G6RN
PCB Power Relay

Miniature Power Relay for Switching 8 A



- Low-profile height of 15 mm (approx. 60% the height of the Omron G2R model).
- Capable of switching with 8 A at 250 VAC despite its small size.
- High sensitivity with 220mW power consumption.
- Offers high insulation with insulation distance of 8 mm and impulse withstand voltage of 10kV between coil and contacts.
- Satisfies ambient operating temperature requirement of 85°C.
- Standard model conforms to VDE standards.

RoHS Compliant

■Model Number Legend

G6RN-□□
1 2

1. Number of Poles
1: 1-pole

2. Contact Form
None: SPDT (1c)
A: SPST-NO (1a)

■Ordering Information

Classification	Enclosure rating	Contact form	Terminal shape	Model	Rated coil voltage	Minimun packing unit
Standard	Fully sealed	SPST-NO (1a)	PCB terminals	G6RN-1A	5, 6, 12 VDC	20 pcs/tube
					24 VDC	
		SPDT (1c)		G6RN-1	5, 6, 12 VDC	
					24 VDC	

Note. When ordering, add the rated coil voltage to the model number.
Example: G6RN-1A 5 VDC
Rated coil voltage

■Ratings

●Coil

Item / Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
			% of rated voltage			
5 VDC	43.9	114	70% max.	10% min.	150% (at 23•C)	Approx. 220
6 VDC	36.6	164				
12 VDC	18.3	655				
24 VDC	9.2	2,620				

Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
*2. The operating characteristics are measured at a coil temperature of 23°C.
*3. The “Max. voltage” is the maximum voltage that can be applied to the relay coil.

●Contacts

Item / Load	Resistive load
Contact type	Single
Contact material	Ag-Alloy + gold plating (Cd free)
Rated load	8 A at 250 VAC 5 A at 30 VDC
Rated carry current	8 A
Max. switching voltage	250 VAC, 30 VDC
Max. switching current	8 A

■Application Examples

- Control equipments

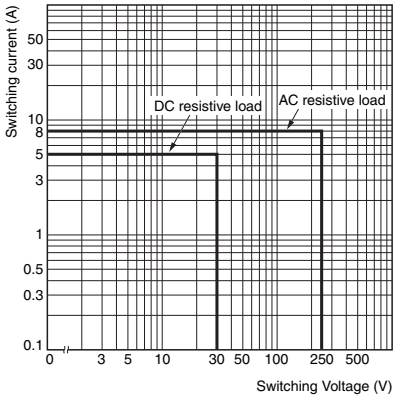
■Characteristics

Contact resistance *1		100 mΩ max.
Operate time		15 ms max.
Release time		5 ms max.
Insulation resistance *2		1,000 MΩ min. (at 500 VDC)
Dielectric strength	Between coil and contacts	4,000 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 (between coil and contacts)		10,000 V (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 NO: 0.75 mm single amplitude (1.5 mm double amplitude) NC: 0.4 mm single amplitude (0.8 mm double amplitude)
Shock resistance	Destruction	1,000 m/s²
	Malfunction	NO: 100 m/s² NC:: 50 m/s²
Durability	Mechanical	10,000,000 operations min. (at 36,000 operations/hr)
	Electrical *3	50,000 operations min. (8 A at 250 VAC, resistive load) 50,000 operations min. (5 A at 30 VDC, resistive load) (at 360 operations/hr under rated load)
Failure rate (P level) (reference value) *4		10 mA at 5 VDC
Ambient operating temperature		-40•C to 85•C (with no icing or condensation)
Ambient operating humidity		5% to 85%
Weight		Approx. 9 g

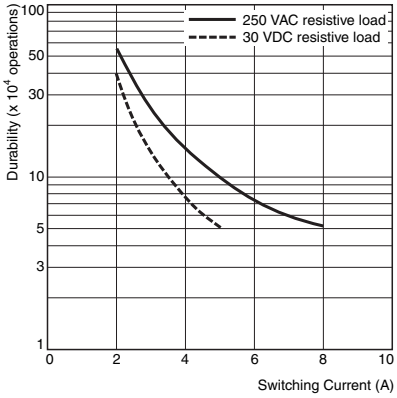
Note. The data given above are initial values.
*1. Measurement conditions: 5 VDC, 1 A, voltage drop method.
*2. Measurement conditions: The insulation resistance was measured with a 500 VDC megohmmeter at the same locations as the dielectric strength was measured.
*3. Test conditions: With diode
*4. This value was measured at a switching frequency of 120 operations/min.

■Engineering Data

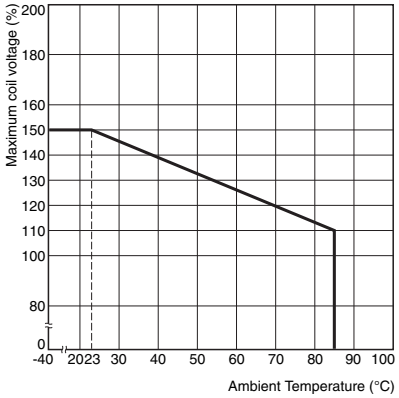
●Maximum Switching Capacity



●Durability

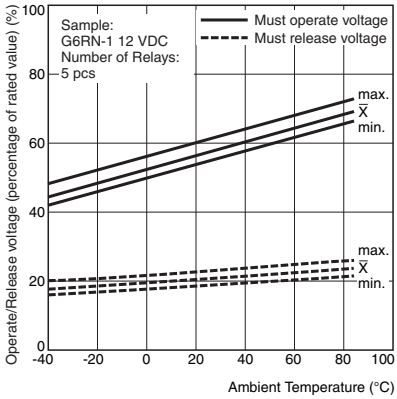


●Ambient Temperature vs. Maximum Coil Voltage

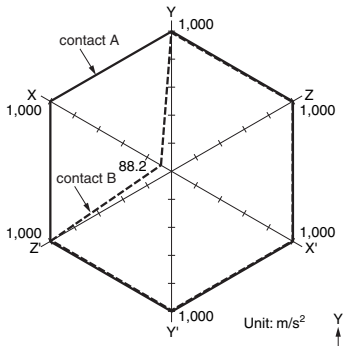


Note. The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

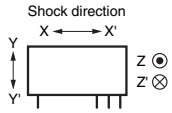
●Ambient Temperature vs. Maximum Coil Voltage



●Shock Malfunction G6RN-1

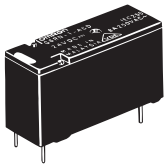


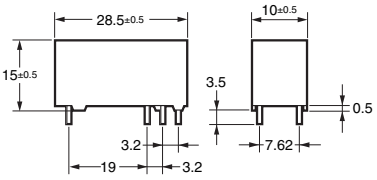
Sample: G6RN-1 24 VDC
Number of Relays: 5 pcs
Test conditions: The value at which malfunction occurred was measured after applying shock to the test piece 3 times each in 6 directions along 3 axes.
Standard value: 100m/s² at contact A, 50m/s² at contact B



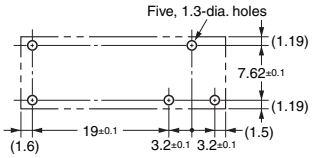
■Dimensions

G6RN-1

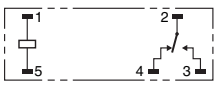




PCB Mounting Holes
(Bottom View)

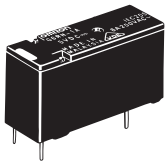


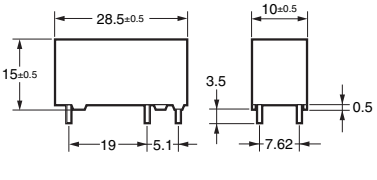
Terminal Arrangement/ Internal Connections
(Bottom View)



(No coil polarity)

G6RN-1A





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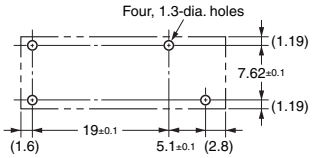

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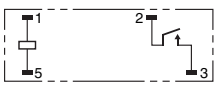

(No coil polarity)

■Approved Standards

●The rated values approved by each of the safety standards may be different from the performance characteristics individually defined in this catalog.

UL Recognized (File No. E41515)

Model	Number of poles	Coil ratings	Contact ratings	Number of test operations
G6RN-1	1	5 to 48 VDC	8 A, 250 VAC 85°C	6,000

EN/TÜV Certified (Registration No. 6135)

Model	Number of poles	Coil ratings	Contact ratings	Approved switching operations
G6RN-1 G6RN-1A	1	5, 6, 12, 24, 48 VDC	8 A, 250 VAC (Resistive) 85°C	10,000

■Precautions

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

• 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 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.

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

OMRON Corporation
Electronic and Mechanical Components Company
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