G6DN

PCB Power Relay

SPST Slim Power Relay for 5 A switching

- Slim 5-mm width and miniature size. (20 × 5.08 × 12.5 mm)
- High switching capability 5 A (250 VAC and 30 VDC), and high contact reliability by crossbar-twin contact.
- Power consumption 110 mW of an industry top class.
- Meets application standards EN61010-1 and EN61010-2-201 for reinforced insulation, and EN60335-1 for basic insulation.

■Model Number Legend

G6DN-□□□
1 2 3

1. **Number of Poles**
1: 1-pole

2. **Contact Form**
A: SPST-NO (1a)

3. **Enclosure Rating**
None: Fully sealed

■Application Examples

- Programmable Controller output
- Temperature Controller
- Building Automation
- Output of control system

■Ordering Information

Contact form	Enclosure rating	Terminal shapes	Model
SPST-NO (1a)	Fully sealed	PCB terminal	G6DN-1A

Note. When ordering, add the rated coil voltage to the model number.
Example: G6DN-1A DC5
Rated coil voltage

■Ratings

●Coil

Rated voltage	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V) % of rated voltage	Must release voltage (V) % of rated voltage	Max. voltage (V) % of rated voltage	Power consumption (mW)
4.5 VDC	24.4	184	70% max. *	5% min.	160%	Approx. 110
5 VDC	22.0	227				
12 VDC	9.2	1,309				
24 VDC	4.6	5,236				

Note. The rated current and resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
* Operating voltage is less than 72% when the relay is sideways and the marking is right way.

●Contacts

	Resistive load
Contact Type	Cross bar twin
Contact material	Ag-Alloy
Rated load	5 A at 250 VAC, 5 A at 30 VDC
Rated carry current	5 A
Max. switching voltage	277 VAC, 125 VDC
Max. switching current	5 A
Min. permissible load	0.1 mA at 0.1 VDC (at 120 operations/min)

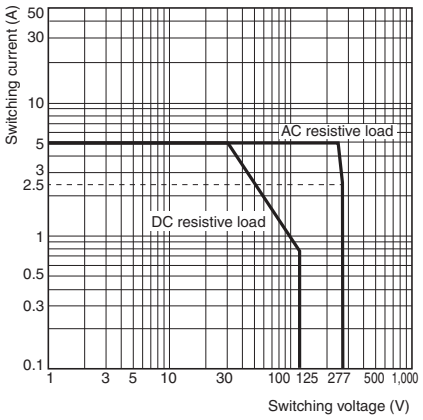
■Characteristics

Contact resistance		100 mΩ max.
Operate time		10 ms max.
Release time		5 ms max.
Insulation resistance		1,000 MΩ min. (at 500 VDC)
Dielectric strength	Between coil and contacts	3,000 VAC, 50/60 Hz for 1 min
	Between contacts of the same polarity	750 VAC, 50/60 Hz for 1 min
Surge withstand voltage	Between coil and contacts	6 kV (1.2 × 50 μs)
Vibration resistance	Destruction	10 to 55 to 10 Hz, 2.5 mm single amplitude (5.0 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	100 m/s²
Life expectancy	Mechanical	20,000,000 operations min. (at 18,000 operations/hr)
	Electrical	100,000 operations min. (3 A at 250 VAC, 3 A at 30 VDC) 80,000 operations min. (5 A at 250 VAC, 5 A at 30 VDC)
Ambient temperature	Operating	-40°C to +90°C (with no icing or condensation)
Humidity		5% RH to 95% RH
Weight		Approx. 3 g

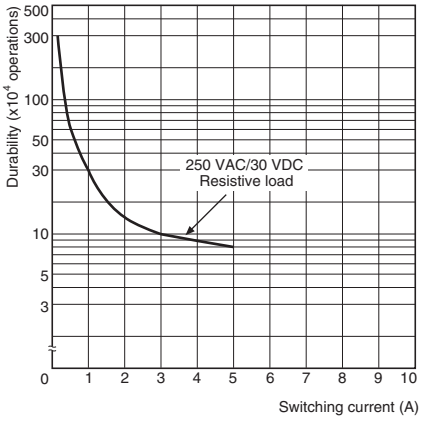
Note 1. Values in the above table are initial values.
Note 2. The contact resistance is measured with 1 A applied at 5 VDC using a fall-of-potential method.
Note 3. The insulation resistance is measured between coil and contacts and between contacts of the same polarity at 500 VDC.

■Engineering Data

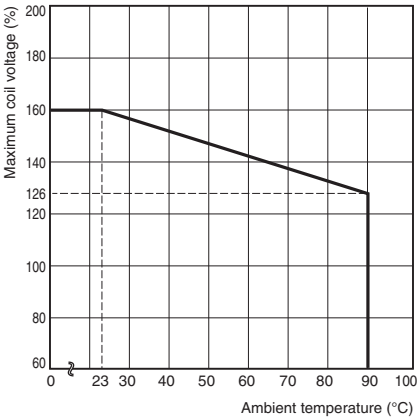
●Maximum Switching Capacity



●Durability

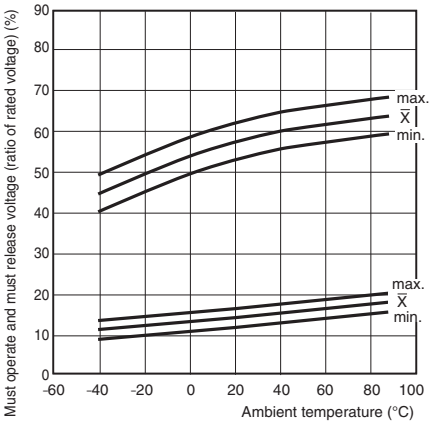


●Ambient Temperature vs. Maximum Coil Voltage

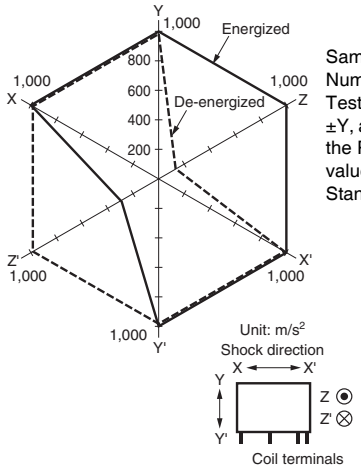


Note. The maximum coil voltage refers to the maximum voltage in a varying range of operating power voltage, not a continuous voltage.

●Ambient Temperature vs. Must Operate and Must Release Voltages



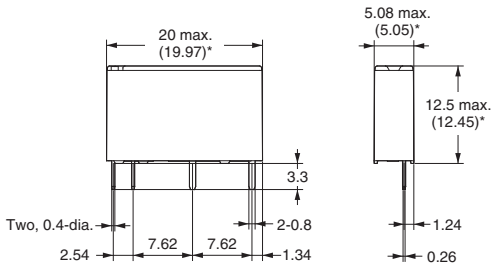
●Shock Malfunction



Sample: G6DN-1A
Number of Relays: 5 pcs
Test conditions: Impose a shock in the ±X, ±Y, and ±Z directions three times each with the Relay energized to check the shock values that cause the Relay to malfunction.
Standard:100 m/s²

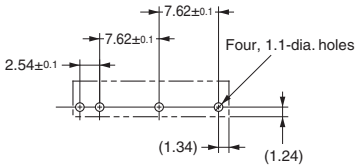
■Dimensions

G6DN-1A

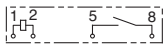


* Average value

PCB Mounting Holes
(Bottom View)



Terminal Arrangement/ Internal Connections
(Bottom View)



(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 datasheet.

UL Recognized c UL us (File No. E41515)

Model	Contact form	Coil ratings	Contact ratings	Operations
G6DN-1A	SPST-NO	4.5 to 24 VDC	5 A at 277 VAC (Resistive) 95°C	6,000
			5 A at 30 VDC (Resistive) 90°C	6,000
			1/10 hp 125 VAC 95°C	1,000
			1/10 hp 277 VAC 95°C	1,000
			D300 120 VAC/240 VAC 95°C	6,000
			C300 120 VAC/240 VAC 95°C	6,000
			R300 125 VDC/250 VDC 95°C	6,000

VDE (EN61810-1) (Certificate No. 40042696)

Model	Contact form	Coil ratings	Contact ratings	Operations
G6DN-1A	SPST-NO	4.5 to 24 VDC	5 A at 250 VAC (cosϕ= 1.0) 90°C	10,000
			5 A at 30 VDC (L/R = 0 ms) 90°C	10,000

Clearance distance	3.5 mm min.
Creepage distance	3.6 mm min.
Insulation material group	II
Type of insulation coil-contact circuit	Basic (PD.2)
open contact circuit	Micro disconnection
Rated Insulation voltage	250 V
Pollution degree	2
Rated voltage system	250 V
Over voltage category	II
Category of protection according to IEC 61810-1	RT III (Sealed)
Tracking resistance according to IEC 60112	PTI 400 V min.
Flammability class according to UL94	V-0
Coil insulation system according to UL	Class B

■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.

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Electronic and Mechanical Components Company
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