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G2RG-X

PCB Power Relay

Power Relay with 500 VDC 10 A Switching Capacity (2 poles series wiring with 3.0 mm contact gap)



- Achieves 500 VDC 10 A switching capacity used with 2 pole series wiring
- 3.0 mm contact gap (2 poles series wiring)
- Offers high insulation with insulation distance above 8 mm and impulse withstand voltage of 10 kV between coil and contacts.
- UL and TÜV certified

RoHS Compliant

■Model Number Legend

G2RG-2A□-X

1 2 3

1. Number of Poles
2: 2-pole

2. Contact Form
A: N.O. contact
DPST-NO (2a)

3. Enclosure rating
Blank: Flux protection

■Application Example

- Energy storage system

■Ordering Information

Contact form	Enclosure rating	Terminal type	Model	Rated coil voltage	Minimun packing unit
DPST-NO (2a)*	Flux protection	PCB terminals	G2RG-2A-X	12 VDC 24 VDC	60 pcs/tray

Note. When ordering, add the rated coil voltage (V) to the model number.
Example: G2RG-2A-X 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.

* This product is designed and manufactured under the assumption that it will be used with 2 poles series wiring.

■Ratings

●Coil

Item / Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must-operate voltage (V)	Must-release voltage (V)	Maximum voltage (V)	Power consumption (mW)
			% of rated voltage			
12 VDC	66.6	180	80% max.	10% min.	110% (at 23°C)	Approx. 800
24 VDC	33.3	720				

Note 1. The rated current and coil resistance are for a coil temperature of 23°C and have a tolerance of ±10%.
Note 2. The operating characteristics given in the above table are for a coil temperature of 23°C.
Note 3. The maximum allowable voltage is the maximum possible value of the voltage that can be applied to the relay coil.

●Contacts (2-pole Series Wiring)

Item / Load	Resistive load
Contact type	Single
Contact material	Ag-alloy (Cd free)
Rated load	10 A at 500 VDC
Rated carry current	8 A
Maximum switching voltage	500 VDC
Maximum switching current	10 A

■Characteristics

Contact resistance *1		100 mΩ max.
Operate time		15 ms max.
Release time		5 ms max.
Max. switching frequency	Mechanical	18,000 operations/hr
	Electrical	1,800 operations/hr
Insulation resistance *2		1,000 MΩ min.
Dielectric strength	Between coil and contacts	5,000 VAC, 50/60 Hz for 1 min
	Between contacts of different polarity	3,000 VAC, 50/60 Hz for 1 min
	Between contacts of the same polarity	1,000 VAC, 50/60 Hz for 1 min
Impulse withstand voltage		10 kV (1.2 x 50 μs)
Insulation distance	Between coil and contacts	Clearance: 8 mm, Creepage: 8 mm
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/s²
	Malfunction	200 m/s² when energized
Durability	Mechanical	1,000,000 operations min. (at 18,000 operations/hr)
	Electrical *3 (When resistive load and 2 poles series wiring)	10,000 operations at 500 VDC 10 A 30,000 operations at 500 VDC 1 A (switching frequency of 1,800 operations/hr)
Ambient operating temperature		-40 to 85 °C (with no icing or condensation)
Ambient operating humidity		5% to 85%
Weight		Approx. 22 g

Note. The above values are initial values (at an ambient temperature of 23°C.)
*1. Measurement conditions: 5 VDC, 1 A, voltage-drop method. It is a value between each contact terminal.
*2. Measurement conditions: Measured with a 500 VDC megohmmeter at the same places as the dielectric strength.
*3. A diode and zener diode are connected to the relay coil.

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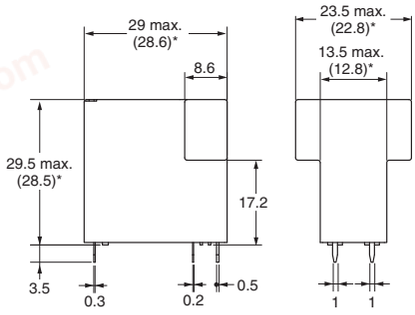
■Dimensions

CAD Data Please visit our website, which is noted on the last page.

(Unit: mm)

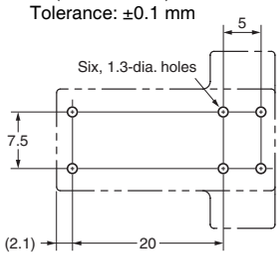
G2RG-2A-X



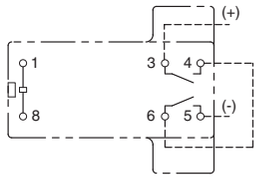


* Average value

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



Terminal Arrangement/ Internal Connections
(Bottom View)



The contacts have polarity.
Exercise caution.
Use this product with
2 poles wiring series.
(No coil porality)

CAD Data

■Approved Standards

The approved rated values for international standards are different to the individually specified characteristic values. Be sure to confirm that required standards are satisfied before actual use.

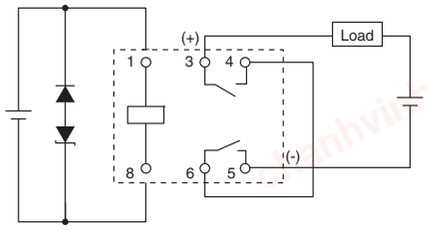
UL Recognized: (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations
G2RG-2A-X	DPST-NO (2a)	12, 24 VDC	10 A, 500 VDC (Resistive) 85°C	10,000
			1 A, 500 VDC (Resistive) 85°C	30,000

EN/IEC, TÜV Certified Model (Approval/No. R50468711)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations
G2RG-2A-X	DPST-NO (2a)	12, 24 VDC	10 A, 500 VDC (Resistive) 85°C	10,000
			1 A, 500 VDC (Resistive) 85°C	30,000

■Circuit Diagrams



Note. The contacts have polarity. Exercise caution.
The diode and zener diode are for coil surge absorption. (The coil has no polarity.)

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■Precautions

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

Correct Use

●Differences with the G2R

The G2RG-2A-X has the same terminal arrangement as the G2R-2A4 but the switching capacity and electrical endurance are different. Confirm that correct operation is possible in the actual operating conditions before using in applications.

●Handling

The enclosure rating of this product is flux protection. Therefore, do not wash with water or detergent.

●Mounting

The contacts of this product have polarity. Be sufficiently careful because incorrect wiring may result in a failure to break the circuit.

This product is designed and manufactured under the assumption that it will be used with 2-pole series wiring.

Do not use it with 1 pole only.

Install the product in a dry location with little dust and corrosive gas.

Use in high temperature and humidity or an atmosphere containing corrosive gas may lead to the relay itself failing or suffering burn damage caused by performance deterioration due to the influence of condensation or corrosive materials.

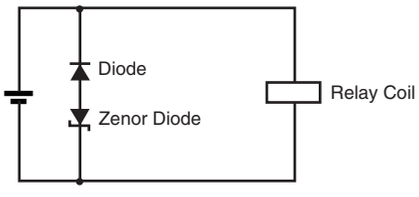
●Connection of diodes to the operating coil

Connect a diode and zener diode to the relay coil (refer to the following figure).

The diodes are for coil surge absorption. Switching performance may be affected if only a diode is used, so use in combination with a zener diode.

The coil has no polarity. Connect the diodes in the reverse polarity of the voltage applied to the coil.

The recommended zener voltage of the zener diode is three times the rated coil voltage.



●Dropping

Do not use this product if it has been dropped.

●Electrical endurance

Since this product is specifically for high DC voltages, the final failure mode is failure to break the circuit, and in a worse-case scenario, burning may extend to surrounding components.

Do not exceed the specified ratings or number of operations during use, or use the product for any application other than high DC voltages.

Implement a safety circuit and other safety measures to minimize the risk in the event of a failure.

The electrical endurance of this product is the number of load switching operations with a resistive load under the standard testing conditions specified by OMRON.

The coil drive circuit, ambient environment, switching frequency, or load condition (use under an inductive load or capacitor load) may reduce the endurance and lead to a failure to break the circuit. Always confirm operation with the actual equipment.

Please check each region's Terms & Conditions by region website.

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