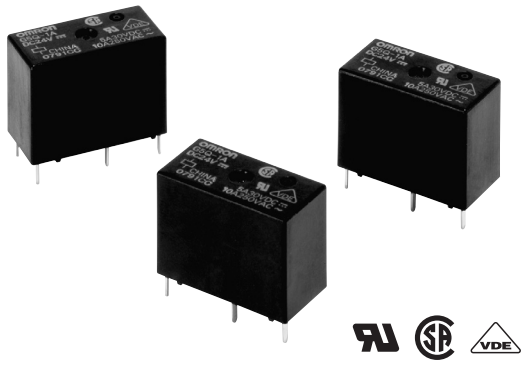
PCB Relay
G5Q

Compact, High Isolation Relay

- Compact single pole relay with high isolation between coil and contacts.
- Ensures a withstand impulse voltage of 8,000V between the coil and contacts.
- Low coil power consumption.
- UL class F coil insulation.
- UL recognized / CSA certified. EN approved.
- Ideal for appliance and HVAC controls
- RoHS Compliant



Ordering Information

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

Classification		Enclosure rating	Model
Single contact, class F coil insulation	SPST-NO	Flux protection	**G5Q-1A**
		Fully-sealed	**G5Q-1A4**
	SPDT	Flux protection	**G5Q-1**
		Fully-sealed	**G5Q-14**

Note: Add "-EU" before the coil voltage to obtain versions with CTI > 250. (e.g., G5Q-1A4-EU DC12)
Specifications for "EU" type differ from standard models. Contact Omron for more details

Specifications

■ Coil Ratings

Rated voltage (V)		Rated coil current (mA)	Coil resistance (Ω)	Pick-up voltage	Drop-out voltage	Maximum voltage	Power consumption (mW)
				Percent of rated voltage			
SPDT	DC 5	80	63	75% max	5% min	190% @ 23°C	400
	DC 9	44.4	202				
	DC 12	33.3	360				
	DC 24	16.7	1440				
SPST-NO	DC 5	40	125				200
	DC 9	22.2	405				
	DC 12	16.7	720				
	DC 24	8.3	2880				

Note: 1. Rated current and coil resistance are measured at 23°C with a tolerance of ±10%.
2. The operating characteristics are measured 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	SPDT	SPST-NO
Rated load (resistive)	10 A at 125 VAC (NO) 3 A at 250 VAC (NO) 3 A at 125 VAC (NO) 5 A at 30 VDC (NO) 3 A at 250 VAC (NC) 3 A at 125 VAC (NC) 3 A at 30 VDC (NC)	10 A at 125 VAC 3 A at 250 VAC 3 A at 125 VAC 5 A at 30 VDC
Contact type	Single	
Contact material	Ag alloy (Cd free)	
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)	
Max. switching capacity	1250 VA, 150 W (NO) 750 VA, 90 W (NC)	
Min. permissible load (120 operations/minute)	10 mA at 5 VDC (P level: $\lambda_{60} = 0.1 \times 10^{-6}$/operation)	

■ Characteristics

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		4,000 VAC, 50/60 Hz for 1 min between coil and contacts 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity
Impulse withstand voltage		8 kV (1.2 × 50 μs) between coil and contacts
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 (approx. 100G) Malfunction: 100 m/s^2 (approx. 10G)
Life expectancy (See Note 4)	**Mechanical**	10,000,000 operations (18,000 operations per hour)
	Electrical	NO 50,000 operations: 10 A at 125 VAC resistive load (operations: ON for 1 sec, OFF for 3 sec.) 200,000 operations: 3 A at 125 VAC resistive load (operations: ON for 1 sec, OFF for 1 sec.) 100,000 operations: 3 A at 250 VAC resistive load (operations: ON for 1 sec, OFF for 1 sec.) 100,000 operations: 5 A at 30 VDC resistive load (operations: ON for 1 sec, OFF for 1 sec.) NC 200,000 operations: 3 A at 125 VAC resistive load (operations: ON for 1 sec, OFF for 1 sec.) 100,000 operations: 3 A at 250 VAC resistive load (operations: ON for 1 sec, OFF for 1 sec.) 100,000 operations: 3 A at 30 VDC resistive load (operations: ON for 1 sec, OFF for 1 sec.)
Ambient temperature	**Operating & storage**	−40°C to 105°C with no icing or condensation
Ambient humidity	**Operating & storage**	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 was measured with a 500 VDC megohmmeter at the same locations as the dielectric strength was measured.

4. The electrical life data items shown are possible at 23°C

■ Approved Standard

UL Recognized (File No. E41515) / CSA Certified (File No. LR31928) - - Ambient Temp = 40°C

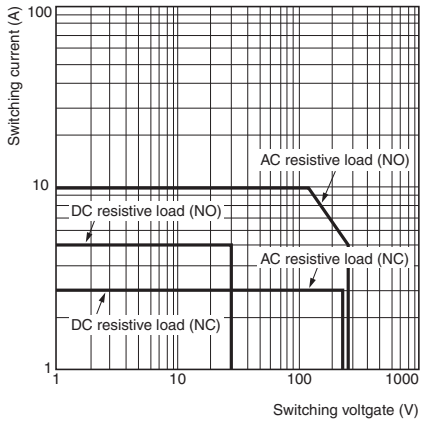
Model	Contact Form	Coil ratings	Contact ratings	Number of test operations
G5Q	SPST-NO (1a) SPDT (1c)	5 to 48 VDC	10 A 250 VAC N.O. only (resistive)	6,000
			10 A 30 VDC N.O. only (resistive)	
			4 A 120 VAC N.O. only (resistive)	100,000
			3 A 250 VAC N.C. only (resistive)	6,000
			3 A 30 VDC N.O. only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

EC/IEC, VDE (Certified / No.40003467) - - Ambient Temp = 105°C

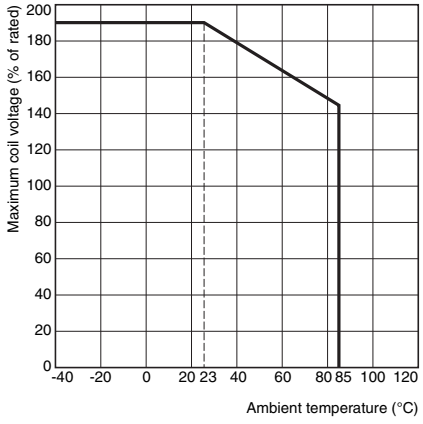
Model	Contact Form	Coil ratings	Contact ratings	Number of test operations
G5Q	SPST-NO (1a) SPDT (1c)	5, 9, 12, 24 VDC	10 A 250 VAC (cosϕ=1)(N.O.) 5 A 30 VDC (0 ms)(N.O.) 3 A 30 VDC (0 ms)(N.C.)	10,000

Engineering Data

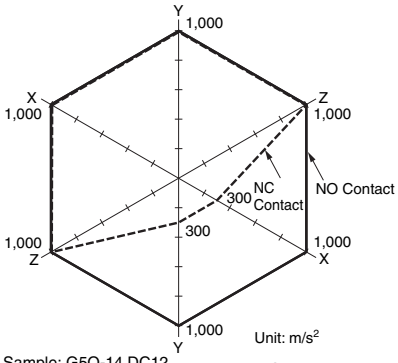
Maximum Switching Capacity



Ambient Temperature vs Maximum Coil Voltage



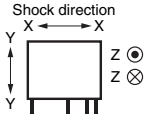
Shock Malfunction



Sample: G5Q-14 DC12
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.

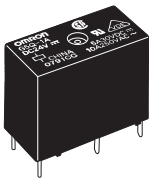
Requirements: None malfunction 100 m/s²

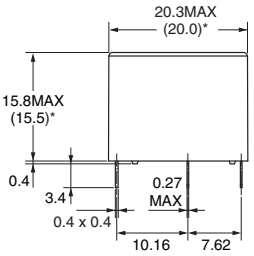


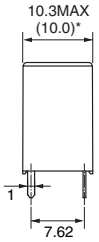
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G5Q-1A
G5Q-1A4

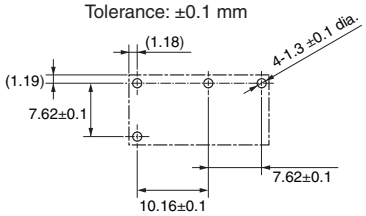




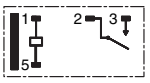


* Average value

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

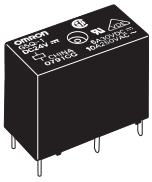


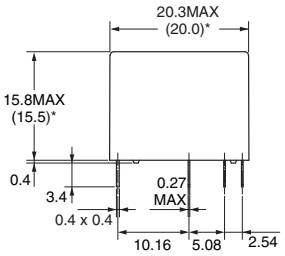
Terminal Arrangement/ Internal Connections
(Bottom View)

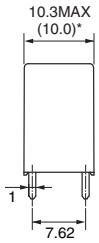


(No coil polarity)

G5Q-1
G5Q-14

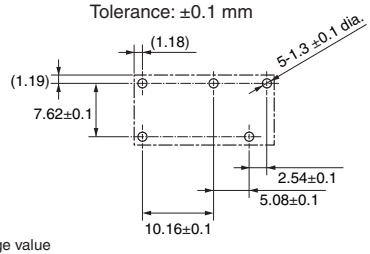




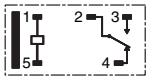


* Average value

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



Terminal Arrangement/ Internal Connections
(Bottom View)



(No coil polarity)

Precautions

Be sure to read the precautions and information common to all Electromechanical Relays, contained in the Technical User's Guide, "Electromechanical Relays, Technical Information" for correct use.

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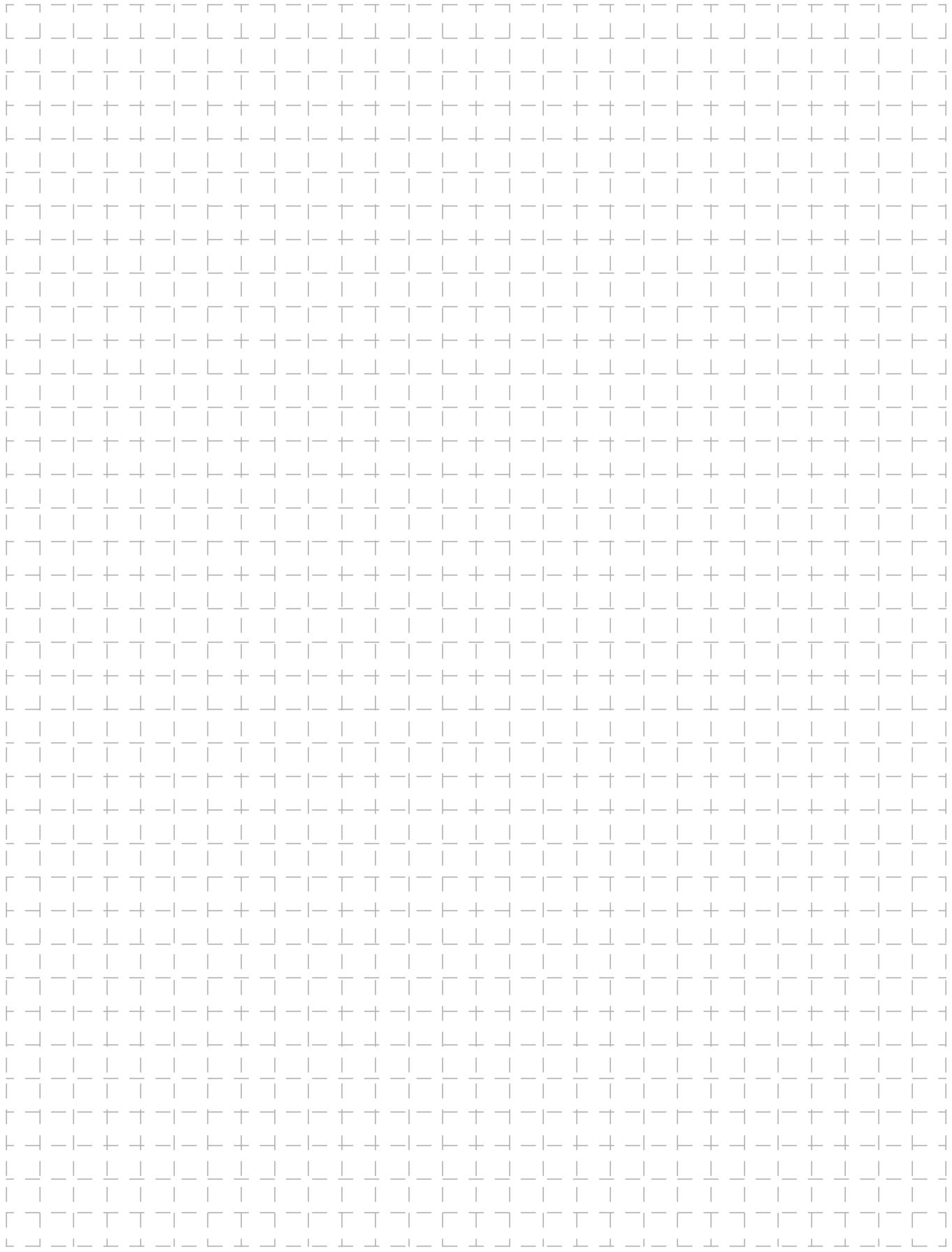

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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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Cat. No. J155-E-04 11/13 Specifications subject to change without notice Printed in USA