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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-14 1. Number of Poles		2. Enclosure rating	
$\frac{-}{12}$	1: 1-pole/SPDT (1c)	4: Fully sealed	

■Ordering Information

Classification	Contact form	Terminal Shape	Enclosure rating	Model	Rated coil voltage	Minimum packing unit
					5 VDC	
Standard	SPDT	PCB	Fully	G5SB-14	9 VDC	100 pcs/
Standard	(1c) terminals	sealed	G33B-14	12 VDC	Tray	
				24 VDC		

Note. When ordering, add the rated coil voltage to the model number. Example: G5SB-14 $\underline{\text{DC12}}$

Rated coil voltage

However, the notation of the coil voltage on the product case as well as on the packing will be marked as \Box VDC.

Ratings

Coil

Item Rated	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)	
voltage			% of rated voltage				
5 VDC	80	63					
9 VDC	44.4	202	75% max.	75%	5% min.	150% (at	Approx. 400
12 VDC	33.3	360		5 /0 11111.	(at 23°C)	Αμμιύχ. 400	
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)		

■Application Examples

· Ideal for output applications of control equipments

■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 amplitu (1.5 mm double amplitude)		
	Malfunction	10 to 55 to 10 Hz, 0.75 mm single amplitud (1.5 mm double amplitude)		
Shock	Destruction	1,000 m/s ²		
resistance	Malfunction	100 m/s ²		
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: 5 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 fallof-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.

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Engineering Data Maximum Switching Capacity •Ambient Temperature vs. **Maximum Voltage** ्र 200 Switching current (A)) 180 180 160 (NO) 160 ximum 140 ттпт Ma 120 110 100 (NO) (NC) 80 60 (NC) 40 20 0 0 100 40 -20 60 70 80 100 Note. The maximum voltage is the maximum 250 1 000 0 40 voltage that can be applied to the relay cooil. Switching voltage (V) Ambient temperature (°C) Ambient Temperature vs Must Shock Malfunction **Operate and Must Release Voltages** voltage ige) (%) 6 1,000 Must operate voltage Sample operate/must release volta rcentage of rated voltage) 90 G2RL-14-E 24 VDC = Number of Relays: 5 pcs ---- Must release voltage NO contact Sample: G5SB-14 12 VDC Number of Relays: 5 pcs 80 Conditions: Shock is applied in ±X, ±Y, ±Z NC contact 1,000 70 1,000 directions three times each with and without max X (percentage of energizing the Relays to check the number 60 min of malfunctions. 50 250 Requirement: None malfunction 100 m/s² Must 40 1,000 1,000 30 650 20 nav Shock direction ⊼ nin 1,000 10 Unit: m/s² z 💿

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Dimensions (Unit: mm)

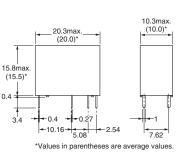
10 20 30 40 50 60 70 80 90

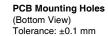
Ambient temperature (°C)

-30 -20 -10 0

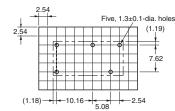
G5SB-14







Z'⊗



(Bottom View)

Terminal Arrangement/

Internal Connections



(No coil polarity)

Approved Standards

UL Recognized: **R1** (File No. E41515) CSA Certified: (File No. LR31928)

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



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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

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