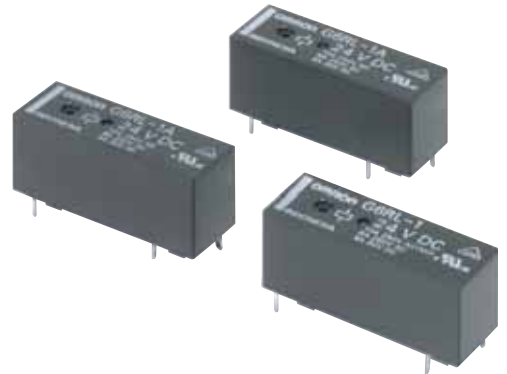


### Low-profile power relay with maximum switching of 10 A

- 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 × 200 W lamps parallel to ignition transformer) are available.



RoHS Compliant

### Applications:

Boilers, PLCs, I/O ports, timers, and temperature controllers

## Ordering Information

Classification	Enclosure rating	Contact form	Contact material	
			AgSnIn	AgNi
Standard	Flux protection	SPST-NO	G6RL-1A-ASI	G6RL-1A
		SPDT	G6RL-1-ASI	G6RL-1
	Fully sealed	SPST-NO	G6RL-1A4-ASI	---
		SPDT	G6RL-14-ASI	---
P1 Load	Flux protection	SPST-NO	G6RL-1A-ASI-PL	---
		SPDT	G6RL-1-ASI-PL	---
Shock resistance	Flux protection	SPST-NO	---	---
		SPDT	G6RL-1-SR-ASI	---
	Fully sealed	SPST-NO	---	---
		SPDT	G6RL-14-SR-ASI	---

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

Examples: G6RL-1A 12 VDC  
└─ Rated coil voltage

### Model Number Legend:

G6RL-□□□-□-□-□ □VDC  
 1 2 3 4 5 6 7

#### 1. Number of Poles

1: 1 pole

#### 2. Contact Form/Contact Construction

None: SPDT

A: SPST-NO

#### 3. Enclosure Rating

None: Flux protection

4: Fully sealed

#### 4. Special Function 1

SR: Shock resistance of 25 G

#### 5. Contact material

None: AgNi

ASI: AgSnIn

#### 6. Special Function 2

PL: P1 load (See note.)

#### 7. Rated Coil Voltage

3, 5, 6, 12, 24, or 48

**Note:** Please refer to *Endurance Under Real Load* table on page 5.



# Specifications

## ■ Coil Ratings

Classification	Standard, P1 load						Shock resistance				
	3 VDC	5 VDC	6 VDC	12 VDC	24 VDC	48 VDC	3 VDC	5 VDC	6 VDC	12 VDC	24 VDC
<b>Rated voltage</b>	3 VDC	5 VDC	6 VDC	12 VDC	24 VDC	48 VDC	3 VDC	5 VDC	6 VDC	12 VDC	24 VDC
<b>Rated current</b>	73.3 mA	44 mA	36.7 mA	18.3 mA	9.2 mA	5 mA	101 mA	60.2 mA	50.1 mA	25.2 mA	12.6 mA
<b>Coil resistance</b>	40 Ω	113 Ω	163 Ω	654 Ω	2,618 Ω	9,600 Ω	30 Ω	83 Ω	120 Ω	476 Ω	1,912 Ω
<b>Must operate voltage</b>	70% max. of rated voltage						80% max. of rated voltage				
<b>Must release voltage</b>	10% min. of rated voltage						10% min. of rated voltage				
<b>Max. voltage</b>	150% of rated voltage						150% of rated voltage (23°C)				
<b>Power consumption</b>	Approx. 220 mW					Approx. 240 mW	Approx. 300 mW				

**Note:** 1. The above items are measured at a coil temperature of 23°C.  
2. The tolerance of the rated current is ±10%.

## ■ Contact Ratings

<b>Load</b>	Resistive load ( $\cos \phi = 1$ )
<b>Rated load (See note 1.)</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 at 250 VAC 5 A at 30 VDC
<b>Max. switching voltage</b>	400 VAC, 300 VDC
<b>Max. switching current</b>	NO: 10 A, NC: 8 A
<b>Max. switching power</b>	NO: 2,500 VA, NC: 2,000 VA 150 W
<b>Failure rate (reference value)</b>	10 mA at 5 VDC (P level) (See note 2.)

**Note:** 1. G6RL-1(A), G6RL-1(A)4-ASI: 8 A 250 VAC, resistive load; 5 A 24 VDC resistive load.  
2. P level:  $\lambda_{60} = 0.1 \times 10^{-6}$  / operations

## ■ Characteristics

<b>Contact resistance</b>	100 mΩ max.
<b>Operate time</b>	10 ms max. (SR Models: 15 ms max.)
<b>Release time</b>	5 ms max.
<b>Insulation resistance</b>	1,000 MΩ min. (at 500 VDC)
<b>Dielectric strength</b>	5,000 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
<b>Impulse withstand voltage</b>	10 kV between coil and contacts ( $1.2 \times 50 \mu\text{ps}$ )
<b>Vibration resistance</b>	Destruction: 10 to 55 to 10 Hz, 1.5-mm double amplitude Malfunction: 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 not energized.
<b>Shock resistance</b>	Destruction: $1,000 \text{ m/s}^2$ Malfunction: NO: $200 \text{ m/s}^2$ , NC: $50 \text{ m/s}^2$ when not energized SR Models: $250 \text{ ms}^2$ (NO and NC) when not energized
<b>Endurance</b>	Mechanical: 10,000,000 operations min. (at 18,000 operations/h)
<b>Ambient temperature</b>	Operating: -40°C to 85°C (with no icing)
<b>Ambient humidity</b>	Operating: 5% to 85%
<b>Weight</b>	Approx. 7.8 g

## ■ Other Data

Construction of protection	Flux protection	Fully sealed
Insulation material group	IIIa	
Rated insulation voltage	250 V	
Pollution degree	3	2
Rated voltage system	250 V	400 V
Overvoltage category	III	
Creepage distance	10 mm	
Clearance distance	10 mm	
RoHS	Compliant	
Tracking index of relay base	PTI 250	
Flammability class according to UL94	V-0	
Flammability-flame		
GWFI (IEC 60695-2-12)	850°C	
GWIT (IEC 60695-2-13)	750°C	
Ball pressure test (IEC 60695-10-2)	170°C	

## ■ Approved Standards

### UL508 (File No. E41643)

Models	Contact form	Coil rating	Contact rating
G6RL-1A	SPST-NO	3 to 48 VDC	10 A at 250 VAC ( NO ) 8 A at 250 VAC 5 A at 30 VDC
G6RL-1	SPDT		
G6RL-1A(4)-ASI	SPST-NO		
G6RL-1(4)-ASI	SPDT		
G6RL-1(4)-SR-ASI	SPDT	3 to 24 VDC	6,000 operations

### VDE (EN61810-1) (Certificate No.C266)

Models	Contact form	Coil rating	Contact rating	Model
G6RL-1A-(ASI)	SPST-NO	3, 5, 6, 12, 24, or 48 VDC	10 A at 250 VAC (NO)	10,000 operations at 85°C
G6RL-1-(ASI)	SPDT		8 A at 250 VAC	30,000 operations at 85°C
			5 A at 30 VDC	50,000 operations at 85°C
G6RL-1A4-ASI (See note.)	SPST-NO	3, 5, 6, 12, 24, or 48 VDC	10 A at 250 VAC (NO)	10,000 operations at 85°C
G6RL-14-ASI (See note.)	SPDT		8 A at 250 VAC	10,000 operations at 85°C
			5 A at 30 VDC	10,000 operations at 85°C
G6RL-1(4)-SR-ASI	SPDT	3, 5, 6, 12 or 24 VDC	10 A at 250 VAC (NO)	10,000 operations at 85°C
			8 A at 250 VAC	10,000 operations at 85°C
			5 A at 30 VDC	10,000 operations at 85°C

Note: In progress

### VDE (60947-5-1) (Certificate No. C266)

Models	Contact rating			
	Utilization category	Rated voltage (V)	Operations	
G6RL-1(A)	AC15 (NO)	le: 3 A, lthe: 10 A (A300) 85°C	AC240	6,000
	AC15 (NO)	le: 3 A, lthe: 5 A (B300) 85°C	AC120	6,000
	AC15 (NO)	le: 1.5 A, lthe: 5 A (B300) 85°C	AC240	6,000
	DC13	le: 0.22A, lthe: 1 A (R150) 85°C	DC125	6,000
	DC13 (See note.)	le: 0.1 A, lthe: 1 A (R300) 85°C	DC250	6,000
G6RL-1(A)-ASI	AC15	le: 3 A, lthe: 10 A (A300) 85°C	AC240	6,000
G6RL-1(A)4-ASI (See note.)	AC15	le: 3 A, lthe: 5 A (B300) 85°C	AC120	6,000
G6RL-1(4)-SR-ASI	AC15	le: 1.5 A, lthe: 5 A (B300) 85°C	AC240	6,000
	DC13	le: 0.22 A, lthe: 1 A (R150) 85°C	DC125	6,000
	DC13 (See note.)	le: 0.1 A, lthe: 1 A (R300) 85°C	DC250	6,000

Note: In progress

**VDE (60947-4-1) (Certificate No. C266)**

Models	Contact rating			
	Utilization category		Rated voltage (V)	Operations
G6RL-1(A)	AC1	8 A 85°C	AC250	6,000
G6RL-1(A)-ASI (See note.)	AC3	2 A 85°C	AC250	6,000
	DC1	5 A 85°C	DC24	6,000
	DC3	2 A 85°C	DC24	6,000

**Note:** In progress

**VDE (EN60730-1) (Certificate No. C266)**

Models	Contact rating			
	Utilization category		Rated voltage (V)	Operations
G6RL-1(A)	2 (2) A	65°C	AC250	100,000
	8 (4) A (NO)	85°C	AC250	100,000
	6 (4) A (NO)	85°C (See note.)	AC250	100,000
	6 (4)A (NO)	65°C	AC250	100,000
	6 (4) A (NC)	65°C	AC250	100,000
G6RL-1(A)-ASI (See note.)	2 (2) A	65°C	AC250	100,000
	8 (4) A (NO)	85°C	AC250	100,000
	6 (4) A (NO)	85°C	AC250	100,000
	6 (4) A (NC)	65°C	AC250	100,000

**Note:** In progress

## Electrical Endurance Data

G6RL-1(A)	8 A at 250 VAC ( $\cos\phi = 1$ ) NO 8 A at 250 VAC ( $\cos\phi = 1$ ) NC 5 A at 24 VDC	50,000 operations min. 50,000 operations min. 50,000 operations min.
G6RL-1(A)-(SR)-ASI-(PL)	10 A at 250 VAC ( $\cos\phi = 1$ ) NO 8 A at 250 VAC ( $\cos\phi = 1$ ) 5 A at 30 VDC	100,000 operations min. 100,000 operations min. 50,000 operations min.
G6RL-1(A)4-ASI	8 A at 250 VAC ( $\cos\phi = 1$ ) NO 8 A at 250 VAC ( $\cos\phi = 1$ ) NC 5 A at 24 VDC	50,000 operations min. 50,000 operations min. 50,000 operations min.
G6RL-14-SR-ASI	8 A at 250 VAC ( $\cos\phi = 1$ ) NO 3 A at 250 VAC ( $\cos\phi = 1$ ) NC 5 A at 24 VDC NO 5 A at 24 VDC NC	50,000 operations min. 100,000 operations min. 50,000 operations min. 30,000 operations min.

## Endurance Under Real Load (Reference Only)

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

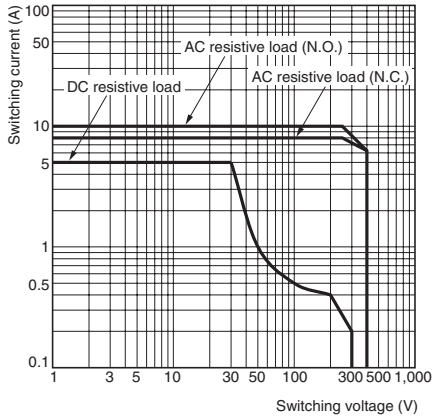
Rated voltage	Condition	Frequency	Electrical life
230 VAC	P1 load (2 × 200 W lamps parallel to ignition transformer)	1.5 s ON/4.5 s OFF	250,000 operations

**Note:** The results shown reflect values measured using very severe test conditions, i.e., Duty: 1 s ON/OFF. Electrical endurance will vary depending on the test conditions. Contact your OMRON representative if you require more detailed information for the electrical endurance under your test conditions.

# Engineering Data

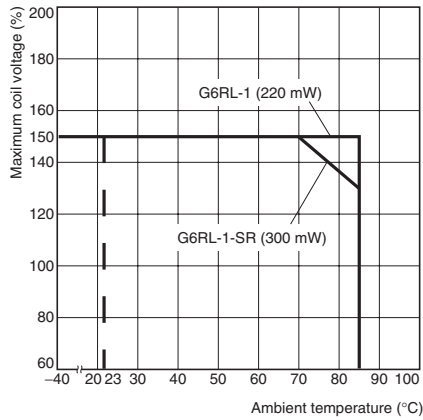
## G6RL-1(A)(4)-(SR)-(ASI)-(PL)

### Maximum Switching Capacity



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

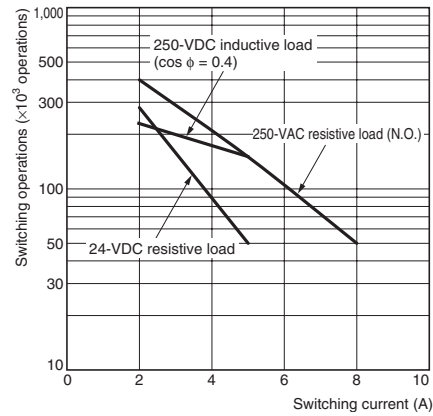
### Ambient Temperature vs. Maximum Coil Voltage



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

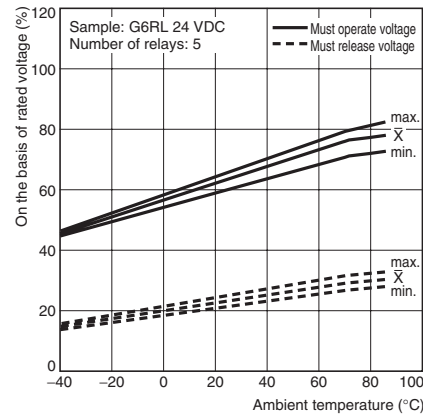
## G6RL-1(A)

### Endurance



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

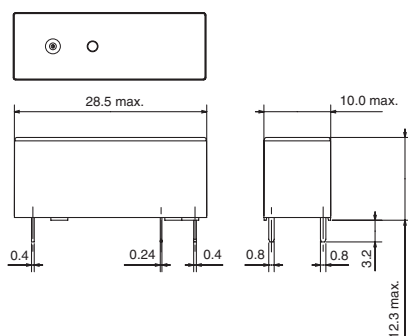
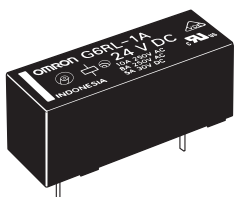
### Ambient Temperature vs. Must Operate or Must Release Voltage



## Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

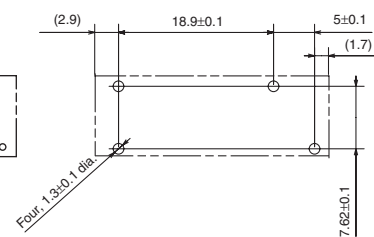
### G6RL-1A(-ASI) -1A4(-ASI)



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

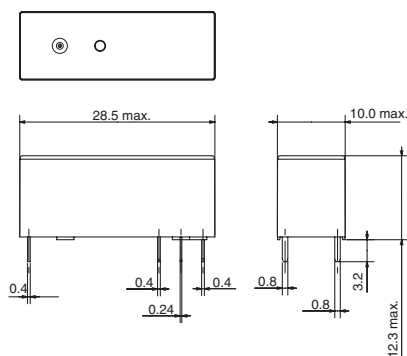
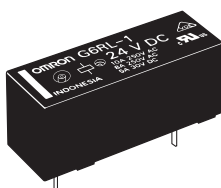


#### Mounting Holes (Bottom View)



**Note:** Indicates average dimensions.

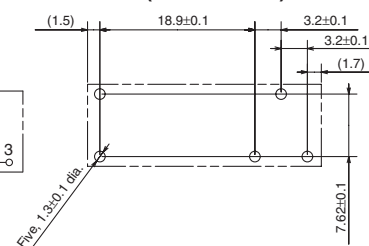
### G6RL-1(-ASI) -14(-ASI)



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



#### Mounting Holes (Bottom View)



**Note:** Indicates average dimensions.

## Precautions

### Disclaimer:

All technical performance data applies to the product as such; specific conditions of individual applications are not considered. Always check the suitability of the product for your intended purpose. OMRON does not assume any responsibility or liability for noncompliance herein, and we recommend prior technical clarification for applications where requirements, loading, or ambient conditions differ from those applying to general electric applications. Any responsibility for the application of the product remains with the customer alone. THIS COMPONENT CAN NOT BE USED FOR AUTOMOTIVE APPLICATIONS.