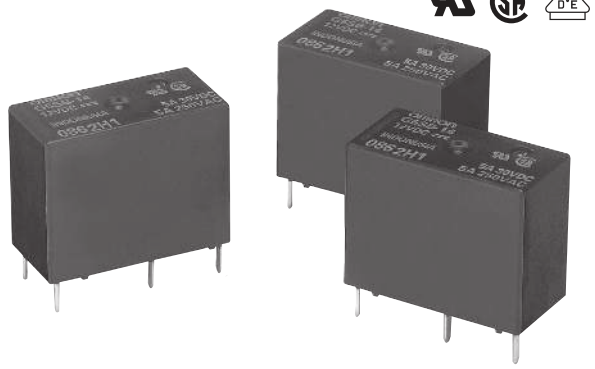
G5SB
PCB Power Relay

Compact Single-pole Relay for Switching 5 A

- Compact SPDT Relay
- Incorporates a normally open contact that switches 5 A max. (N.O. contacts)
- Small, yet provides 8-kV impulse withstand voltage (between coil and contacts)
- Standard model conforms to UL/CSA/VDE standards.

RoHS Compliant



■Model Number Legend

G5SB-1 4
1 2

1. **Number of Poles** 1: 1-pole/SPDT (1c)
2. **Enclosure rating** 4: Fully sealed

■Application Examples

- Ideal for output applications of control equipments

■Ordering Information

Classification	Contact form	Terminal Shape	Enclosure rating	Model	Rated coil voltage	Minimum packing unit
Standard	SPDT (1c)	PCB terminals	Fully sealed	G5SB-14	5 VDC	100 pcs/ Tray
					9 VDC	
					12 VDC	
					24 VDC	

Note. When ordering, add the rated coil voltage to the model number.
Example: G5SB-14 DC12
Rated coil voltage
However, the notation of the coil voltage on the product case as well as on the packing will be marked as □□ VDC.

■Ratings

●Coil

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

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
Contact type	Single
Contact material	Ag-alloy (Cd free)
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
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)

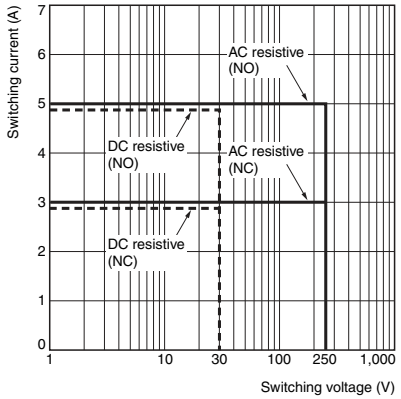
■Characteristics

Contact resistance *1		100 mΩ max.
Operate time		10 ms max.
Release time		5 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	1,000 VAC, 50/60 Hz for 1 min
Impulse withstand voltage	Between coil and contacts	8 kV (1.2 x 50 μs)
Insulation distance	Between coil and contacts	Clearance: 3.5 mm, Creepage: 6.5 mm
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/s²
	Malfunction	100 m/s²
Durability	Mechanical	5,000,000 operations (18,000 operations per hour)
	Electrical (resistive load)	200,000 operations: 3 A (NO)/3 A (NC) at 125 VAC 50,000 operations: 5 A (NO)/3 A (NC) at 125 VAC 50,000 operations: 5 A (NO) at 250 VAC 100,000 operations: 3 A (NC) at 250 VAC 100,000 operations: 5 A (NO)/3 A (NC) at 30 VDC Switching frequency: 1,800 operations per hour
Failure rate (P level) (reference value) *3		10 mA at 5 VDC
Ambient operating temperature		–40°C to 70°C with no icing or condensation
Ambient operating humidity		5% to 85%
Weight		Approx. 6.5 g

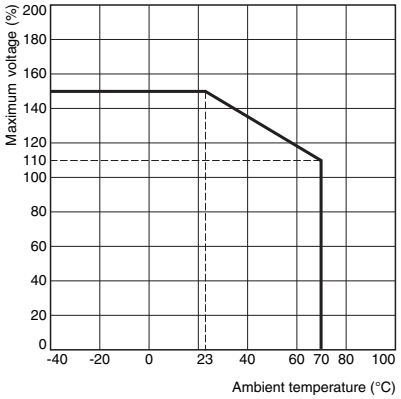
Note. The data shown above are initial values.
*1. The contact resistance is possible with 1 A applied at 5 VDC using a fall-of-potential method.
*2. The insulation resistance is possible between coil and contacts and between contacts of the same polarity at 500 VDC.
*3. This value was measured at a switching frequency of 120 operations/min.

■Engineering Data

●Maximum Switching Capacity

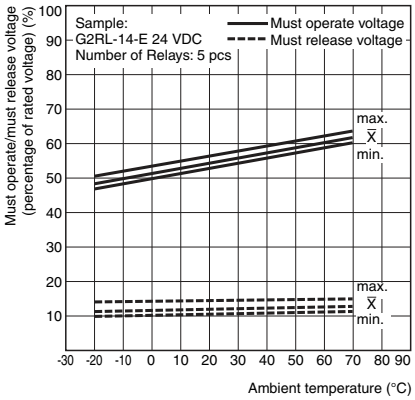


●Ambient Temperature vs. Maximum Voltage

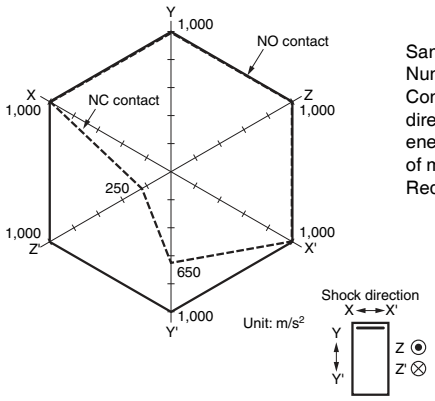


Note. The maximum voltage is the maximum voltage that can be applied to the relay cooil.

●Ambient Temperature vs Must Operate and Must Release Voltages



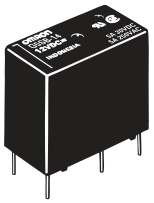
●Shock Malfunction

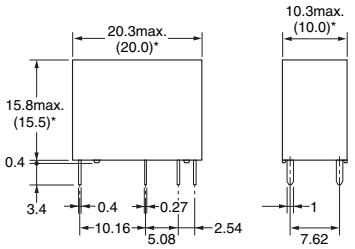


Sample: G5SB-14 12 VDC
Number of Relays: 5 pcs
Conditions: Shock is applied in ±X, ±Y, ±Z directions three times each with and without energizing the Relays to check the number of malfunctions.
Requirement: None malfunction 100 m/s²

■Dimensions (Unit: mm)

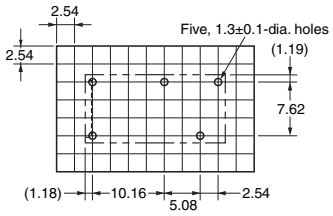
G5SB-14



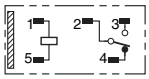


*Values in parentheses are average values.

PCB Mounting Holes
(Bottom View)
Tolerance: ±0.1 mm



Terminal Arrangement/ Internal Connections
(Bottom View)



(No coil polarity)

■Approved Standards

UL Recognized: (File No. E41515)
CSA Certified: (File No. LR31928)

Model	Coil ratings	Contact ratings	Number of test operations
G5SB	12 to 24 VDC	5A 250V AC N.O. only (Resistive) 40°C	6,000
		3A 125V AC N.O. only (Resistive) 40°C	
		5A 30V DC N.O. only (Resistive) 40°C	
		3A 250V AC N.C. only (Resistive) 40°C	
		2A 125V AC N.C. only (Resistive) 40°C	

EN/IEC, VDE Certified: (Certificate No. 40003957)

Model	Coil ratings	Contact ratings	Number of test operations
G5SB	12, 24 VDC	5A(N.O)/3A(N.C) 250V AC 70°C	10,000

■Precautions

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

OMRON Corporation
Electronic and Mechanical Components Company

Contact: www.omron.com/ecb

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