# OMRON

## PCB Relay G5SB

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

- Environment-friendly, Pb-free.
- 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 approval is in progress.

Note: The G5S-1 will be discontinued at the end of March 2004. Please change to the G5SB (Environment-friendly Relay).

### **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



- 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			
Maximum voltage	110% of rated voltage			
Power consumption	Approx. 400 mW			



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#### ■ 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 (NO)/3 A (NC) at 30 VDC
Contact material	Ag alloy
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)
Min. permissible load	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 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 x 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/s² (approx. 100G)Malfunction:Energized: 100 m/s² (approximately 10G)Non-energized:100 m/s² (approximately 10G)			
Durability (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 125 VAC resistive load   10,000 operations: 3 A (NC) at 250 VAC resistive load   10,000 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 95%			
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 durability 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		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 durability tests are performed at 70°C.

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### **Engineering Data**

#### Max. Switching Capacity



#### Ambient Temperature vs. Maximum Voltage



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### **Dimensions**

Note: All units are in millimeters unless otherwise indicated.



### **Application Examples**

- Fan Motor
- Oven
- Refrigerator
- Washing Machine
- Air Conditioner
- Others

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-E1-01 In the interest of product improvement, specifications are subject to change without notice. **OMRON** Corporation **Electronic Components Company**

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