G5Q-EL/-EL2

PCB Power Relay

A Miniature Power Relay with high performance

• [Type G5Q-EL]

Higher performance compare with G5Q standard type.

Minimum 100,000 operations durability at 10 A (250 VAC) switching.

• [Type G5Q-EL2]

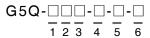
High inrush capacity performance (Inrush current 40 A).

UL508 TV3 conformed.

- IEC/EN 60335-1 conformed.
- Coil insulation system: class F (UL1446)

RoHS Compliant

■Model Number Legend



1. Number of Pole

1 : 1-pole

2. Contact Form

A : SPST-NO (1a)

3. Enclosure rating

None : Flux protection (-EL type only)

4 : Fully sealed

(-EL2 type only)

4. Classification

EL : For Resistive load EL2 : For Inrush load

5. Market Code

HA : Home Appliance according

to IEC/EN60335-1

6. Case Vent Hole

None : No vent hole

VH : Vent hole (-EL type only)



■Application Examples

- Home appliances
- · Building automation
- Lighting control
- Output of control system
- FA I/O module

■Ordering Information

Classification	Contact form	Enclosure rating	Model	Rated coil voltage	Minimum packing unit
-EL type (For Resistive load)	SPST-NO (1a)	Flux protection (Vent hole type)	G5Q-1A-EL-HA-VH	12 VDC 24 VDC	40 pcs/tube
-EL2 type (For Inrush load)	SPST-NO (1a)	Sealed	G5Q-1A4-EL2-HA	12 VDC 24 VDC	40 pcs/tube

Note. When ordering, add the rated coil voltage to the model number.

Example: G5Q-1A4-EL2-HA DC12

■Ratings

●Coil

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption	
nated voltage			% of rated voltage			(mW)	
12 VDC	33.3	360	75% max.	5% min.	190%	Approx. 400	
24 VDC	16.7	1440	75% IIIax.	(at 23°C)	Αρριοχ. 400		

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

Contacts						
Load		-EL type (For Resistive load)	-EL2 type (For Inrush load)			
		SPST-NO (1a)				
Item		Flux protection	Sealed			
Contact type		Single				
Contact material		Ag-Alloy (Cd free)				
Rated load		Resistive load: 10 A at 250 VAC	Capacitive load: Inrush 40 A (100 μs) / 1 A break at 250 VAC			
Rated carry current		10 A				
Max. rated voltage		277 VAC				
Max. rated current		10 A AC				

■Characteristics

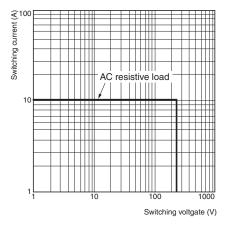
Item	Classification	-EL type (For Resistive load)	-EL2 type (For Inrush load)		
Contact resistance *1		100 mΩ max.			
Operate time		10 ms max.			
Release time		5 ms max.			
Insulation resistance *2		1,000 MΩ min. (at 500 VDC)			
Dialoctria atropath	Between coil and contacts	4,000 VAC, 50/60 Hz for 1 min			
Dielectric strength	Between contacts of the same polarity	1,000 VAC, 50/60 Hz for 1 min			
Impulse withstand 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)			
Vibration resistance	Malfunction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 m	m double amplitude)		
Shock resistance	Destruction	1,000 m/s ²			
SHOCK resistance	Malfunction	100 m/s ²			
	Mechanical	,000,000 operations (18,000 operations per hour)			
Durability	Electrical	Resistive load 100,000 operations at 23°C (operation: ON for 1 sec. OFF for 9 sec.)	Capacitive load 100,000 operations at 23°C (operation: ON for 1 sec. OFF for 3 sec.)		
Failure rate (P level) (refe	rence *3)	10 mA at 5 VDC			
Ambient operating temper	rature	-40°C to 85°C (with no icing or condensation)			
Ambient operating humidi	ty	5% to 85%			
Weight		Approx. 6.5 g			

Note. Values in the above table are the initial values at 23°C.

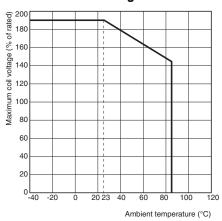
- *1. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.
- 2. Testing conditions: The insulation resistance was measured with a 500 VDC megohmmeter at the same locations as the electric strength was measured.
- 3. This value was measured at switching frequency of 120 operation/min.

■Engineering Data

Maximum Switching Capacity (AC)

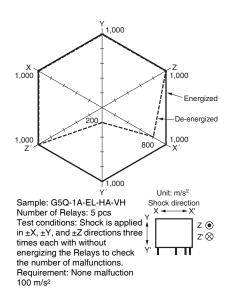


Ambient Temperature VS.Maximum Coil Voltage



Note. The Maximum coil voltage refers to the maximum value in a varying of operating power voltage, not a continuous voltage.

●Shock Malfunction



■Actual Load Life (Reference Values)

G5Q-1A4-EL2-HA

120 VAC Capacitive load

Inrush: 56 A (0-P), Break: 0.2 A (rms)

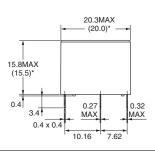
200,000 operations min. (Ambient temperature: 23°C)

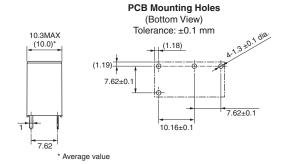
■Dimensions

(Unit: mm)

G5Q-1A-EL-HA-VH G5Q-1A4-EL2-HA







Terminal Arrangement/ Internal Connections (Bottom View)



(No coil polarity)

■Approved Standards

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

Model	Coil ratings	Contact ratings	Number of test operations
G5Q-1A-EL-HA-VH	12, 24 VDC	10 A 250 VAC Resistive 40°C	6,000
		5 A 250 VAC Resistive 85°C	6,000
G5Q-1A4-EL2-HA	12, 24 VDC	TV-3 40°C	25,000
		1 A 120 VAC 30 A Inrush-max. 1 msec 85°C	25,000

EN/IEC, VDE (Certified/No.40009467)

Model	Coil ratings	Contact ratings	Number of test operations
G5Q-1A-EL-HA-VH	12, 24 VDC	10 A 250 VAC (cosφ=1) 105°C	10,000
G5Q-1A4-EL2-HA	12, 24 VDC	5 A 250 VAC (cosφ=1) 85°C	10,000
GUQ-TAT-LLZ-TIA	12, 24 VDC	Peak inrush 30 A / Break 1 A 230 VAC 85°C	25,000

Creepage distance	6.4 mm min.
Clearance distance	5.5 mm min.
Insulation material group	IIIa
Type of insulation coil-contact circuit open contact circuit	Reinforced Micro disconnection
Rated Insulation voltage	250 V
Pollution degree	2
Rated voltage system	250 V
Over voltage category	III
Category of protection according to IEC 61810-1	RT II (Flux protection) / RT III (Sealed)
Glow wire according to IEC 60335-1 ed.5	GWT 750°C min. (IEC 60695-2-11) / GWFI 850°C min. (IEC 60695-2-12)
Tracking resistance according to IEC 60112	PTI 250 V min. (housing parts)
Flammability class according to UL94	V-0
Coil Insulation system	F Class (UL 1446)

■Precautions

●Please refer to "PCB Relays Common Precautions" for correct use.

Contact: www.omron.com/ecb

Note: Do not use this document to operate the Unit.

OMRON Corporation

Electronic and Mechanical Components Company

Cat. No. K284-E1-01

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

[•] 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.