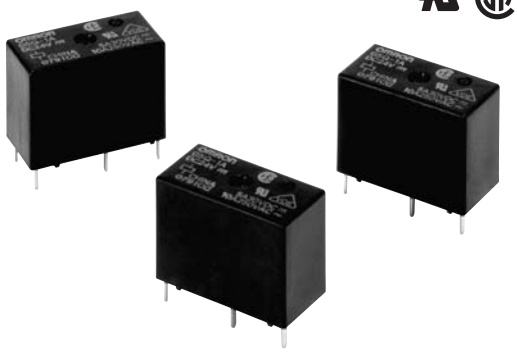
G5Q
PCB Power Relay

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**
1: 1-pole

2. **Contact Form**
None : SPDT (1c)
A : SPST-NO (1a)

3. **Enclosure rating**
None : Flux protection
4 : Fully-sealed

■Application Examples

- Ideal for output applications of control equipments.

■Ordering Information

Terminal Shape	Classification	Enclosure rating / Contact form	Flux protection Model	Flux protection Rated coil voltage	Fully-sealed Model	Fully-sealed Rated coil voltage	Minimum packing unit
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	5 VDC	G5Q-14	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				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

Load / Item	Resistive load SPST-NO (1a)	Resistive load 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)	

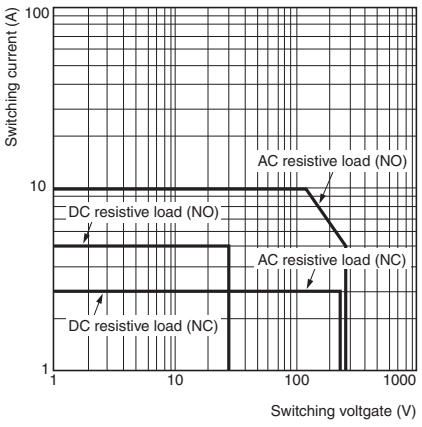
■Characteristics

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/s²
	Malfunction	100 m/s²
Durability	Mechanical	10,000,000 operations (18,000 operations per hour)
	Electrical	• 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 105°C (with no icing or condensation)
Ambient operating humidity		5% to 85%
Weight		Approx. 6.5 g

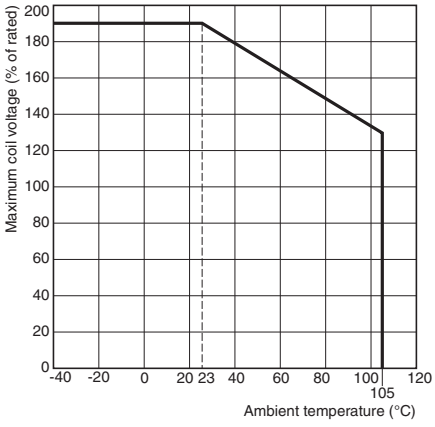
Note. The data shown above are initial values.
*1. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.
*2. Testing conditions: The insulation resistance was measured with a 500 VDC megohmmeter at the same locations as the dielectric strength was measured.
*3. This value was measured at a switching frequency of 120 operations/min.

■Engineering Data

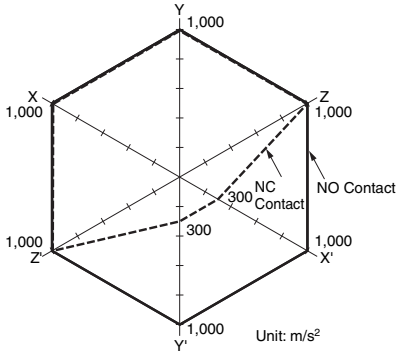
●Maximum Switching Capacity



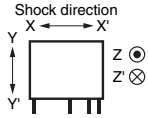
●Ambient Temperature VS. Maximum Coil Voltage



●Shock Malfunction



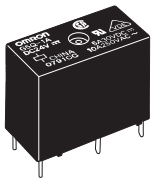
Sample: G5Q-14 12 VDC
Number of Relays: 5 pcs
Test conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with without energizing the Relays to check the number of malfunctions.
Requirement: None malfuction
100 m/s²

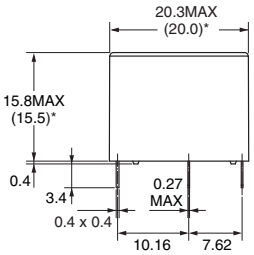


■Dimensions

(Unit: mm)

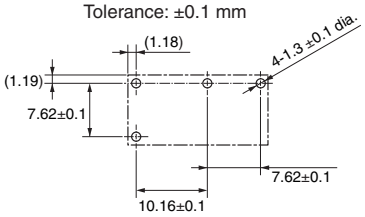
G5Q-1A
G5Q-1A4



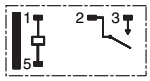


* Average value

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

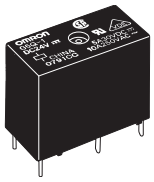


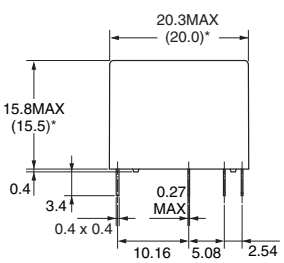
Terminal Arrangement/ Internal Connections
(Bottom View)



(No coil polarity)

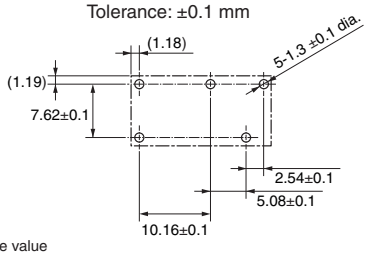
G5Q-1
G5Q-14



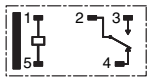


* Average value

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	6,000
			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 (cosϕ=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.

OMRON Corporation
Electronic and Mechanical Components Company
Contact: www.omron.com/ecb
Cat. No. J155-E1-05
0814(0207)(O)

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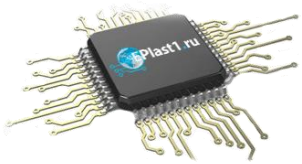
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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