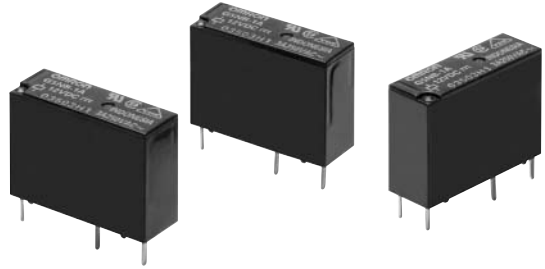


A Miniature Relay with 1-pole 5 A Switching Capability and 10 kV Impulse Withstand Voltage

- Highly efficient magnetic circuit for high sensitivity (200 mW).
- Compact slim, yet provides 10 kV impulse withstand voltage (between coil and contacts).
- Standard model conforms to UL, CSA and VDE standards
- Tracking resistance: CTI>250
- Contains no lead inside and features cadmium-free contacts ensuring environment-friendly use



Ordering Information

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

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

Model Number Legend

G5NB- **-E** **VDC**
 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

Coil Rating

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% max. of rated voltage			
Must release voltage	10% min. of rated voltage			
Max. voltage	170% of rated voltage (at 23°C)			
Power consumption	Approx. 200 mW			

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

The operating characteristics are measured at a coil temperature of 23°C.

The "Max. voltage" is the maximum voltage that can be applied to the relay coil.

Contact Rating

Load	Resistive load ($\cos\phi = 1$)
Rated load	5 A at 250 VAC, 3 A at 30 VDC
Max. switching voltage	250 VAC, 30 VDC
Max. switching current	5 A
Max. switching power	1250 VA, 90 W
Failure rate (reference value)	10 mA at 5 VDC

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation (with an operating frequency of 120 operations/min)

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 ms) between coil and contacts
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
Endurance	Mechanical: 5,000,000 operations min. Electrical: 100,000 operations min (5 A at 250 VAC), 100,000 operations min. (3 A at 30 VDC)
Failure rate P level (reference value) (See note 4.)	5 VDC, 10 mA
Ambient temperature	Operating: -40°C to 85°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.

Approved Standards

UL508 (File No. 41515)

Coil ratings	Contact ratings
5 to 24 VDC	5 A, 30 VDC (resistive) 5 A, 250 VAC (general use)

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

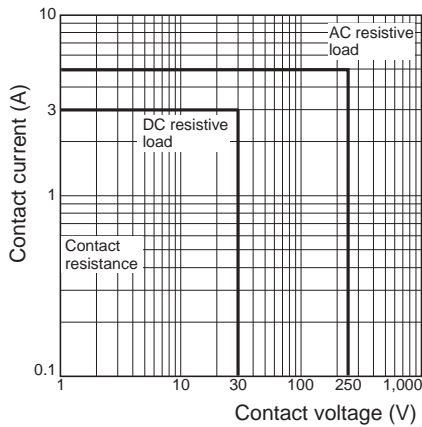
Coil ratings	Contact ratings
5 to 24 VDC	5 A, 30 VDC (resistive) 5 A, 250 VAC (general use)

Actual Load Life (Reference Values)

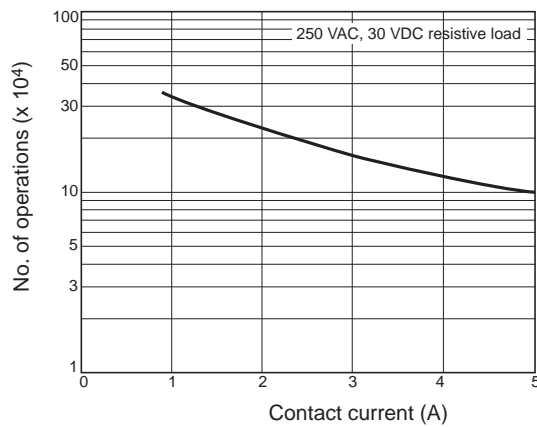
- 120-VAC motor and lamp load (2.5-A surge and 0.5-A normal): 250,000 operations min.(at 23°C)
- 160-VDC valve load (with varistor) (0.24-A): 250,000 operations min.(at 23°C)

Engineering Data

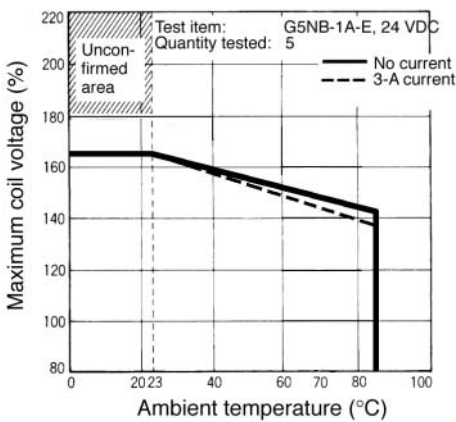
Maximum Switching Capacity



Endurance

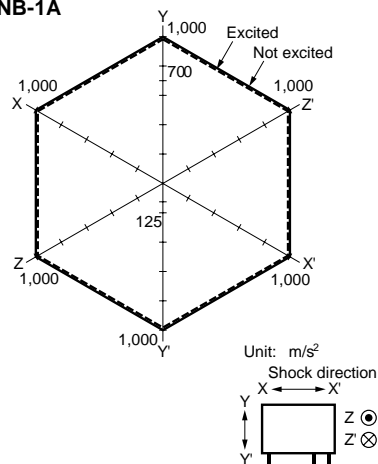


Ambient Temperature vs. Maximum Coil Voltage



Malfunctioning Shock

G5NB-1A

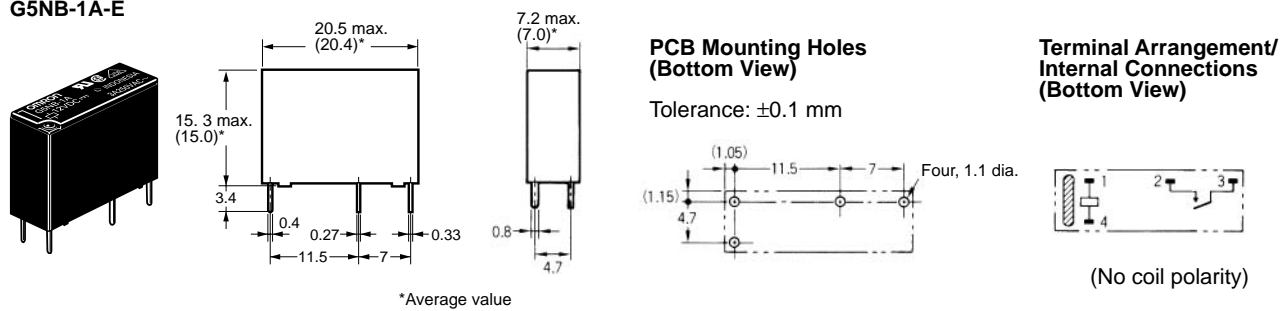


Quantity Tested: 5 units
Test Method: Shock was applied 3 times in 6 directions along 3 axes and the level at which shock caused malfunction was measured.
Rating: 100 m/s²

Dimensions

Note: All units are in millimeters unless otherwise indicated.

G5NB-1A-E



Precautions

CORRECT USE

Handling

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

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. G5NB-E In the interest of product improvement, specifications are subject to change without notice.

OMRON

Omron Electronic Components Europe BV

Wegalaan 57
2132 JD Hoofddorp
The Netherlands
Tel: +31 23 568 1200
Fax: +31 23 568 1212