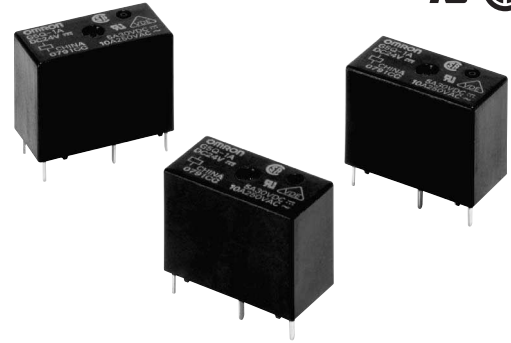


G5Q

PCB Power Relay

A Miniature Power Relay with 1-pole 10A Switching Capacity

- Compact single pole relay.
- Excellent switching performance for a variety of loads.
- Small, yet provide 8-kV impulse withstand voltage (between coil and contacts).



RoHS Compliant

Model Number Legend

G5Q-□□□
1 2 3

1. Number of Poles 2. Contact Form 3. Enclosure rating
- None : SPDT (1c) None : Flux protection
- 1: 1-pole A : SPST-NO (1a) 4 : Fully-sealed

Application Examples

- Ideal for output applications of control equipments.

Ordering Information

| Terminal Shape | Classification | Enclosure rating Contact form | Flux protection | | Fully-sealed | | Minimum packing unit |
|----------------|----------------|----------------------------------|-----------------|--------------------|--------------|--------------------|----------------------|
| | | | Model | Rated coil voltage | Model | Rated coil voltage | |
| PCB terminals | Standard | SPST-NO (1a) | G5Q-1A | 5 VDC | G5Q-1A4 | 5 VDC | 40 pcs/ tube |
| | | | | 9 VDC | | 9 VDC | |
| | | | | 12 VDC | | 12 VDC | |
| | | | | 24 VDC | | 24 VDC | |
| | | SPDT (1c) | G5Q-1 | G5Q-14 | 5 VDC | 5 VDC | |
| | | | | | 9 VDC | 9 VDC | |
| | | | | | 12 VDC | 12 VDC | |
| | | | | | 24 VDC | 24 VDC | |

Note. When ordering, add the rated coil voltage to the model number.
Example: G5Q-1A 5 VDC
Rated coil voltage

Ratings

Coil

| Contact form | Rated voltage | Rated current (mA) | Coil resistance (Ω) | Must operate voltage (V) | Must release voltage (V) | Max. voltage (V) | Power consumption (mW) |
|--------------|---------------|--------------------|---------------------|--------------------------|--------------------------|-------------------|------------------------|
| | | | | % of rated voltage | | | |
| SPST-NO (1a) | 5 VDC | 40 | 125 | 75% max. | 5% min. | 190% (at 23°C) | Approx. 200 |
| | 9 VDC | 22.2 | 405 | | | | |
| | 12 VDC | 16.7 | 720 | | | | |
| | 24 VDC | 8.3 | 2880 | | | | |
| SPDT (1c) | 5 VDC | 80 | 63 | 75% max. | 5% min. | 190% (at 23°C) | Approx. 400 |
| | 9 VDC | 44.4 | 202 | | | | |
| | 12 VDC | 33.3 | 360 | | | | |
| | 24 VDC | 16.7 | 1440 | | | | |

Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

Note 2. The operating characteristics are measured at a coil temperature of 23°C.

Note 3. The "Max. voltage" is the maximum voltage that can be applied to the relay coil.

Contacts

| Item | Load | Resistive load | |
|------------------------|--|--|--|
| | | SPST-NO (1a) | SPDT (1c) |
| Contact Type | Single | | |
| Contact material | Ag-Alloy (Cd free) | | |
| Rated load (resistive) | 10 A at 125 VAC 3 A at 125 VAC 3 A at 250 VAC 5 A at 30 VDC | 10 A at 125 VAC (NO) 3 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 250 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 | Classification | Standard model |
|---|---------------------------------------|---|
| Contact resistance *1 | | 100 mΩ max. |
| Operate time | | 10 ms max. |
| Release time | | 5 ms max. |
| Insulation resistance *2 | | 1,000 MΩ min. |
| Dielectric strength | Between coil and contacts | 4,000 VAC, 50/60 Hz for 1 min |
| | Between contacts of the same polarity | 1,000 VAC, 50/60 Hz for 1 min |
| Impulse withstand voltage (between coil and contacts) | | 8 kV (1.2 x 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 | 1,000 m/s ² |
| | Malfunction | 100 m/s ² |
| Durability | Mechanical | 10,000,000 operations (18,000 operations per hour) |
| | Electrical | <ul style="list-style-type: none"> • NO 50,000 operations: 10 A at 125 VAC resistive load (operation: ON for 1 sec, OFF for 3 sec) 200,000 operations: 3 A at 125 VAC resistive load (operation: ON for 1 sec, OFF for 1 sec) 100,000 operations: 3 A at 250 VAC resistive load (operation: ON for 1 sec, OFF for 1 sec) 100,000 operations: 5 A at 30 VDC resistive load (operation: ON for 1 sec, OFF for 1 sec) • NC 200,000 operations: 3 A at 125 VAC resistive load (operation: ON for 1 sec, OFF for 1 sec) 100,000 operations: 3 A at 250 VAC resistive load (operation: ON for 1 sec, OFF for 1 sec) 100,000 operations: 3 A at 30 VDC resistive load (operation: ON for 1 sec, OFF for 1 sec) |
| Failure rate (P level) (reference *3) | | 10 mA at 5 VDC |
| Ambient operating temperature | | -40°C to 85°C (with no icing or condensation) |
| Ambient operating humidity | | 5% to 85% |
| Weight | | Approx. 6.5 g |

Note. The data shown above are initial values.

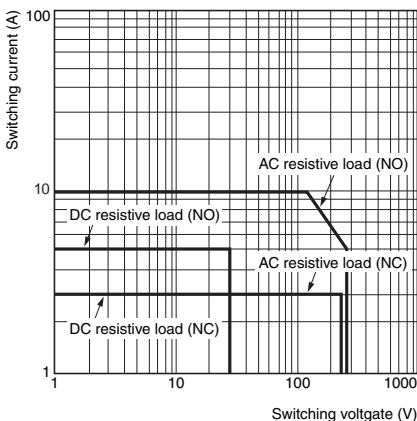
*1. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.

*2. Testing conditions: The insulation resistance was measured with a 500 VDC megohmmeter at the same locations as the dielectric strength was measured.

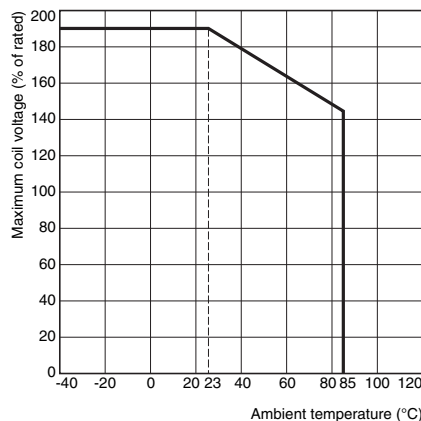
*3. This value was measured at a switching frequency of 120 operations/min.

Engineering Data

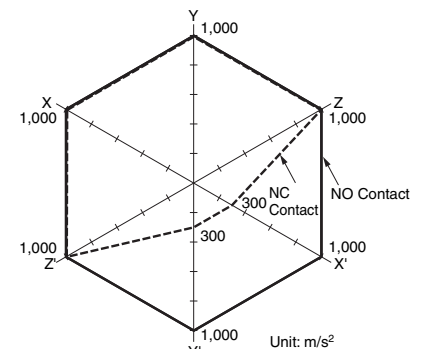
Maximum Switching Capacity



Ambient Temperature VS. Maximum Coil Voltage



Shock Malfunction

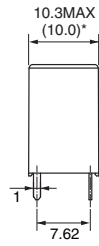
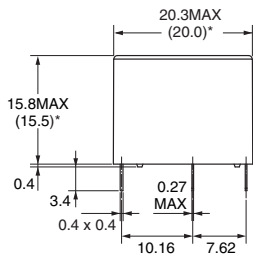
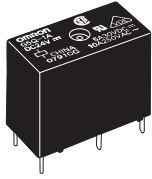


Sample: G5Q-14 12 VDC
 Number of Relays: 5 pcs
 Test conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with without energizing the Relays to check the number of malfunctions.
 Requirement: None malfunction
 100 m/s²

■Dimensions

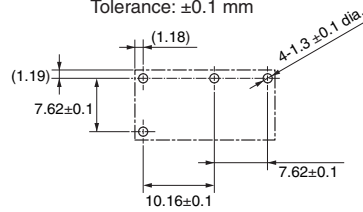
(Unit: mm)

G5Q-1A
G5Q-1A4

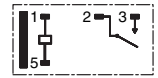


* Average value

PCB Mounting Holes
(Bottom View)
Tolerance: ± 0.1 mm

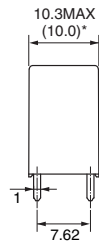
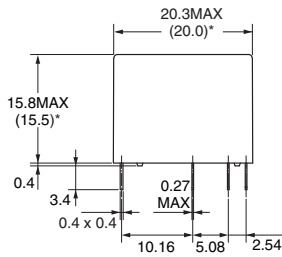
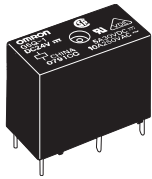


Terminal Arrangement/
Internal Connections
(Bottom View)



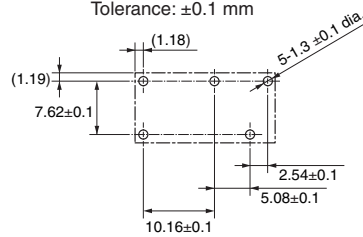
(No coil polarity)

G5Q-1
G5Q-14

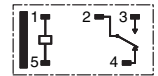


* Average value

PCB Mounting Holes
(Bottom View)
Tolerance: ± 0.1 mm



Terminal Arrangement/
Internal Connections
(Bottom View)



(No coil polarity)

■Approved Standards

UL Recognized:  (File No. E41515)

CSA Certified:  (File No. LR31928)

| Model | Contact form | Coil ratings | Contact ratings | Number of test operations |
|-------|---------------------------|--------------|---|---------------------------|
| G5Q | SPST-NO (1a) SPDT (1c) | 5 to 48 VDC | 10 A 250 VAC N.O. only (Resistive) 40°C | 6,000 |
| | | | 10 A 30 VDC N.O. only (Resistive) 40°C | |
| | | | 4 A 120 VAC N.O. only (Resistive) 40°C | 100,000 |
| | | | 3 A 250 VAC N.C. only (Resistive) 40°C | |
| | | | 3 A 30 VDC N.C. only (Resistive) 40°C | |

EC/IEC, VDE  (Certified/No.40009467)

| Model | Contact form | Coil ratings | Contact ratings | Number of test operations |
|-------|---------------------------|------------------|--|---------------------------|
| G5Q | SPST-NO (1a) SPDT (1c) | 5, 9, 12, 24 VDC | 10 A 250 VAC ($\cos\phi=1$) (N.O.) 105°C 5 A 30 VDC (0 ms) (N.O.) 105°C 3 A 30 VDC (0 ms) (N.C.) 105°C | 10,000 |

■Precautions

●Please refer to “PCB Relays Common Precautions” for correct use.

• Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
• Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.