

■ Ratings

● Coil

| Rated voltage | Rated current (mA) | Coil resistance (Ω) | Must operate voltage (V) | Must release voltage (V) | Max. voltage (V) | Power consumption (mW) |
|---------------|--------------------|---------------------|--------------------------|--------------------------|------------------|----------------------------|
| 5 VDC | 40 | 125 | 75% max. | 10% min. 10 to 39%* | 160% (at 23°C) | Approx. 200 Approx. 50* |
| 12 VDC | 16.7 | 720 | | | | |
| 24 VDC | 8.3 | 2880 | | | | |

Note 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

Note 2. The operating characteristics are measured at a coil temperature of 23°C.

Note 3. The "Max. voltage" is the maximum voltage that can be applied to the relay coil.

* These numbers are only for -PW type. Power consumption with Holding Voltage is approx.50mW. Please confirm the detail in page 4 Coil Voltage Reduction (Holding Voltage).

● Contacts

| Item | Load | Resistive load |
|------------------------|------|--------------------------------|
| Contact Type | | Single |
| Contact material | | Ag-alloy (Cd free) |
| Rated load | | 5 A at 250 VAC, 7 A at 250 VAC |
| | | 5 A at 30 VDC |
| Rated carry current | | 5 A at DC, 7 A at AC |
| Max. switching voltage | | 250 VAC, 30 VDC |
| Max. switching current | | 5 A at DC, 7 A at AC |

■ Characteristics

| | | |
|---|---------------------------------------|---|
| Contact resistance *1 | | 100 mΩ max. |
| Operate time | | 10 ms max. |
| Release time | | 10 ms max. |
| Insulation resistance *2 | | 1,000 MΩ min. |
| Dielectric strength | Between coil and contacts | 4,000 VAC, 50/60 Hz for 1 min |
| | Between contacts of the same polarity | 750 VAC, 50/60 Hz for 1 min |
| Insulation distance | Between coil and contacts | Clearance: 6 mm, Creepage: 6 mm |
| Impulse withstand voltage | Between coil and contacts | 10 kV (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, 0.75 mm single amplitude (1.5 mm double amplitude) |
| Shock resistance | Destruction | 1,000 m/s ² |
| | Malfunction | 100 m/s ² |
| Durability | Mechanical | 5,000,000 operations min. |
| | Electrical (resistive load) | <ul style="list-style-type: none"> Standard, Coil holding voltage type 200,000 operations at 250 VAC, 5 A 50,000 operations at 250 VAC, 7 A 100,000 operations at 30 VDC, 5 A High temperature rating type (G5NB-1A-EL-HA-A85) 100,000 operations at 250 VAC, 5 A at 85°C 50,000 operations at 250 VAC, 7 A at 85°C |
| Failure rate (P level) (reference value) *3 | | DC5V 10mA |
| Ambient operating temperature | | -40°C to 85°C (with no icing or condensation) |
| Ambient operating humidity | | 5% to 85% |
| Weight | | Approx. 4 g |

Note. The data shown above are initial value.

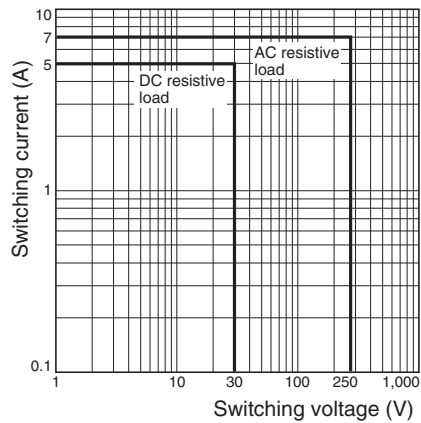
*1. Measurement conditions: 5 VDC, 1 A, voltage drop method

*2. Measurement conditions: Measured at the same points as the dielectric strength using a 500 VDC ohmmeter.

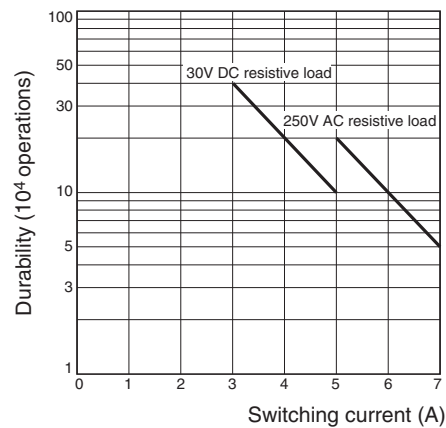
*3. This value was measured at a switching frequency of 120 operations/min.

Engineering Data

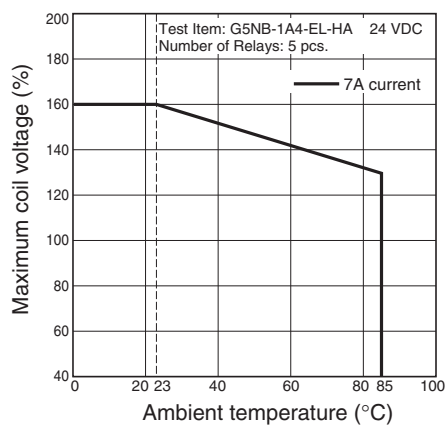
Maximum Switching Capacity



Durability

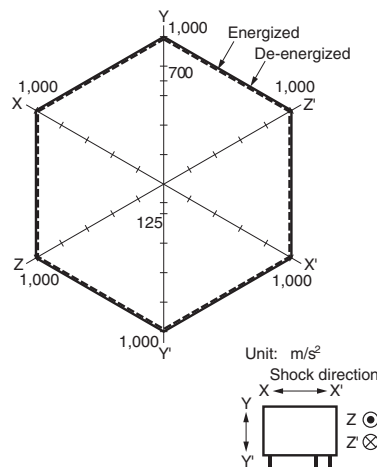


Ambient Temperature vs. Maximum Coil Voltage



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

Shock malfunction

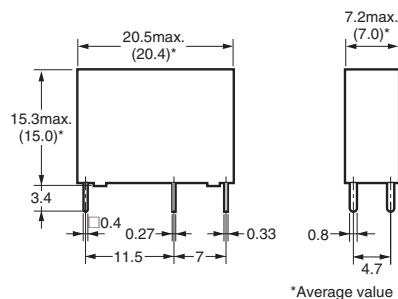
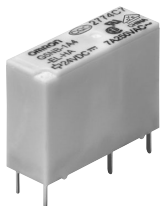


Test Item: G5NB-1A4-EL-HA 24 VDC
Number of Relays: 5 pcs
Test Method: Shock is applied 3 times in 6 directions along 3 axes and the level at which shock caused malfunction is measured. The energized voltage should be 100% of the rated voltage.
Rating: 100 m/s²

Dimensions

(Unit: mm)

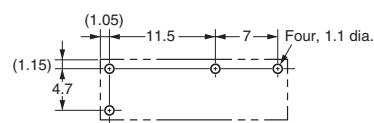
G5NB-1A4-EL-HA(-PW)
G5NB-1A-EL-HA-A85



*Average value

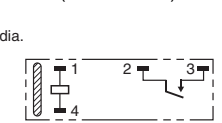
PCB Mounting Holes

(Bottom View)
Tolerance: ±0.1 mm



Terminal Arrangement/ Internal Connections

(Bottom View)



(No coil polarity)

Approved Standards

The approval rating values for overseas standards are different from the performance values determined individually. Confirm the values before use.

● **UL Recognized:**  (File No. E41515)

● **CSA Certified:**  (File No. LR31928)

| Model | Contact form | Coil ratings | Contact ratings | Number of test operations |
|--|-----------------|--------------|-----------------------------------|---------------------------|
| G5NB-1A4-EL-HA(-PW) G5NB-1A-EL-HA-A85 | SPST-NO (1a) | 5 to 24V DC | 7A 250V AC (General Purpose) 85°C | 30,000 |
| | | | 5A 250V AC (General Purpose) 85°C | 50,000 |
| | | | 5A 30V DC (Resistive) 85°C | 6,000 |

● **EN/IEC, VDE Certified**  (Certificate No. 137575)

| Model | Contact form | Coil ratings | Contact ratings | Number of test operations |
|--|-----------------|---------------|-----------------------------|---------------------------|
| G5NB-1A4-EL-HA(-PW) G5NB-1A-EL-HA-A85 | SPST-NO (1a) | 5, 12, 24V DC | 7A 250V AC (Resistive) 85°C | 10,000 |
| | | | 5A 30V DC (Resistive) 85°C | |

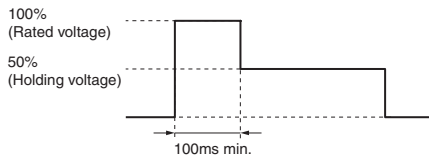
Precautions

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

Correct Use

● **Coil Voltage Reduction (Holding Voltage) after Relay operation**

- If the coil voltage is reduced to the holding voltage after Relay operation, first apply the rated voltage to the coil for at least 100 ms, as shown below.
- A voltage of at least 50% of the rated voltage is required for the coil holding voltage. Do not allow voltage fluctuations to cause the coil holding voltage to fall below this level.



| | Applied coil voltage | Coil resistance* | Power consumption |
|-----------------|----------------------|-------------------------------|-------------------|
| Rated voltage | 100% | 125Ω (5 VDC) 720Ω (12 VDC) | Approx.200 mW |
| Holding voltage | 50% | 2880Ω (24 VDC) | Approx.50 mW |

* The coil resistance were measured at a coil temperature of 23°C with tolerances of ±10%.

Other data

| | |
|---|--|
| Creepage distance | 6.0 mm |
| Clearance distance | 6.0 mm |
| Insulation Material Group | III a |
| Type of insulation coil-contact circuit | Reinforced |
| open contact circuit | Micro disconnection |
| Rated Insulation Voltage | 250V |
| Pollution degree | 3 |
| Rated voltage system | 250V |
| Overvoltage category | III |
| Category of protection according to IEC 61810-1 | RT III |
| Glow wire according to IEC 60335-1 | <HA Models only> GWT 750°C min. (IEC 60695-2-11) / GWF1 850°C min. (IEC 60695-2-12) |
| Tracking Index of relay base | PTI 250V min. (housing Parts) |
| Flammability class according to UL94 | V-0 |

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

OMRON Corporation

Electronic and Mechanical Components Company

Regional Contact

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