

# 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** 



■Application Examples

• Ideal for output applications of control equipments.

## Model Number Legend

## G5Q-

123		
1. Number of	2. Contact Form	3. Enclosure rating
Poles	None : SPDT (1c)	None : Flux protection
1: 1-pole	A : SPST-NO (1a)	4 : Fully-sealed

# ■Ordering Information

		Enclosure rating	EIIIX D	rotection	Fully-sealed		Minimum	
Terminal		Contact	Model	Rated coil	Model	Rated coil	packing unit	
Shape	Classification	form	woder	voltage	woder	voltage		
				5 VDC		5 VDC		
	SPST-NO	G5Q-1A	9 VDC	G5Q-1A4	9 VDC			
		(1a)	G5Q-TA	12 VDC	- G5Q-1A4	12 VDC		
PCB	Ctandard			24 VDC		24 VDC	40 pcs/	
terminals Standard	SPDT	050.4	5 VDC	050.14	5 VDC	tube	Note. When ordering, add the rated coil voltage to the	
			9 VDC		9 VDC		model number.	
		(1c) G5C	G5Q-1	12 VDC	G5Q-14	12 VDC	1	Example: G5Q-1A 5 VDC
				24 VDC		24 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			()
	5 VDC	40	125	- - 75% max.	5% min. 190% (at 23℃)		
SPST-NO (1a)	9 VDC	22.2	405				Approx. 200
	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	Resistive load				
Item	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	AC: 10 A (NO)/3 A (NC)				
current	DC: 5 A (NO)/3 A (NC)				

G 5 Q

# ■Characteristics

Item Classification		Standard model				
Contact resistance *1		100 mΩ max.				
Operate time		10 ms max.				
Release time	е	5 ms max.				
Insulation re	sistance *2	1,000 MΩ min.				
Dielectric	Between coil and contacts	4,000 VAC, 50/60 Hz for 1 min				
strength	Between contacts of the same polarity	1,000 VAC, 50/60 Hz for 1 min				
	istand voltage il and contacts)	8 kV (1.2 x 50 μs)				
Vibration	Destruction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)				
resistance	Malfunction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)				
Shock	Destruction	1,000 m/s <sup>2</sup>				
resistance	Malfunction	100 m/s <sup>2</sup>				
	Mechanical	10,000,000 operations (18,000 operations per hour)				
Durability Electrical		<ul> <li>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)</li> <li>NC 200,000 operations: 3 A at 125 VAC resistive load (operation: ON for 1 sec, OFF for 1 sec)</li> <li>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)</li> </ul>				
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.

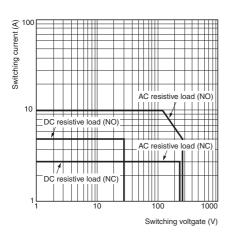
\*1. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.

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

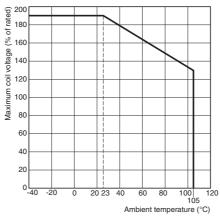
\*3. This value was measured at a switching frequency of 120 operations/min.

# ■Engineering Data

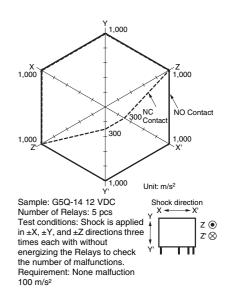
#### Maximum Switching Capacity



#### Ambient Temperature VS. Maximum Coil Voltage

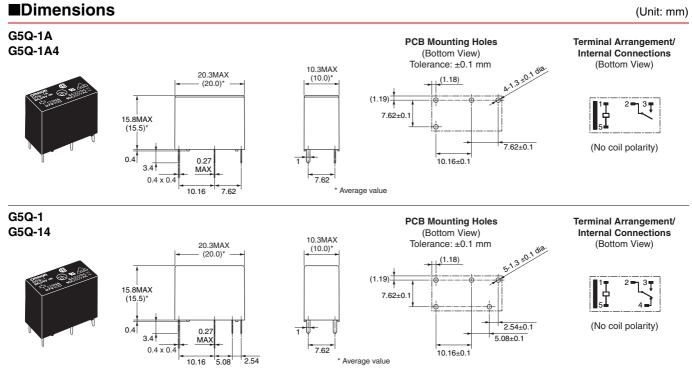


#### Shock Malfunction



# G5Q

## **PCB Power Relay**



## ■Approved Standards

### UL Recognized: 🔊 (File No. E41515) CSA Certified: 🚯 (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations	
			10 A 250 VAC N.O. only (Resistive) 40°C	6,000	
G5Q SPST-NO (1a) SPDT (1c)			10 A 30 VDC N.O. only (Resistive) 40°C		
	5 to 48 VDC	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	0,000	

### EC/IEC, VDE LOC (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∳=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.

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