OMRON PCB Relay

Compact Single-pole Relay for Switching 5 A (Normally Open Contact), Fan Control of Air Conditioners, and Heating Control of Small Appliances.

- Compact SPDT Relay with high insulation.
- Incorporates a normally open contact that switches 5 A max.
- Ensures a withstand impulse voltage of 8,000 V between the coil and contacts.
- Conforms to UL and CSA.
 - UL508
 - CSA C22.2 (No.14)
 - VDE (EN61810-1)

RoHS Compliant Refer to pages 16 to 17 for details.

Ordering Information

Classification	Contact form	Protective structure	Model
Standard	SPDT	Fully sealed	G5SB-14

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

Example: G5SB-14 12 VDC

Rated coil voltage

Model Number Legend:

G5SB-			VDC
1	2	3	

- 1. Number of Poles 1: SPDT
- 2. Protective Structure
- 4: Fully sealed
- 3. Rated Coil Voltage 5, 9, 12, 24 VDC

Specifications

Coil Ratings

Rated voltage	5 VDC	9 VDC	12 VDC	24 VDC
Rated current	80 mA	44.4 mA	33.3 mA	16.7 mA
Coil resistance	63 Ω	202 Ω	360 Ω	1,440 Ω
Must operate voltage	75% max. of rated voltage			
Must release voltage	5% min. of rated voltage			
Max. voltage	150% of rated voltage (at 23°C)			
Power consumption	Approx. 400 mW			





Contact Ratings

Load	Resistive load
Rated load	3 A (NO)/3 A (NC) at 125 VAC 5 A (NO)/3 A (NC) at 125 VAC 5 A (NO) at 250 VAC 3 A (NC) at 250 VAC 5 A (NC) at 250 VAC 5 A (NO)/3 A (NC) at 30 VDC
Contact material	Ag alloy (Cd free)
Rated carry current	5 A (NO)/3 A (NC)
Max. switching voltage	250 VAC, 30 VDC
Max. switching current	5 A (NO)/3 A (NC)
Max. switching capacity	1,250 VA, 150 W (NO) 750 VA, 30 W (NC)
Failure rate (reference value)	10 mA at 5 VDC

Note: P level: $\lambda 60=0.1 \times 10^{-6}$ operation

Characteristics

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Contact resistance (See note 2.)	100 mΩ max.		
Operate time (See note 3.)	10 ms max.		
Release time (See note 3.)	5 ms max.		
Insulation resistance (See note 4.)	1,000 MΩ min.		
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min between coil and contacts 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity		
Impulse withstand voltage	8 kV (1.2 × 50 μs)		
Vibration resistance	Destruction: 10 to 55 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) Malfunction: 10 to 55 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)		
Shock resistance	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: Energized: 100 m/s ² (approximately 10G) Non-energized: 100 m/s ² (approximately 10G)		
Endurance (See note 5.)	Mechanical: 5,000,000 operations (18,000 operations per hour) Electrical: 200,000 operations: 3 A (NO)/3 A (NC) at 125 VAC resistive load 50,000 operations: 5 A (NO)/3 A (NC) at 125 VAC resistive load 50,000 operations: 5 A (NO)/3 A (NC) at 250 VAC resistive load 100,000 operations: 3 A (NO) at 250 VAC resistive load 100,000 operations: 5 A (NO)/3 A (NC) at 30 VDC resistive load Switching frequency: 1,800 operations per hour		
Ambient temperature	Operating: -40°C to 70°C with no icing or condensation		
Ambient humidity	Operating: 5% to 85%		
Weight	Approx. 6.5 g		

Note: 1. The data shown above are initial values.

- 2. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.
- 3. The operating time is possible with the operating voltage imposed with no contact bounce at an ambient temperature of 23°C.
- 4. The insulation resistance is possible between coil and contacts and between contacts of the same polarity at 500 VDC.
- 5. The electrical endurance data items shown are possible at 23°C.

Approved Standards

UL508 (File No. E41515) CSA C22.2 (No. 14) (File No. LR31928)

Model	Coil ratings	Contact ratings	Number of test operations
G5SB	5 to 24 VDC	3 A, 125 VAC (resistive) NC only 2 A, 125 VAC (resistive) NC only 5 A, 250 VAC (resistive) NO only 3 A, 250 VAC (resistive) NO only 5 A, 30 VDC (resistive) NO only	6,000

Electrical endurance tests are performed at 70°C.

OMRON -

G5SB

VDE (EN61810-1) (Approval No. 40003957)

Model	Coil ratings	Contact ratings	Number of test operations
G5SB	5, 12, 24 VDC	5 A (NO)/3 A (NC), 250 VAC	10,000

Engineering Data

Max. Switching Capacity



Ambient Temperature vs. Maximum Voltage



3

4

(No coil polarity)

Dimensions

Note: All units are in millimeters unless otherwise indicated.



Note: Values in parentheses are average values.

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. K122-E1-02