

#### **EN:** This Datasheet is presented by the manufacturer.

Please visit our website for pricing and availability at <u>www.hestore.hu</u>.



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

- Highly efficient magnetic circuit for high sensitivity (200 mW).
- Small, yet provides 10-kV impulse withstand voltage (between coil and contacts).
- Standard model conforms to UL/CSA/VDE standards.
- Satisfies EN61010 reinforced insulation requirements.

#### **RoHS Compliant**

### Model Number Legend

Ordering Information

#### G5NB-1234

- 1. Number of Poles
- 1: 1-pole
- 2. Contact Form
- A: SPST-NO (1a)

3. Enclosure rating None: Flux protection 4 : Fully sealed 4. Classification None: Standard E : High-capacity

Application Examples

- · Water heaters
- Refrigerators
- Air conditioners
- Home appliances
- Small electric appliances

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Classification	Item Contact form	Enclosure rating	Model	Rated coil voltage	Minimum packing unit
Standard	SPST-NO (1a)	Flux protection	G5NB-1A		
		Fully sealed	G5NB-1A4		100 pcs/Tray
High-capacity		Flux protection	G5NB-1A-E	5, 12, 18, 24 VDC	TOU pcs/ may
		Fully sealed	G5NB-1A4-E		

Note. When ordering, add the rated coil voltage to the model number.

Example: G5NB-1A 5 VDC Rated coil voltage

### Ratings

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Ite	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
Rated voltage	(117.9	()	% of rated voltage			()
5 VDC	40	125				
12 VDC	16.7	720	75% max.	10% min.	180%	Approx. 200
18 VDC	11.1	1,620	75% max.	10% 11111.	(at 23°C)	Applox. 200
24 VDC	8.3	2,880				

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.

#### Contacts

Item Load	Resistive load			
Luau	Standard	High-capacity		
Contact Type	Single			
Contact material	Ag-alloy (Cd free)			
Rated load	3 A at 125 VAC	5 A at 250 VAC		
	3 A at 30 VDC	3 A at 30 VDC		
Rated carry current	3 A	5 A		
Max. switching voltage	250 VAC, 30 VDC			
Max. switching current	3 A	5 A		

### ■Characteristics

Contact resistance *1			
	100 mΩ max.		
Operate time	10 ms max.		
Release time	10 ms max.		
Insulation resistance *2	1,000 MΩ min. (at 500 VDC)		
Dielectric Between coil and contacts	4,000 VAC, 50/60 Hz for 1 min		
strength Between contacts of the same polarity	750 VAC, 50/60 Hz for 1 min		
Impulse withstand voltage	10 kV (1.2 x 50 μs)		
Vibration Destruction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)		
resistance Malfunction	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)		
Shock Destruction	1,000 m/s <sup>2</sup>		
resistance Malfunction	100 m/s <sup>2</sup>		
Mechanical	5,000,000 operations min.		
Durability Electrical (resistive load)	Standard (G5NB-1A, -1A4) 200,000 operations at 125 VAC, 3A 200,000 operations at 30 VDC, 3A High-capacity (G5NB-1A-E, -1A4-E) 100,000 operations at 250 VAC, 5A 200,000 operations at 30 VDC, 3A (with a rated load at 1,800 operations/hour)		
Failure rate (P level) (reference value) *3	DC5V 10mA		
Ambient operating	-40°C to 70°C		
temperature	(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

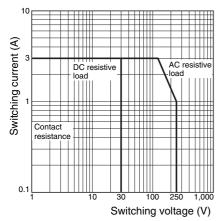
\*2. Measurement conditions: Measured at the same points as the dielectric strength using a 500 VDC ohmmeter.

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

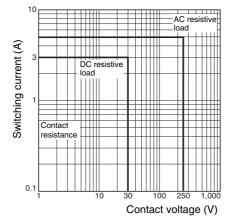
### ■Engineering Data

#### Maximum Switching Capacity

#### Standard models



#### High-capacity models

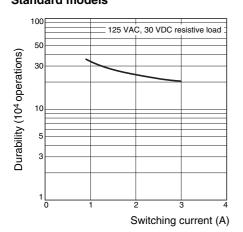


## ■Actual Load Life (Reference Values)

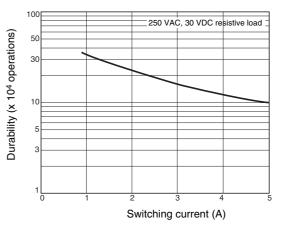
- 120 VAC motor and lamp load
  2.5A surge and 0.5A normal:
  250,000 operations min. (at 23°C)
- 2. **160 VDC** valve load (with varistor) 0.24A:
  - 250,000 operations min. (at 23°C)

# G5NB

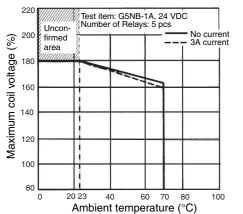
# Durability Standard models



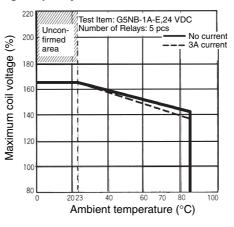
#### High-capacity models



# •Ambient Temperature vs. Maximum Coil Voltage Standard models



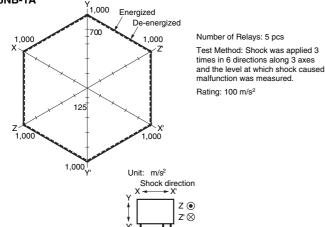
#### High-capacity models



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

#### Shock malfunction All models

#### G5NB-1A



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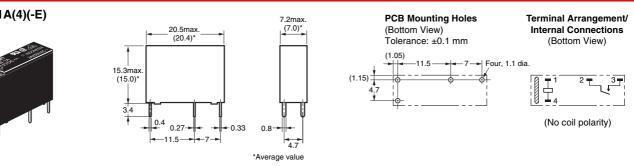
# G5NB

### PCB Power Relay

(Unit: mm)

### Dimensions





### Approved Standards

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

# **OUL Recognized: SL** (File No. E41515)

CSA Certified: (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations	
G5NB-1A(4)	SPST-NO	5~24V DC	3A 125V AC (Resistive) 70°C 3A 30V DC (Resistive) 70°C	6.000	
G5NB-1A(4)-E	(1a)		5A 250 V AC (Resistive) 85°C 5A 30 V DC (Resistive) 70°C	0,000	

### ●EN/IEC, VDE Certified 🚋 (Registration No. 137575)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations	
G5NB-1A(4)	SPST-NO	5, 12, 18, 24V DC	3A 250V AC (Resistive) 85°C 3A 30V DC (Resistive) 85°C	100.000	
G5NB-1A(4)-E	(1a)		5A 250 V AC (Resistive) 85°C 5A 30 V DC (Resistive) 85°C	100,000	

### Precautions

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

Correct Use

#### Handling

The G5NB is flux-resistive. Do not wash the G5NB with water.

 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**

Contact: www.omron.com/ecb

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