | Must-operate voltage (V) | Must-release voltage (V) | Max. voltage (V) | Power consumption (mW) |
|--------------|-------------------|----|--------------------|---------------------|---------------------------|--------------------------|---------------------------------|------------------------|
| | Rated voltage (V) | | | | | | | |
| SPST-NO | VDC | 5 | 40 | 125 | 75% max. of rated voltage | 5% min. of rated voltage | 190% of rated voltage (at 23°C) | Approx. 200 |
| | | 9 | 22.2 | 405 | | | | |
| | | 12 | 16.7 | 720 | | | | |
| | | 24 | 8.3 | 2880 | | | | |
| SPDT | | 5 | 80 | 63 | | | | Approx. 400 |
| | | 9 | 44.4 | 202 | | | | |
| | | 12 | 33.3 | 360 | | | | |
| | | 24 | 16.7 | 1440 | | | | |

Note: 1. The rated voltage and coil resistance are given at a coil temperature of 23°C and with a tolerance of ±10%.
 2. The operating characteristics are given at a coil temperature of 23°C.
 3. The maximum voltage is the maximum voltage that can be applied to the relay coil.

■ Contact Ratings

| Item | Load | Resistive load | |
|------------------------|--|--|------|
| | | SPST-NO | SPDT |
| Contact mechanism | Single | | |
| Contact material | Ag alloy (Cd free) | | |
| Rated load | 10 A at 125 VAC 3 A at 250 VAC 5 A at 30 VDC | 10 A at 125 VAC (NO) 3 A at 250 VAC (NO) 5 A at 30 VDC (NO) 3 A at 125 VAC (NC) 3 A at 30 VDC (NC) | |
| Rated carry current | 10 A (NO)/3 A (NC) | | |
| Max. switching voltage | 277 VAC, 30 VDC | | |
| Max. switching current | AC: 10 A (NO)/3 A (NC) DC: 5 A (NO)/3 A (NC) | | |

■ Characteristics

| Item | Type | Standard models |
|---|-----------------------------------|--|
| Contact resistance (See note 2.) | | 100 mΩ max. |
| Operate time | | 10 ms max. |
| Release time | | 5 ms max. |
| Insulation resistance (See note 3.) | | 1,000 mΩ min. |
| Dielectric strength | Between coil and contacts | 4,000 VAC, 50/60 Hz for 1 min |
| | Between contacts of same polarity | 1,000 VAC, 50/60 Hz for 1 min |
| Impulse withstand voltage (between coil and contacts) | | 8 kV (1.2 × 50 μs) |
| Vibration resistance | Destruction | 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) |
| | Malfunction | 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) |
| Shock resistance | Destruction | 1000 m/s ² |
| | Malfunction | 100 m/s ² |
| Endurance | Mechanical | 10,000,000 operations (18,000 operations per hour) |
| | Electrical | 200,000 operations: 3 A (NO)/3 A (NC) at 125 VAC, resistive load 100,000 operations: 3 A (NO)/3 A (NC) at 250 VAC, 5 A (NO)/3 A (NC) at 30 VDC, resistive load 50,000 operations: 10 A at 125 VAC (900 operations per hour) |
| Failure rate (reference value) (See note 4.) | | 10 mA at 5 VDC |
| Ambient operating temperature range | | –40°C to 85°C (with no icing or condensation) |
| Ambient operating humidity range | | 5% to 85% |
| Weight | | Approx. 6.5 g |


Note: 1. The data shown above are initial values.
 2. The contact resistance is measured with 1 A applied at 5 VDC using a fall-of-potential method.
 3. The insulation resistance is measured at the same points as the dielectric strength using a 500-VDC ohmmeter.
 4. P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation

■ Approved Standard

UL 508  (File No. E41515)

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

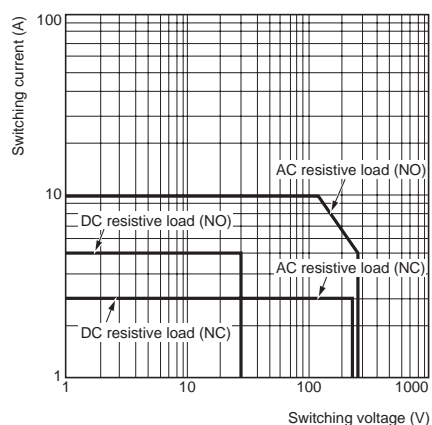
| Model | Coil ratings | Contact ratings | Number of test operations |
|-------|--------------|------------------------------------|---------------------------|
| G5Q | 5 to 24 VDC | 10 A, 250 VAC, NO only (Resistive) | 6,000 |
| | | 10 A, 30 VDC, NO only (Resistive) | 6,000 |
| | | 4 A, 120 VAC, NO only (Resistive) | 10,000 |
| | | 3 A, 250 VAC, NC only (Resistive) | 6,000 |
| | | 10 A, 30 VDC, NC only (Resistive) | 6,000 |

VDE  (Reg. No. 125314) EN 61810-1

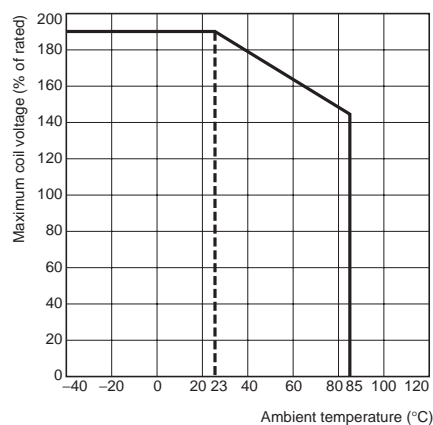
| Model | Coil ratings | Contact ratings | Number of test operations |
|-------|------------------|---|---------------------------|
| G5Q | 5, 9, 12, 24 VDC | 10 A, 250 VAC (cosφ=1) (NO) 5 A, 30 VDC, 0 ms (NO) 3 A, 30 VDC, 0 ms (NC) | 10,000 |

Engineering Data

■ Maximum Switching Capacity



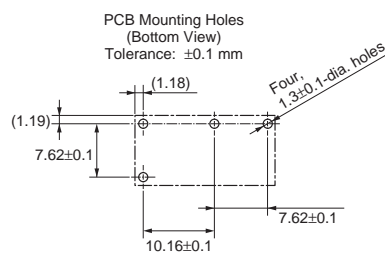
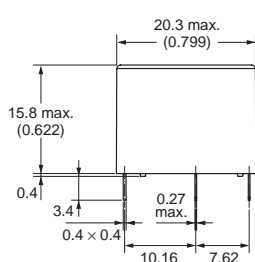
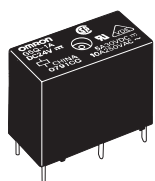
■ Ambient Temperature vs. Maximum Voltage



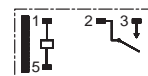
Dimensions

Note: All units are in millimeters unless otherwise indicated.

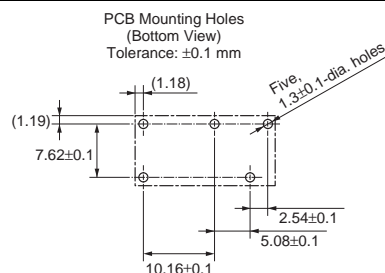
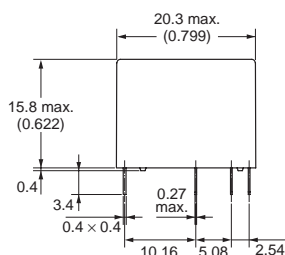
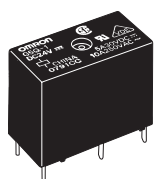
G5Q-1A G5Q-1A4



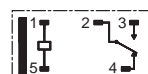
Terminal Arrangement/
Internal Connections
(Bottom View)



G5Q-1 G5Q-14



Terminal Arrangement/
Internal Connections
(Bottom View)



Precautions

Disclaimer:

All technical performance data applies to the product as such; specific conditions of individual applications are not considered. Always check the suitability of the product for your intended purpose. OMRON does not assume any responsibility or liability for noncompliance herein, and we recommend prior technical clarification for applications where requirements, loading, or ambient conditions differ from those applying to general electric applications. Any responsibility for the application of the product remains with the customer alone. THIS COMPONENT CAN NOT BE USED FOR AUTOMOTIVE APPLICATIONS.

■ Precautions for Correct Use

- Do not use the G5Q for applications in automotive vehicles (including motorcycles).
- Consult your OMRON sales representative when considering use of the G5Q in any of the following applications, and be sure to exchange specifications documents. Also, allow a margin of safety in ratings and performance, use safety circuits to minimize danger in the event of malfunction, and provide safety measures, such as redundant designs.
 - a. Outdoor use or uses involving potential chemical contamination or electrical interference
 - b. Nuclear energy control systems, combustion systems, rail-road systems, aviation systems, medical equipment, safety equipment, and other applications that could present a risk to life or cause injury
 - c. Gas, water, electrical, or other supply systems that require a high level of reliability

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. J155-E1-02 In the interest of product improvement, specifications are subject to change without notice.

OMRON RELAY & DEVICES Corporation

C & C Power Relay Division

Marketing Department

1110, Sugi, Yamaga-city, Kumamoto-Pref., 861-0596 Japan

Tel: (81)968-44-4160/Fax: (81)968-44-4107

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