# PCB Relay

### **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	Vented	G5Q-1A
		Sealed	G5Q-1A4
	SPDT	Vented	G5Q-1
		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**

I Rated voltage (V)		Rated coil current (mA)	Coil resistance	Pick-up voltage	Drop-out voltage	Maximum voltage	Power consumption	
		current (ma)	current (mA) (Ω)		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: Rated current and coil resistance are measured at 23°C with a tolerance of  $\pm 10\%$ .

### **■** Contact Ratings

Item	SPDT	SPST-NO	
Rated load (resistive)	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)	10 A at 125 VAC 3 A at 250 VAC 5 A at 30 VDC	
Contact material	Ag alloy	·	
Rated carry current	10 A (NO)/3 A (NC)	10 A (NO)/3 A (NC)	
Max. switching voltage	277 VAC, 30 VDC	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) 375 VA, 90 W (NC)	, , ,	
Min. permissible load	10 mA at 5 VDC (P level: $\lambda_{60} = 0.1$	10 mA at 5 VDC (P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation)	

### **■** Characteristics

Contact resistance (See note 2.)		100 m $\Omega$ 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	pulse withstand voltage 8 kV $(1.2 \times 50 \mu s)$ between coil an contacts			
Vibration resistance		Destruction: 10 to 55 to 10 Hz, 1.5-mm double amplitude		
		Malfunction: 10 to 55 to 10 Hz, 1.5-mm double amplitude		
Shock resistance		Destruction: 1000 m/s² (approx. 100G)		
		Malfunction: 100 m/s² (approx. 10G)		
Life expectancy (See Note 4) 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)		
Ambient temperature	Operating & storage	-40°C to 105°C (-40°F to 221°F) with no icing or condensation		
Ambient humidity	Operating & storage	5% to 85%		

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 between coil and contacts and between contacts of the same polarity at 500 VDC.
- 4. The electrical life data items shown are possible at  $23^{\circ}\text{C}$

### **■** Approved Standard

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

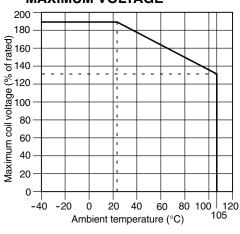
Model	Coil ratings	Contact ratings		
		NO contacts	NC contacts	
G5Q	5 to 24 VDC	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	3 A at 250 VAC (Resistive), 6,000 ops. 3 A at 30 VDC (Resistive), 6,000 ops.	

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

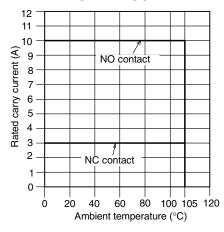
Model	Coil ratings	Contact ratings
G5Q		10 A, 250 VAC cosφ=1 (NO) 5 A, 30 VDC L/R=0 ms (NO)
		3 A, 30 VDC L/R=0 ms (NC)

### **Engineering Data**

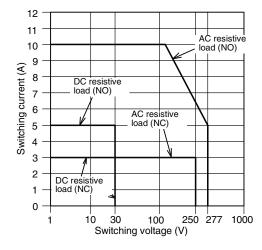
## ■ AMBIENT TEMPERATURE VS. MAXIMUM VOLTAGE



## ■ AMBIENT TEMPERATURE VS. RATED CARRY CURRENT



#### **■ MAX. SWITCHING CAPACITY**

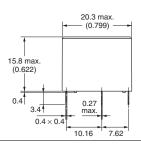


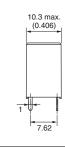
### **Dimensions**

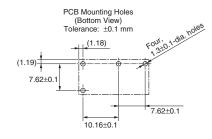
Note: All units are in millimeters unless otherwise indicated.

### G5Q-1A G5Q-1A4







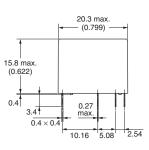


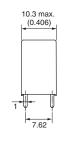
Terminal Arrangement/ Internal Connections (Bottom View)

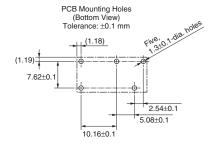


G5Q-1 G5Q-14









Terminal Arrangement/ Internal Connections (Bottom View)



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#### ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

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06/09

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