G6QG

PCB Power Relays

Small-Size and Low Height Power Relay for Switching 55 A

- Capable of high-capacity switching with a contact rating of 480 VAC, 55 A despite its small size (L 30.5 x W 16.0 x H 20.5 mm)
- Contact gap: 2 mm or more (Compliant with Solar Power Generation Standard IEC62109)
- Capable of 10 kV high withstand voltage (between coil and contact)
- Coil holding voltage (35% of rated coil voltage) reduces coil power consumption to approximately 12% of rated voltage

⚠ Refer to the *Precautions* on page 4.

Model Number Legend

G6QG-□□□
1 2 3

1. **Number of Poles**
   1: 1-pole
2. **Contact Form**
   A: SPST-NO (1a)
3. **Enclosure rating**
   None: Flux protection

Application Examples

- Solar power generation system
- Inverter for Solar and Energy Storage
- EV Charging Station
- Industrial inverters
- Home appliances
- Various industrial equipment

Ordering Information

Contact type	Enclosure rating	Model	Rated coil voltage (V)	Minimum packing unit
SPST-NO (1a)	Flux protection	**G6QG-1A**	12, 24 VDC	50 pcs/box

Note: 1. When placing an order, please specify the number in package multiples.
Note: 2. When ordering, add the rated coil voltage to the model number.

Example: G6QG-1A DC12
└ Rated coil voltage

However, the notation of the coil voltage on the product case as well as on the packing will be marked as □□ VDC.

Ratings

Coil

Rated voltage (V)	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
			% of rated voltage			
12 VDC	117	103	75% max.	5% to 27%	110%	Approx. 1,400 Approx. 172 *1
24 VDC	58	411				

Note: 1. The rated current and resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
Note: 2. The operation characteristic are measured at a coil temperature of 23°C.
Note: 3. The maximum permissible voltage is the maximum value of the fluctuation range of the relay coil operating power supply and was measured at an ambient temperature of 23°C.
Note: 4. Be sure to use this relay at holding voltage. For details, please refer to *Coil Voltage Reduction (Holding Voltage) during and after Relay Operation* on page 4.
✻1. Coil consumption when holding voltage is used is approximately 172 mW (at 35% holding voltage)

Contacts

Contact type	Single
Contact material	Ag alloy (Cd-free material)
Rated load (resistive)	480 VAC 55 A 480 VAC making 20 A, carrying 55 A, breaking 20 A
Rated carry current	55 A
Max. switching voltage	480 VAC
Max. switching current	55 A

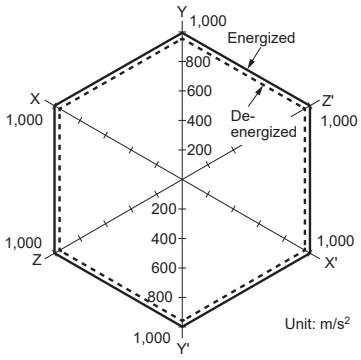
Characteristics

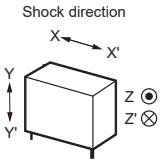
Item	Model	G6QG-1A
Contact resistance ✻1		100 mΩ max.
Operate time		20 ms max.
Release time		10 ms max.
Insulation resistance ✻2		1,000 MΩ min.
Dielectric strength	Between coil and contacts	4,500 VAC, 50/60 Hz for 1 min
	Between contacts of the same polarity	2,500 VAC, 50/60 Hz for 1 min
Impulse withstand voltage (Between coil and contacts)		10 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/s^2
	Malfunction	200 m/s^2
Durability	Mechanical	100,000 operations min. (at 18,000 operations/h)
	Electrical (Resistive)	480 VAC, 55 A, 10 operations min. 480 VAC making 20 A, carrying 55 A, breaking 20 A, 30,000 operations min. (Switching frequency: 1 second ON - 9 seconds OFF)
Failure rate (M level) (Reference value) ✻3		1 A at 5 VDC
Use conditions	Coil holding voltage ✻4	35% to 50% of rated coil voltage
	Ambient operating temperature	-40°C to +85°C (with no icing or condensation)
	Ambient operating humidity	5% to 85% RH
Weight		Approx. 18 g

✻1. Measurement conditions: with 5 VDC, 1 A, voltage drop method.
✻2. Measurement conditions: measured at the same point as the withstand voltage with a 500 VDC insulation resistance tester.
✻3. The value was measured at a switching frequency of 120 operations/minute.
✻4. For the detail regarding holding voltage usage, please refer to *Coil Voltage Reduction (Holding Voltage) during and after Relay Operation* on page 4.

Engineering Data

Shock Malfunction
G6QG-1A





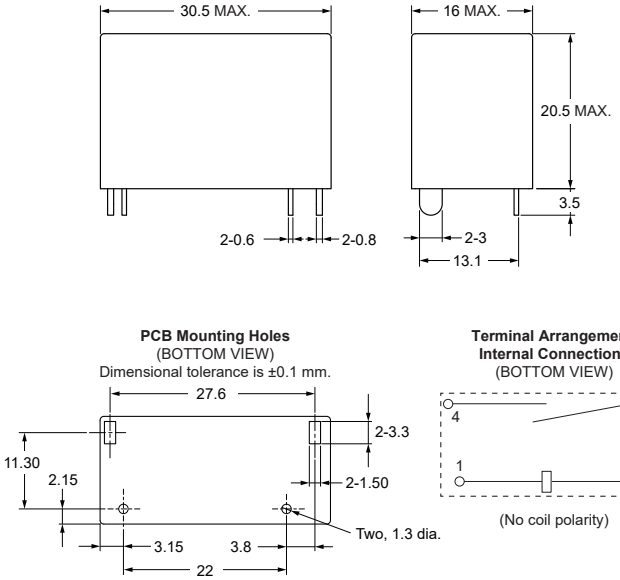
Conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with and without energizing the Relays to check the number of contact malfunctions.
Standard: 200 m/s^2

Dimensions

CAD Data marked products, 2D drawings and 3D CAD models are available.
For CAD information, please visit our website, which is noted on the last page.

(Unit: mm)

G6QG-1A
External view



CAD Data

Approval Standard

The approval rating values for overseas standards are different from the performance values determined individually confirm the values before use.

UL/C-UL (CSA) Recognized (File No.E41515)

Model	Coil ratings	Contact ratings	Number of test operations
G6QG-1A	12 VDC, 24 VDC	480 VAC 55 A (Resistive) 85°C	10
		Making 20 A, carrying 55 A, breaking 20 A, 480 VAC (Resistive) 85°C	30,000

TÜV Certified for EN/IEC Standards (EN61810-1) (Certification No.R50623877)

Model	Coil ratings	Contact ratings	Number of test operations
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CQC Certified (Certification No.CQC24002427192)

Model	Coil ratings	Contact ratings	Number of test operations
G6QG-1A	12 VDC, 24 VDC	480 VAC 55 A (Resistive) 85°C	10
		Making 20 A, carrying 55 A, breaking 20 A, 480 VAC (Resistive) 85°C	30,000

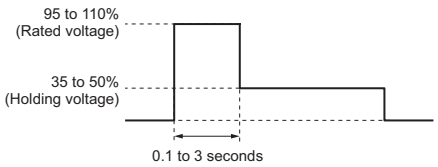
Precautions

Please refer to "Safety Precautions for All PCB Relays" for correct use.

Precautions for Correct Use

●Coil Voltage Reduction (Holding Voltage) during and after Relay Operation

- Use this relay with coil voltage reduction.
- Use in the applied voltage and time ranges indicated in the figure below.
- Do not exceed this range due to coil voltage change and so on.



	Applied coil voltage	Coil resistance ✻	Coil power consumption
Rated voltage	100%	103 Ω (12 VDC) 411 Ω (24 VDC)	Approx. 1,400 mW
Holding voltage	35%		Approx. 172 mW

✻ The coil resistances were measured at a coil temperature of 23°C with tolerances of ± 10%.

MEMO

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