

PCB Relay G5Q

Compact, High Isolation Relay

- Compact single pole relay with high isolation between coil and contacts.
- Up to 10 A switching on the NO contacts.
- Ensures a withstand impulse voltage of 8,000 V between the coil and contacts.
- Low coil power consumption.
- UL class F coil insulation.
- UL, CSA, and VDE approvals.
- Ideal for appliance and HVAC controls.
- RoHS Compliant.



Ordering Information

To Order: Select the part number and add the desired coil voltage 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

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 12	33.3	360				
	DC 24	16.7	1440				
SPST-NO	DC 5	40	125				200
	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 ±10%.

■ CONTACT RATINGS

Load	SPDT	SPST-NO
Rated load (resistive)	10 A @ 125 VAC (NO) 3 A @ 250 VAC (NO) 5 A @ 30 VDC (NO) 3 A @ 125 VAC (NC) 3 A @ 30 VDC (NC)	10 A @ 125 VAC 3 A @ 250 VAC 5 A @ 30 VDC
Contact material	Ag Alloy	
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 (NC)/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: $\lambda_{60}=0.1 \times 10^{-6}$ 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 1000 VAC, 50/60 Hz for 1 min between contacts of same polarity	
Impulse withstand voltage	8 kV (1.2 x 50 μs) between coil and contacts	
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours Malfunction: 10 to 55 Hz, 1.5-mm double amplitude for 5 minutes	
Shock resistance	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: 100 m/s ² (approximately 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 (NO) at 125-VAC (900 operations per hour)
	Switching frequency	1,800 operations per hour
Ambient temperature	Operating & storage	-40°C to 105°C (-40°F to 221°F) with no freezing or condensation
Ambient humidity	Operating & storage	5% to 85%

- Note:**
1. The data shown above are initial values.
 2. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.
 3. The insulation resistance is possible 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°C.

■ APPROVED STANDARDS

UL508 (File No. E41515)
 CSA C22.2 No. 14 (File No. LR31928)

Model	Coil ratings	Contact ratings (See Note)	
		NO contacts	NC contacts
G5Q	5-48 VDC	10 A, 250 VAC resistive 10 A, 30 VDC resistive 4 A, 120 VAC resistive, 100,000 ops. 4 FLA, 4 LRA 120 VAC, definite purpose, 100,000 ops. 400W, 120 VAC, Tungsten, 25°C 5 LRA, 4 FLA, 120 VAC, definite purpose, 30,000 ops., 25°C	3 A, 250 VAC resistive 3 A, 30 VDC resistive 4 LRA, 2 FLA, 120 VAC definite purpose, 100,000 ops. 400W, 120 VAC, Tungsten, 25°C 5 LRA, 4 FLA, 120 VAC, definite purpose, 30,000 ops., 25°C

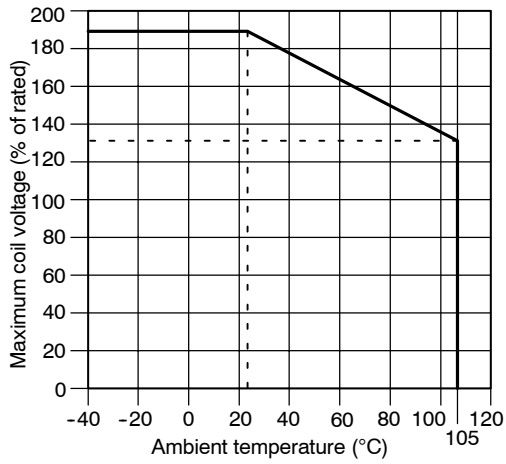
Note: Ratings for both NO contacts and NC contacts are given at 105°C (221 °F), unless specified.

VDE (Reg. No. 125314)

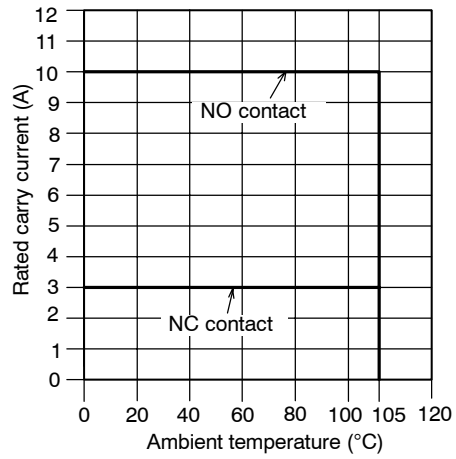
Model	Coil ratings	Contact ratings
G5Q	5, 12, 24 VDC	10 A, 250 VAC $\cos\phi=1$ (NO) 5 A, 30 VDC L/R=0ms (NO) 3 A, 30 VDC L/R=0ms (NC)

Engineering Data

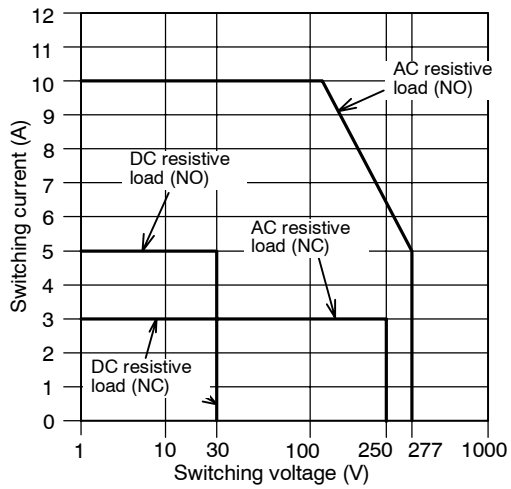
■ AMBIENT TEMPERATURE VS. MAXIMUM VOLTAGE



■ AMBIENT TEMPERATURE VS. RATED CARRY CURRENT



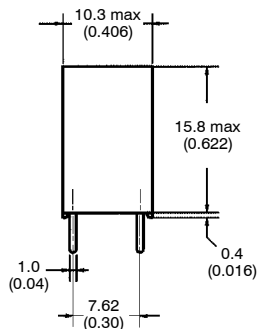
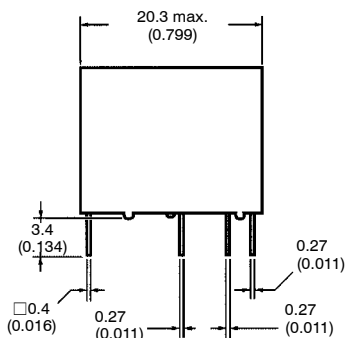
■ MAX. SWITCHING CAPACITY



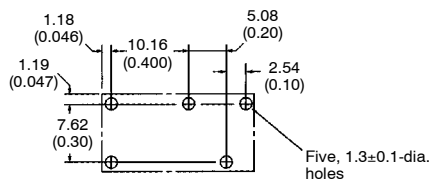
Dimensions

Unit: mm (inch)

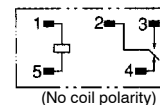
■ G5Q SPDT



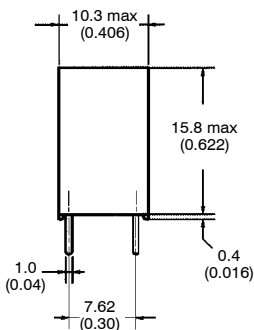
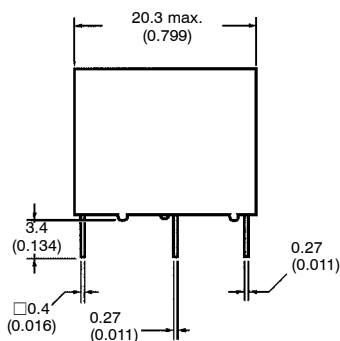
PCB Mounting Holes (Bottom View)
Tolerance: ± 0.1 mm



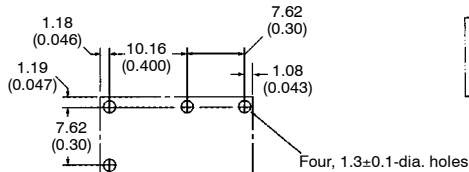
Terminal Arrangement/ Internal Connections (Bottom View)



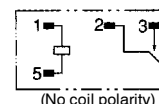
■ SPST-NO



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



Terminal Arrangement/ Internal Connections (Bottom View)



Precautions

For general precautions on PCB Relays, refer to the precautions provided in the Relay Catalog *Reference Information Section*. Document available on line.

! Caution

Do not touch the terminals of the Relay or the charted part of the socket when power is supplied to the Relay. Otherwise, an electric shock may occur.

Omron Electronic Components, LLC

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 - (b) Delivery and shipping dates are estimates only; and
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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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