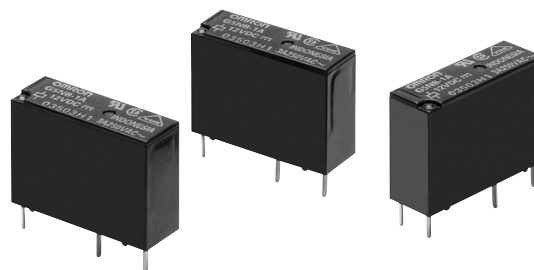


PCB Relay

G5NB

A Miniature Relay with 1-pole 3-A Switching Capability and 10-kV Impulse Withstand Voltage

- Highly efficient magnetic circuit for high sensitivity (200 mW) operation.
- 10-kV impulse withstand voltage (between coil and contacts).
- Standard model conforms to UL and CSA and VDE standards.
- RoHS Compliant.



Ordering Information

Classification	Contact form	Enclosure ratings	Model
Standard	SPST-NO	Flux protection	G5NB-1A

Note: When ordering, add the rated coil voltage to the model number.
Example: G5NB-1A DC 12

Rated coil voltage

Model Number Legend

G5NB-1A DC12

1 2 3

1. Number of Poles

1: 1 pole

2. Contact Form

A: SPST-NO

3. Rated Coil Voltage

5, 12, 18, 24 VDC

Application Examples

Water heaters, refrigerators, air conditioners, and small electric appliances

Specifications

■ Coil Ratings

Rated voltage	5 VDC	12 VDC	18 VDC	24 VDC
Rated current	40.0 mA	16.7 mA	11.1 mA	8.3 mA
Coil resistance	125 Ω	720 Ω	1,620 Ω	2,880 Ω
Must operate voltage	75% of rated voltage (max.)			
Must release voltage	10% of rated voltage (min.)			
Max. voltage	180% of rated voltage (at 23°C)			
Power consumption	Approx. 200 mW			

- Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 10\%$.
 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.

■ Contact Ratings

Load	Resistive load ($\cos\phi = 1$)
Rated load	3 A at 125 VAC, 3 A at 30 VDC
Max. switching voltage	250 VAC, 30 VDC
Max. switching and carry current	3 A
Max. switching power	375 VA, 90 W

■ Characteristics

Contact resistance (see note 2)	100 m Ω max.
Operate time	10 ms max.
Release time	10 ms max.
Insulation resistance (see note 3)	1,000 M Ω min. (at 500 VDC)
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min. between coil and contacts 750 VAC, 50/60 Hz for 1 min. between contacts of same polarity
Impulse withstand voltage	10,000 V (1.2 x 50 μ s) between coil and contacts
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s ² (approx. 100 G) Malfunction: 100 m/s ² (approx. 10 G)
Life expectancy	Mechanical: 5,000,000 operations min. Electrical: 200,000 operations min.
Minimum permissible load (reference value) (see note 4)	5 VDC, 10 mA
Ambient temperature	Operating: -40°C to 70°C (with no icing or condensation)
Ambient humidity	Operating: 5% to 85%
Weight	Approx. 4 g

- Note:** 1. The data shown above are initial value.
 2. Measurement conditions: 5 VDC, 1 A, voltage drop method
 3. Measurement conditions: Measured at the same points as the dielectric strength using a 500-VDC ohmmeter.
 4. This value is for a switching frequency of 120 operations/minute. (P level: $\lambda_{60} = 0.1 \times 10^{-6}$ operations)

■ Approved Standards

UL508 (File No. 41515)

Coil ratings	Contact ratings
5 to 24 VDC	3 A, 30 VDC (resistive) 3 A, 125 VAC (resistive) 1.5 A, 250 VAC (resistive)

CSA C22.2 (No. 0, No. 1, No. 14) (File No. LR31928)

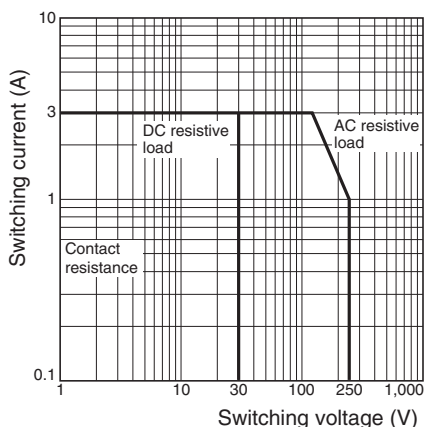
Coil ratings	Contact ratings
5 to 24 VDC	3 A, 30 VDC (resistive) 3 A, 125 VAC (resistive) 1.5 A, 220 VAC (resistive) 1 A, 250 VAC (resistive)

■ Actual Load Life (Reference Values)

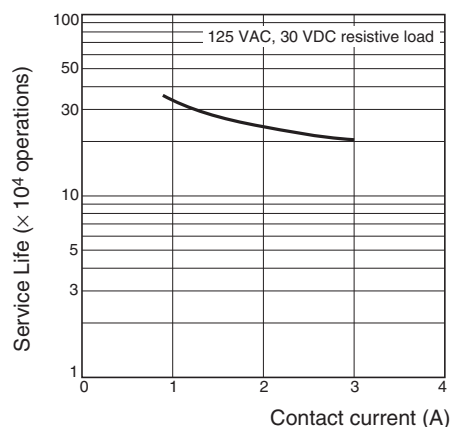
- 120-VAC motor and lamp load (2.5-A surge and 0.5-A normal): 250,000 operations min. (at 23°C)
- 160-VDC valve load (with varistor) (0.24-A): 250,000 operations min. (at 23°C)

Engineering Data

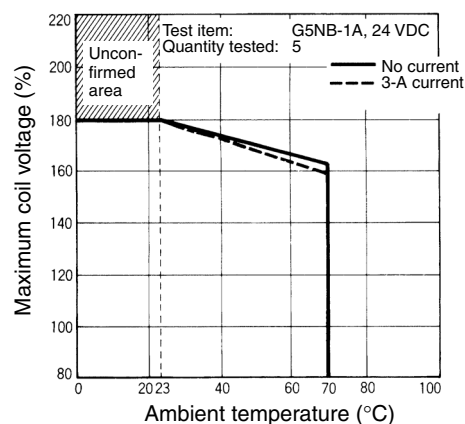
Maximum Switching Capacity



Electrical Service Life

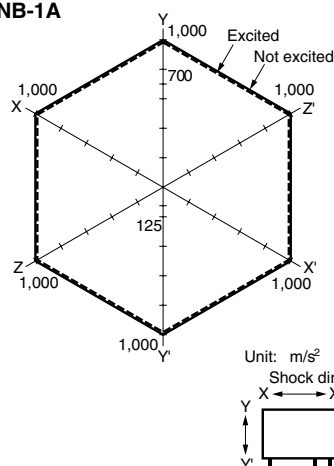


Ambient Temperature vs. Maximum Coil Voltage



Malfunctioning Shock

G5NB-1A



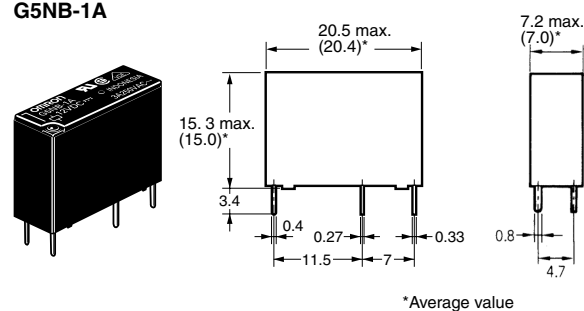
Quantity Tested: 5 units
Test Method: Shock was applied 3 times in 6 directions along 3 axes and the level at which shock caused malfunction was measured.
Rating: 100 m/s²

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

Dimensions

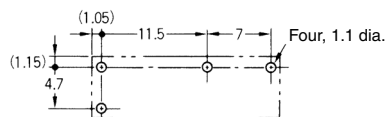
Note: All units are in millimeters unless otherwise indicated.

G5NB-1A

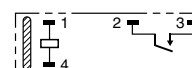


PCB Mounting Holes (Bottom View)

Tolerance: ± 0.1 mm



Terminal Arrangement/ Internal Connections (Bottom View)



(No coil polarity)

Precautions

■ Correct Use

Handling

The enclosure rating of the G5NB is suitable for flux protection. Do not use immersion-cleaning.