

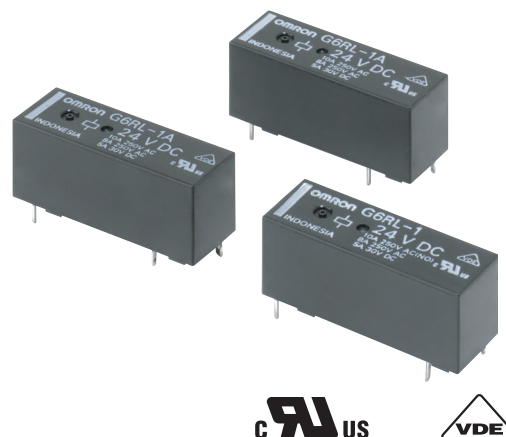
Low-profile power relay with maximum switching of 10 A

- 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/s²) 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				
Rated voltage	3 VDC	5 VDC	6 VDC	12 VDC	24 VDC	48 VDC	3 VDC	5 VDC	6 VDC	12 VDC	24 VDC
Rated current	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
Coil resistance	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
Must operate voltage	70% max. of rated voltage						80% max. of rated voltage				
Must release voltage	10% min. of rated voltage						10% min. of rated voltage				
Max. voltage	150% of rated voltage						150% of rated voltage (23°C)				
Power consumption	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

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

Contact resistance	100 mΩ max.
Operate time	10 ms max. (SR Models: 15 ms max.)
Release time	5 ms max.
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric strength	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
Impulse withstand voltage	10 kV between coil and contacts ($1.2 \times 50 \mu\text{ps}$)
Vibration resistance	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.
Shock resistance	Destruction: $1,000 \text{ m/s}^2$ Malfunction: NO: 200 m/s^2 , NC: 50 m/s^2 when not energized SR Models: 250 ms^2 (NO and NC) when not energized
Endurance	Mechanical: 10,000,000 operations min. (at 18,000 operations/h)
Ambient temperature	Operating: -40°C to 85°C (with no icing)
Ambient humidity	Operating: 5% to 85%
Weight	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	6,000 operations
G6RL-1	SPDT			
G6RL-1A(4)-ASI	SPST-NO			
G6RL-1(4)-ASI	SPDT			
G6RL-1(4)-SR-ASI	SPDT	3 to 24 VDC		

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)	Ie: 3 A, Ithe: 10 A (A300) 85°C	AC240	6,000
	AC15 (NO)	Ie: 3 A, Ithe: 5 A (B300) 85°C	AC120	6,000
	AC15 (NO)	Ie: 1.5 A, Ithe: 5 A (B300) 85°C	AC240	6,000
	DC13	Ie: 0.22A, Ithe: 1 A (R150) 85°C	DC125	6,000
	DC13 (See note.)	Ie: 0.1 A, Ithe: 1 A (R300) 85°C	DC250	6,000
G6RL-1(A)-ASI	AC15	Ie: 3 A, Ithe: 10 A (A300) 85°C	AC240	6,000
G6RL-1(A)4-ASI (See note.)	AC15	Ie: 3 A, Ithe: 5 A (B300) 85°C	AC120	6,000
G6RL-1(4)-SR-ASI	AC15	Ie: 1.5 A, Ithe: 5 A (B300) 85°C	AC240	6,000
	DC13	Ie: 0.22 A, Ithe: 1 A (R150) 85°C	DC125	6,000
	DC13 (See note.)	Ie: 0.1 A, Ithe: 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

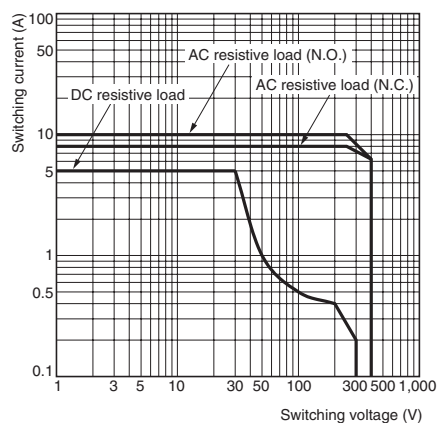
Rated voltage	Condition	Frequency	Electrical life
230 VAC	P1 load (2 × 200 W lamps parallel to ignition transformer)	1.5 s ON/4.5 s OFF	250,000 operations

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

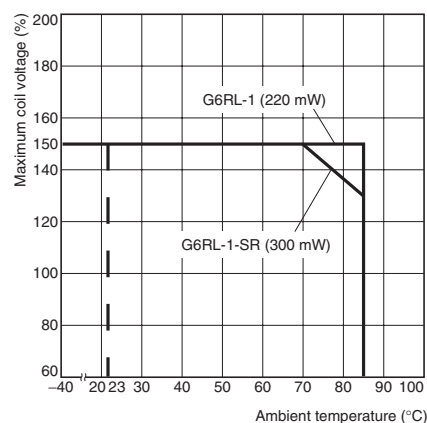
G6RL-1(A)(4)-(SR)-(ASI)-(PL)

Maximum Switching Capacity



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

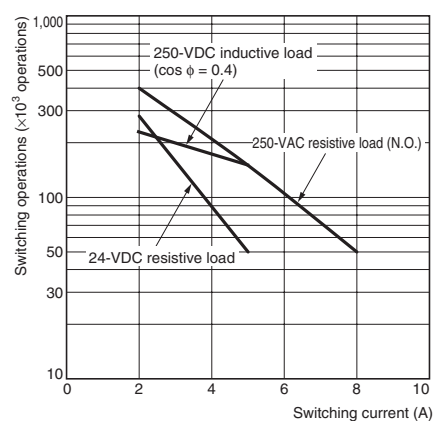
Ambient Temperature vs. Maximum Coil Voltage



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

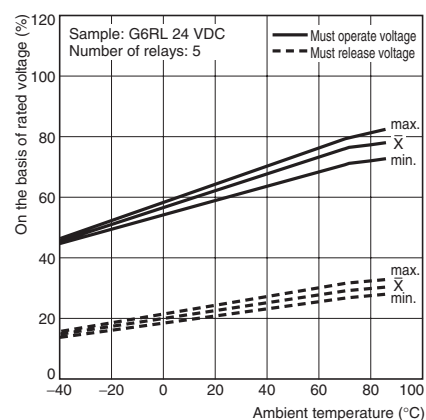
G6RL-1(A)

Endurance



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

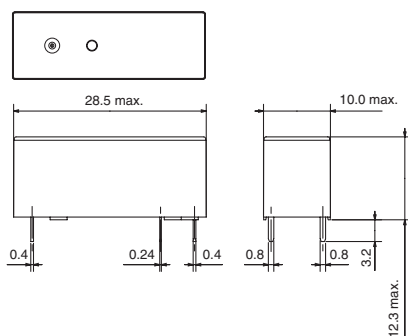
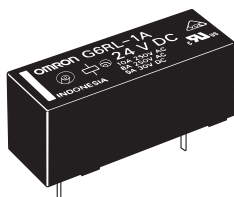
Ambient Temperature vs. Must Operate or Must Release Voltage



Dimensions

Note: All units are in millimeters unless otherwise indicated.

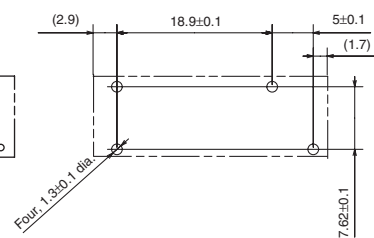
G6RL-1A(-ASI) -1A4(-ASI)



Terminal Arrangement/ Internal Connections (Bottom View)

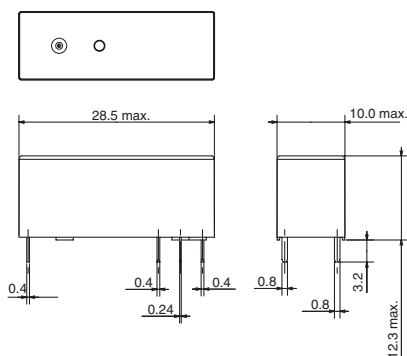
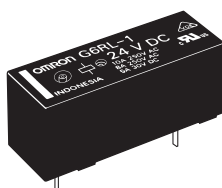


Mounting Holes (Bottom View)



Note: Indicates average dimensions.

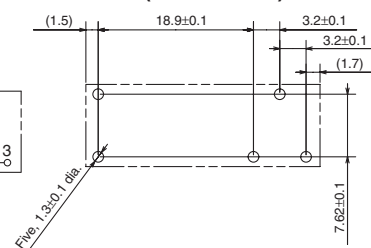
G6RL-1(-ASI) -14(-ASI)



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.

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. K133-E1-02 **In the interest of product improvement, specifications are subject to change without notice.**

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