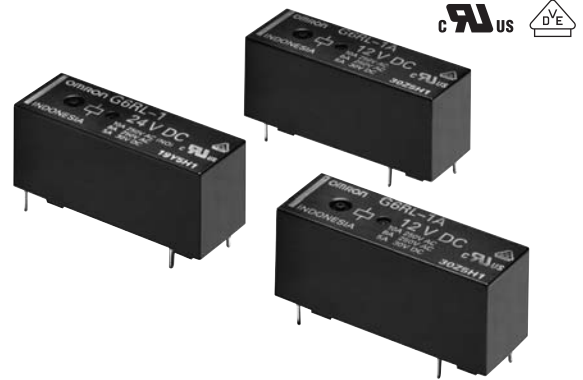


# G6RL

PCB Power Relay

## Low-profile 12.3 mm height power relay with maximum switching of 10A

- Low profile: 12.3 mm in height
- Max. switching capacity: 2,500 VA (NO)
- Dielectric strength: 5 kV
- Clearance and creepage distance: 10 mm.
- Models with high shock resistance (250 m/s<sup>2</sup>) are available.
- Models for P1 load (2 x 200 W lamps parallel to ignition transformer) are available.



RoHS Compliant

### Model Number Legend

G6RL-□□□-□-□  
1 2 3 4 5

#### 1. Number of Poles

1: 1-pole

#### 2. Contact Form

None: SPDT (1c)

A: SPST-NO (1a)

#### 3. Enclosure rating

None: Flux protection

4: Fully sealed

#### 4. Contact material

None: Standard (Ag-alloy, Cd free)

ASI: AgSnIn

#### 5. Special Functions

PL: P1 load

### Application Examples

- Boilers
- PLCs
- I/O ports
- Timers
- Temperature controllers

G  
6  
R  
L

### Ordering Information

Classification	Terminal Shape	Contact form	Enclosure rating	Model	Rated coil voltage	Minimum packing unit
Standard	PCB terminals	SPST-NO (1a)	Flux protection	G6RL-1A G6RL-1A-ASI	3 VDC 5 VDC 6 VDC 12 VDC 24 VDC 48 VDC	100 pcs/tray
P1 Load			Fully sealed	G6RL-1A4-ASI		
Standard		SPDT (1c)	Flux protection	G6RL-1 G6RL-1-ASI		
P1 Load			Fully sealed	G6RL-1-ASI-PL		
Standard			Fully sealed	G6RL-14-ASI		

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

Example: G6RL-1A DC3

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

#### Standard, P1 Load (-PL type)

Rated Voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
			% of rated voltage			
3	73.3	40	70% max.	10% min.	150% (at 23°C)	Approx. 220
5	44.0	113				
6	36.7	163				
12	18.3	654				
24	9.2	2618				
48	5.0	9600				Approx. 240

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

Load	Resistive load
<b>Contacts type</b>	Single
<b>Contacts material</b>	Ag-alloy (Cd free)
<b>Rated load *</b>	10 A at 250 VAC, (NO) resistive load 8 A at 250 VAC, resistive load 5 A at 30 VDC, resistive load
<b>Rated carry current</b>	10 A
<b>Max. switching current</b>	NO: 10 A, NC: 8 A

\* G6RL-1(A), G6RL-1(A)4-ASI: 8 A 250 VAC, resistive load; 5 A 24 VDC resistive load.

## ■Characteristics

<b>Contact resistance *1</b>		100 mΩ max.
<b>Operate time</b>		10 ms max.
<b>Release time</b>		5 ms max.
<b>Insulation resistance *2</b>		1,000 MΩ min.
<b>Dielectric strength</b>	<b>Between coil and contacts</b>	5,000 VAC, 50/60 Hz for 1 min
	<b>Between contacts of the same polarity</b>	1,000 VAC, 50/60 Hz for 1 min
<b>Impulse withstand voltage</b>	<b>Between coil and contacts</b>	10kV (1.2×50μs)
<b>Insulation distance</b>	<b>Between coil and contacts</b>	Clearance: 10 mm, Creepage: 10 mm
<b>Vibration resistance</b>	<b>Destruction</b>	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)
	<b>Malfunction</b>	10 to 55 to 10 Hz, 0.825 mm single amplitude (1.65 mm double amplitude) when energized 10 to 55 to 10 Hz, 0.4 mm single amplitude (0.8 mm double amplitude) when de-energized.
<b>Shock resistance</b>	<b>Destruction</b>	1,000 m/s <sup>2</sup>
	<b>Malfunction</b>	NO: 200 m/s <sup>2</sup> , NC: 50 m/s <sup>2</sup>
<b>Endurance</b>	<b>Mechanical</b>	10,000,000 operations min. (at 18,000 operations/h)
	<b>Electrical</b>	G6RL-1(A) 50,000 operations min. (NO) at 250 VAC, 8A (resistive load) 50,000 operations min. (NC) at 250 VAC, 8A (resistive load) 50,000 operations min. at 24 VDC, 5A (resistive load) (at 600 operations/h) G6RL-1(A)-ASI-(PL) 100,000 operations min. (NO) at 250 VAC, 10A (resistive load) 100,000 operations min. at 250 VAC, 8A (resistive load) 50,000 operations min. at 30 VDC, 5A (resistive load) (at 1,800 operations/h) G6RL-1(A)4-ASI 50,000 operations min. (NO) at 250 VAC, 8A (resistive load) 50,000 operations min. (NC) at 250 VAC, 8A (resistive load) 50,000 operations min. at 24 VDC, 5A (resistive load) (at 1,800 operations/h)
<b>Failure rate (P level) (reference value) *3</b>		10 mA at 5 VDC
<b>Ambient operating temperature</b>		-40°C to 85°C (with no icing or condensation)
<b>Ambient operating humidity</b>		5% to 85%
<b>Weight</b>		Approx. 7.8 g

Note. The given values are initial values.

\*1. Measurement conditions: 5 VDC, 1 A, voltage drop method.

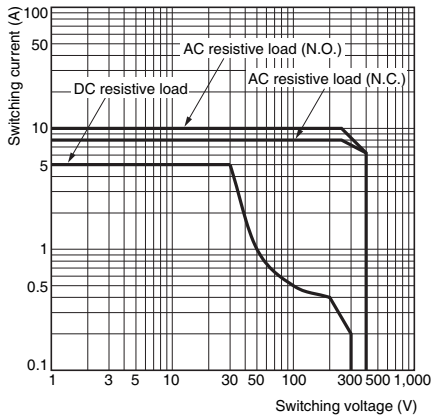
\*2. Measurement conditions: The insulation resistance was measured with a 500 VDC megohmmeter at the same locations as the dielectric strength was measured.

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

## Engineering Data

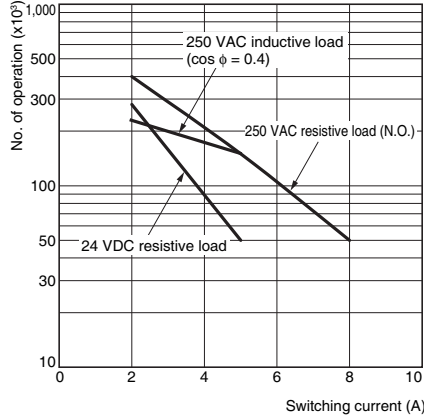
### G6RL-1(A)(4)-(ASI)-(PL)

#### ● Maximum Switching Capacity



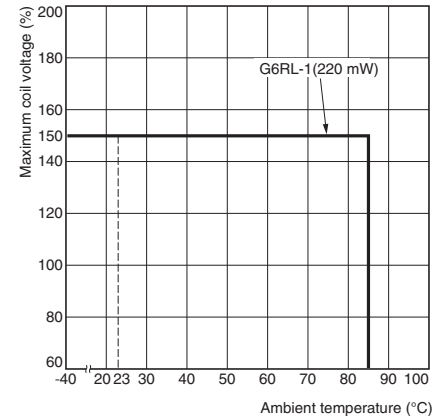
### G6RL-1(A)

#### ● Durability



### G6RL-1(A)(4)-(ASI)-(PL)

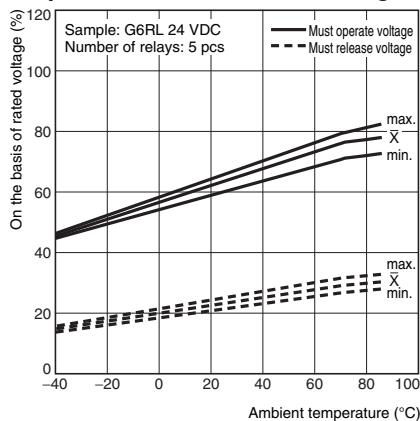
#### ● Ambient Temperature vs. Maximum Coil Voltage



Note The "maximum coil voltage" is the maximum voltage that can be applied to the Relay coil.

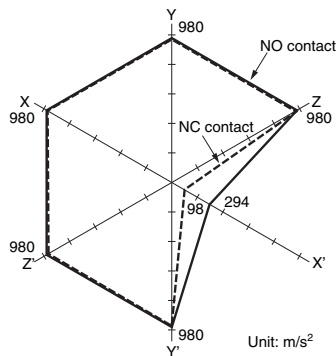
### G6RL-1(A)(4)

#### ● Ambient Temperature vs. Must Operate or Must Release Voltage

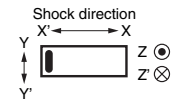


### G6RL-1(A)(4)-(ASI)-(PL)

#### ● Shock Malfunction



Sample: G6RL-1 24 VDC  
 Number of Relays: 5 pcs  
 Test Conditions: The value at which malfunction occurred was measured after applying shock to the test piece 3 times each in 6 directions along 3 axes.  
 Standard value: 200m/s<sup>2</sup> (NO)  
 50m/s<sup>2</sup> (NC)



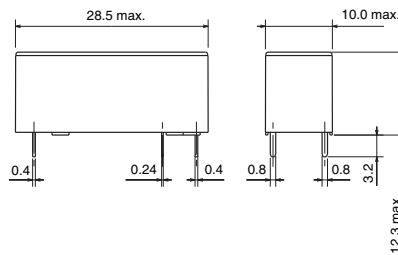
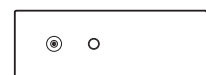
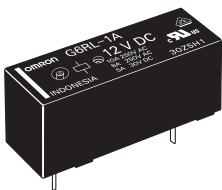
## Dimensions

(Unit: mm)

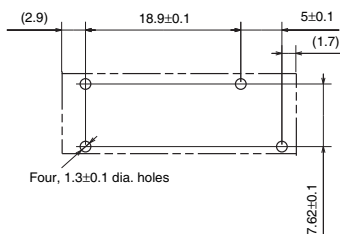
### G6RL-1A

### G6RL-1A-ASI

### G6RL-1A4-ASI



#### PCB Mounting Holes (Bottom View)



#### Terminal Arrangement/Internal Connections (Bottom View)

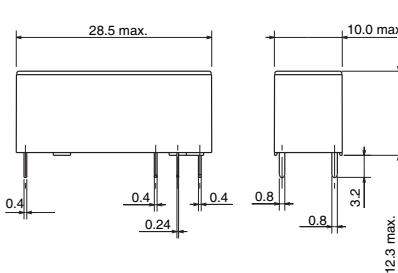
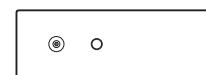


(Indicates average dimensions.)

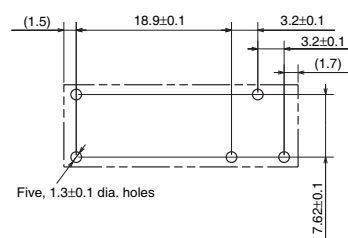
### G6RL-1

### G6RL-1-ASI

### G6RL-14-ASI



#### PCB Mounting Holes (Bottom View)



#### Terminal Arrangement/Internal Connections (Bottom View)



(Indicates average dimensions.)

## Approved Standards

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

### UL/C-UL Recognized: (File No. E41643)UL508/CSA22.2 No.14

Models	Contact from	Coil ratings	Contact ratings	Number of test operations
G6RL-1A	SPST-NO (1a)	3 to 48 VAC	10 A, 250 VAC (NO) (Resistive) 85°C 8 A, 250 VAC (Resistive) 85°C 5 A, 30 VDC (Resistive) 85°C	6,000
G6RL-1	SPDT (1c)			
G6RL-1A(4)-ASI	SPST-NO (1a)			
G6RL-1(4)-ASI	SPDT (1c)			

Note. CSA standards: Certified by C-UL.

### EN/IEC, VDE Certified: (EN61810-1) (Certificate No. C266)

Models	Contact from	Coil ratings	Contact ratings	Number of test operations
G6RL-1A-(ASI)	SPST-NO (1a)	3, 5, 6, 12, 24, 48 VDC	10 A, 250 VAC (NO) 85°C	10,000
G6RL-1-(ASI)	SPDT (1c)		8 A, 250 VAC 85°C	30,000
			5 A, 30 VDC 85°C	50,000
G6RL-1A4-ASI	SPST-NO (1a)	3, 5, 6, 12, 24, 48 VDC	10 A, 250 VAC (NO) 85°C	10,000
G6RL-14-ASI	SPDT (1c)		8 A, 250 VAC 85°C	
			5 A, 30 VDC 85°C	

### EN/IEC, VDE Certified: (EN 60947-5-1) (Certificate No. C266)

Models	Contact ratings	Number of test operations
G6RL-1(A)(4)	AC15 (NO) AC240, 3 A, cos φ 0.3, Room temperature	6,000
	DC13 DC125, 0.22A, 165ms, Room temperature	
	DC13 DC250, 0.1A, 150ms, Room temperature	
G6RL-1(A)-ASI	AC15 AC240, 3 A, cos φ 0.3, Room temperature	
	DC13 DC125, 0.22A, 165ms, Room temperature	
	DC13 DC250, 0.1A, 150ms, Room temperature	
G6RL-1(A)4-ASI	AC15 AC240, 3 A, cos φ 0.3, Room temperature	
	DC13 DC125, 0.22A, 165ms, Room temperature	

### EN/IEC, VDE Certified: (EN60947-4-1) (Certificate No. C266)

Models	Contact ratings	Number of test operations
G6RL-1(A) G6RL-1(A)-ASI	AC1 AC250V 8 A 85°C	6,000
	AC3 AC250V 2 A 85°C	
	DC1 DC24V 5 A 85°C	
	DC3 DC24V 2 A 85°C	

### EN/IEC, VDE Certified: (EN60730-1) (Certificate No. 40021033)

Models	Coil ratings	Contact ratings	Number of test operations
G6RL-1(A)	3, 5, 6, 12, 24, 48 VDC	2 (2) A AC250V 65°C	100,000
		6 (4) A (NC) AC250V 65°C	
		8 (4) A (NO) AC250V 85°C	
G6RL-1(A)-ASI		2 (2) A AC250V 65°C	
		6 (4) A (NC) AC250V 65°C	
		8 (4) A (NO) AC250V 85°C	

### EN/IEC

Models	CE Marking	Applicable Safety Category	Basic Requirements of Machinery Directive/Low-voltage Directive	
			Applicable Standard No.	Application Standard No.
G6RL	-	1	EN61810-1	-

Note. Basic requirements of EMC directives (EMI standard No., EMS standard No., Certification Body, File No., Applicable time) ... not applicable.

Creepage distance	10 mm
Clearance distance	10 mm
Insulation material group	IIIa
Rated Insulation Voltage	250 V
Pollution degree	3
Rated voltage system	250 V
Overvoltage category	III
Tracking Index of relay base	PTI 250 V min. (housing parts)
Flammability class according to UL94	V-0
Ball pressure test (IEC 60695-10-2)	170°C

## ■Precautions

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

### Correct Use

- The G6RL are net intended to be used in automotive applications (including two wheel vehicles).
- If the product is used in the following applications, consult your OMRON sales representative to check the necessary items according to the specification sheets. Also make sure the product is used within the specified ratings and performance ranges with an ample margin and implement safety measures, such as designing a safety circuit, to minimize danger should the product fail.
  - a. Outdoor use, uses involving potential chemical contamination or electrical interference.
  - b. Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, safety equipment, and equipment that could present a risk to human life or body.
  - c. Equipment requiring a high level of reliability, such as gas, water, or electrical supply systems.

Please check each region's Terms & Conditions by region website.

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Electronic and Mechanical Components Company

### Regional Contact

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