G9KJ

PCB Power Relays

1,500 VDC Precharge Power Relay

- Compact relay optimized for precharge for use in 1,500 VDC systems (L 37.2 x W 17.0 x H 25.5 mm)
- Applicable to precharge circuits with making current up to 25 A
- Min. 14 mm of clearance and Min. 25 mm of creepage (between coil and contacts)
- High sensitivity of 530 mW coil consumption



⚠ **Refer to the *Precautions* on page 4.**

Model Number Legend

G9KJ-□□□
1 2 3

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

Application Examples

- Energy Storage System
- V2X (V2H, V2B, etc.)
- EV Charger

Ordering Information

Contact type	Enclosure rating	Terminal Shape	Model	Rated coil voltage (V)	Minimum packing unit
SPST-NO (1a)	Flux protection	PCB terminals	**G9KJ-1A**	12, 24 VDC	40 pcs/box

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

Example: G9KJ-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	44.1	272	75% max.	5% min.	110%	Approx. 530
24 VDC	22.1	1,087				

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.

Contacts

Contact type	Single
Contact material	Ag alloy (Cd free)
Rated load (resistive)	1,500 VDC making 25 A, carrying 5 A, breaking 0 A 40 VDC 5A
Rated carry current	5 A
Max. switching voltage (making/breaking)	Making 1,500 VDC, breaking 40 VDC
Max. switching current (making/breaking)	Making 25 A, breaking 5 A

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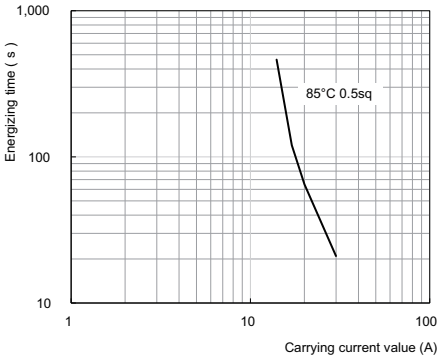
Characteristics

Item	Model	G9KJ-1A
Contact resistance ✻1		100 mΩ max.
Operate time		15 ms max.
Release time		5 ms max.
Insulation resistance ✻2		1,000 MΩ min.
Dielectric strength	Between coil and contacts	6,000 V
	Between contacts of the same polarity	2,000 V
Impulse withstand voltage (Between coil and contacts)		13 kV
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	100 m/s^2
Durability	Mechanical	500,000 operations min. (at 18,000 operations/h)
	Electrical (Resistive)	1,500 VDC making 25 A, carrying 5 A, breaking 0 A, 120,000 operations 40 VDC, 5 A, 6,000 operations (Switching frequency: 1 second ON - 9 seconds OFF)
Use conditions	Ambient operating temperature	-40°C to +85°C (with no icing or condensation)
	Ambient operating humidity	5% to 85% RH
Weight		Approx. 16 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 1,000 VDC insulation resistance tester.

Engineering Data

●Carry Current vs Energizing Time



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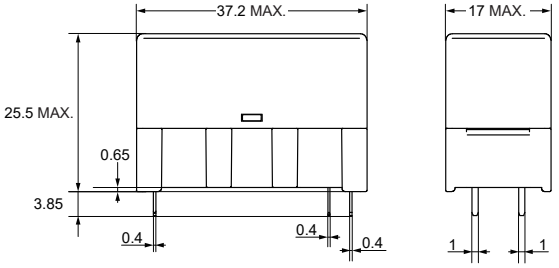
Dimensions

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.

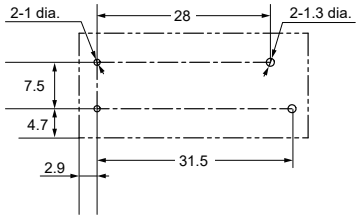
(Unit: mm)

G9KJ-1A





PCB Mounting Holes
(BOTTOM VIEW)
Dimensional tolerance is ±0.1 mm.



Terminal Arrangement/ Internal Connections
(BOTTOM 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.E549211)

Model	Coil ratings	Contact ratings	Number of test operations
G9KJ-1A	12 VDC, 24 VDC	Making 25 A, carrying 5 A, breaking 0 A, 1500 VDC (Resistive) 85°C	120,000
		40 VDC 5 A (Resistive) 85°C	6,000

TÜV Certified for EN/IEC Standards (Certification No.R 50690600)

Model	Coil ratings	Contact ratings	Number of test operations
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		40 VDC 5 A (Resistive) 85°C	6,000

CQC Certified (Certification No.CQC25002483924)

Model	Coil ratings	Contact ratings	Number of test operations
G9KJ-1A	12 VDC, 24 VDC	Making 25 A, carrying 5 A, breaking 0 A, 1500 VDC (Resistive) 85°C	120,000
		40 VDC 5 A (Resistive) 85°C	6,000

Insulation data		
Creepage distance - between coil and contact		25 mm min.
Clearance - between coil and contact		14 mm min.
Type of insulation - between coil and contact		Basic insulation
Type of interruption		Micro disconnection
Conditions of insulation data		
Material group of insulation		IIIa
Pollution degree (external environment of the relay)		3
Rated insulation voltage		1,500V (DC only)
Overvoltage category	**Altitude up to 2,000 m**	III
	Altitude up to 4,000 m	II
Other data		
Category of protection (IEC61810-1)		RTII
Flammability class (UL94)		V-0
Coil insulation system (UL1446)		Class B

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Precautions

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

⚠Warning

Since this relay is intended for inrush current protection circuits, breaking load that exceeds the rated range may cause abnormal heat generation, smoking, or ignition. Use with Max. load of 40 VDC and 5 A for breaking.



As this relay is a high-voltage type, there is a risk of abnormal heat generation, smoke generation or fire if you use the relay with a contact voltage, current, or for a number of times beyond the specified range. Use only within the specified ranges.



Precautions for Safe Use

●Drop

- Do not use relays that have been dropped as they may not function properly.

Precautions for Correct Use

●Handling

- This product is flux protection type. Therefore, do not perform immersible cleaning.

●Relay Service Life

- Do not use these relays outside of the specified ratings and service life, or for any application other than high DC voltages. Implement safety circuits and other measures to minimize the risk in case of the unlikely event of a failure.
- The electrical durability of these relays is specified as the number of load switching operations under a resistive load and OMRON-specified standard testing conditions.
  The coil drive circuit, ambient environment, switching frequency, or load conditions (e.g., inductive load or capacitor load) may reduce the service life and possibly lead to failure to break. Always confirm the service life in the actual equipment.

●Micro load

- This is a power relay for high power switching. Do not use for micro loads such as signal switching.

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