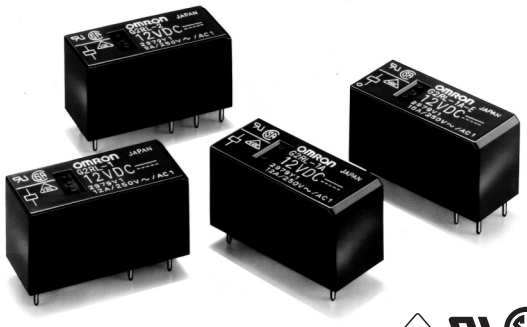
# PCB Relay
# G2RL

## A Power Relay with Various Models

- High-sensitivity (250 mW) and High-capacity (16 A) versions.
- Designed for cooking and HVAC controls: blower motor, damper, active air purification, duct flow boost fans, etc.
- Conforms to VDE (EN61810-1). UL recognized/ CSA certiified
- Meets EN60335-1 requirements for household products.
- Clearance and creepage distance: 10 mm/10 mm.
- Tracking resistance: CTI>250
- Coil Insulation system: Class F.
- RoHS Compliant



# Ordering Information

| Classification | Enclosure ratings | Contact form | | | |
|---|---|---|---|---|---|
| | | SPST-NO | SPDT | DPST-NO | DPDT |
| General-purpose | Flux protection | **G2RL-1A** | **G2RL-1** | **G2RL-2A** | **G2RL-2** |
| | Fully sealed | **G2RL-1A4** | **G2RL-14** | **G2RL-2A4** | **G2RL-24** |
| High-capacity | Flux protection | **G2RL-1A-E** | **G2RL-1-E** | --- | --- |
| | Fully sealed | **G2RL-1A4-E** | **G2RL-14-E** | --- | --- |
| High-sensitivity | Flux protection | **G2RL-1A-H** | **G2RL-1-H** | --- | --- |

**Note:** When ordering, add the rated coil voltage to the model number.
Example: G2RL-1A DC12
Rated coil voltage

### Model Number Legend

**G2RL-□□□-□**
1 2 3 4

1. **Number of Poles**
   1: 1 pole
   2: 2 poles
2. **Contact Form**
   None: □PDT
   A: □PST-NO
3. **Enclosure Ratings**
   None: Flux protection
   4: Fully sealed
4. **Classification**
   None: General purpose
   E: High capacity (1 pole)
   H: High sensitivity (1 pole)

# Specifications

## ■ Coils Ratings for General-purpose and High-capacity Models

| **Rated voltage** | 5 VDC | 12 VDC | 24 VDC | 48 VDC |
|---|---|---|---|---|
| **Rated current** | 80.0 mA | 33.3 mA | 16.7 mA | 8.96 mA |
| **Coil resistance** | 62.5 Ω | 360 Ω | 1,440 Ω | 5,358 Ω |
| **Must operate voltage** | 70% max. of the rated voltage | | | |
| **Must release voltage** | 10% min. of the rated voltage | | | |
| **Max. voltage** | 180% of rated voltage (at 23°C) | | | |
| **Power consumption** | Approx. 400 mW | | | Approx. 430 mW |

**Note:** The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

## ■ Coils Ratings for High-sensitivity Models

| | | | |
|---|---|---|---|
| **Rated voltage** | 5 VDC | 12 VDC | 24 VDC |
| **Rated current** | 50.0 mA | 20.8 mA | 10.42 mA |
| **Coil resistance** | 100 Ω | 576 Ω | 2,304 Ω |
| **Must operate voltage** | 75% max. of the rated voltage | | |
| **Must release voltage** | 10% min. of the rated voltage | | |
| **Max. voltage** | 180% of rated voltage (at 23°C) | | |
| **Power consumption** | Approx. 250 mW | | |

**Note:** The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

## ■ Contact Ratings

| Item | General-purpose Models | | High-capacity Models | High-sensitivity Models |
|---|---|---|---|---|
| **Number of poles** | 1 pole | 2 poles | 1 pole | 1 pole |
| **Contact material** | Ag Alloy (Cd free) | | | |
| **Load** | Resistive load (cosϕ=1) | | | |
| **Rated load** | 12 A at 250 VAC<br>12 A at 24 VDC<br>(See note.) | 8 A at 250 VAC<br>8 A at 30 VDC<br>(See note.) | 16 A at 250 VAC<br>16 A at 24 VDC<br>(See note.) | 10 A at 250 VAC<br>10 A at 24 VDC<br>(See note.) |
| **Rated carry current** | 12 A (See note.) | 8 A (70°C)/5 A (85°C)<br>(See note.) | 16 A (See note.) | 10 A (See note.) |
| **Max. switching voltage** | 440 VAC, 300 VDC | | | |
| **Max. switching current** | 12 A | 8 A | 16 A | 10 A |
| **Max. switching power** | 3,000 VA (4,000 VA) | 2,000 VA | 4,000 VA | 2,500 VA |

**Note:** Contact your OMRON representative for the ratings on fully sealed models.

## ■ Characteristics

| Item | General-purpose (High-capacity) Models | General-purpose Models | High-sensitivity Models |
|---|---|---|---|
| **Number of poles** | 1 pole | 2 pole | 1 pole |
| **Contact resistance** | 100 mΩ max. | | |
| **Operate (set) time** | 15 ms max. | | |
| **Release (reset) time** | 5 ms max. | | |
| **Max. operating frequency** | Mechanical:18,000 operation/hr<br>Electrical:1,800 operation/hr at rated load | | |
| **Insulation resistance** | 1,000 MΩ min. (at 500 VDC) | | |
| **Dielectric strength** | 5,000 VAC, 1 min between coil and contacts<br>1,000 VAC, 1 min between contacts of same polarity | 5,000 VAC, 1 min between coil and contacts<br>2,500 VAC, 1 min between contacts of different polarity<br>1,000 VAC, 1 min between contacts of same polarity | 5,000 VAC, 1 min between coil and contacts<br>1,000 VAC, 1 min between contacts of same polarity |
| **Impulse withstand voltage** | 10 kV (1.2×50 μs) between coil and contact | | |
| **Vibration resistance** | Destruction:10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)<br>Malfunction:10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude) | | |
| **Shock resistance** | Destruction:1,000 m/s$^2$ (approx. 100 G)<br>Malfunction:100 m/s$^2$ (approx. 10 G) | | |
| **Endurance (Mechanical)** | 20,000,000 operations (at 18,000 operations/hr) | | |
| **Ambient temperature** | Operating:–40°C to 85°C (with no icing)<br>Storage:–40°C to 85°C (with no icing) | | |
| **Ambient humidity** | 5% to 85% | | |
| **Weight** | Approx. 12 g | | |

**Note:** Values in the above table are the initial values.

## ■ Approved Standards

**UL Recognized (File No. E41643) / CSA Certified (File No. LR31928) - - Ambient Temp. = 40°C**

| Model | Contact form | Coil ratings | Contact ratings |
|---|---|---|---|
| G2RL-1A | SPST-NO | 3 to 48 VDC | 12 A at 250 VAC (General use) |
| G2RL-1 | SPDT | | 12 A at 24 VDC (Resistive) |
| G2RL-1A-E | SPST-NO | 3 to 48 VDC | 16 A at 250 VAC (General use) |
| G2RL-1-E | SPDT | | 16 A at 24 VDC (Resistive) |
| G2RL-1A-H | SPST-NO | 5 to 24 VDC | 10 A at 250 VAC (General use)<br>10 A at 24 VDC (Resistive) |
| G2RL-1-H | SPDT | | |
| G2RL-2A | DPST-NO | 3 to 48 VDC | 8 A at 277 VAC (General use)<br>8 A at 30 VDC (Resistive) |
| G2RL-2 | DPDT | | |

**Note:** Consult Omron for additional UL / CSA ratings

**VDE (EN61810-1) (License No. 119650)**

| Model | Contact form | Coil ratings | Contact ratings |
|---|---|---|---|
| G2RL-1(A) | 1 pole | 5, 12, 18, 22, 24, 48 VDC | 12 A at 250 VAC (cosϕ=1)<br>12 A at 24 VDC (L/R=0 ms)<br>AC15: 3 A at 240 VAC<br>DC13: 2.5 A at 24 VDC, 50 ms |
| G2RL-1(A)-E | 1 pole | 5, 12, 18, 22, 24, 48 VDC | 16 A at 250 VAC (cosϕ=1)<br>16 A at 24 VDC (L/R=0 ms)<br>AC15: 3 A at 240 VAC (NO)<br>1.5 A at 240 VAC (NC)<br>DC13: 2.5 A at 24 VDC (NO), 50 ms |
| G2RL-1(A)-H | 1 pole | 5, 9, 12, 24 VDC | 10 A at 250 VAC (cosϕ=1)<br>10 A at 24 VDC (L/R=0 ms) |
| G2RL-2(A) | 2 poles | 5, 12, 18, 22, 24, 48 VDC | 8 A at 250 VAC (cosϕ=1)<br>8 A at 24 VDC (L/R=0 ms)<br>AC15: 1.5 A at 240 VAC<br>DC13: 2 A at 30 VDC, 50 ms |

**Note:** To achieve approved life cycles on sealed models, the relay should be vented by removing the “knock off vent nib” on top of relay case after the soldering/washing process.

# Electrical Life Data

| | | |
|---|---|---|
| **G2RL-1-E** | 16 A at 250 VAC (cosϕ=1) | 30,000 operations min. |
| | 16 A at 24 VDC | 30,000 operations min. |
| | 8 A at 250 VAC (cosϕ=0.4) | 200,000 operation min. (normally open side operation) |
| | 8 A at 30 VDC (L/R=7 ms) | 10,000 operation min. (normally open side operation) |
| **G2RL-1** | 12 A at 250 VAC (cosϕ=1) | 50,000 operations min. |
| | 12 A at 24 VDC | 30,000 operations min. |
| | 5 A at 250 VAC (cosϕ=0.4) | 150,000 operation min. (normally open side operation) |
| | 5 A at 30 VDC (L/R=7 ms) | 20,000 operation min. (normally open side operation) |
| **G2RL-1-H** | 10 A at 250 VAC (cosϕ=1) | 100,000 operations min. |
| | 10 A at 24 VDC | 50,000 operations min. |
| **G2RL-2** | 8 A at 250 VAC (cosϕ=1) | 30,000 operations min. |
| | 8 A at 30 VDC | 30,000 operations min. |

**Note: 1.** The results shown reflect values measured using very severe test conditions i.e., Duty: 1 s ON/1 s OFF.

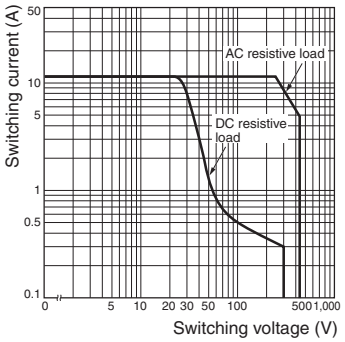
**2.** In order to obtain the full rated life cycles on the fully sealed models, the relay should be properly vented by removing the “knock off vent nib” on top of the relay case after the soldering/washing process.

**3.** 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.

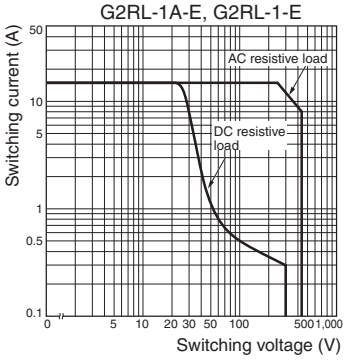
# Engineering Data

## ■ Maximum Switching Capacity

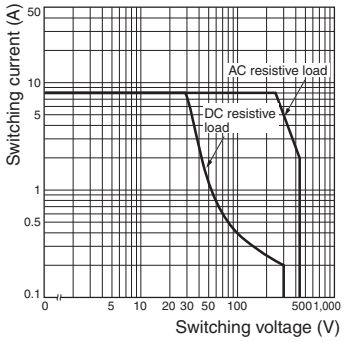
G2RL-1A, G2RL-1



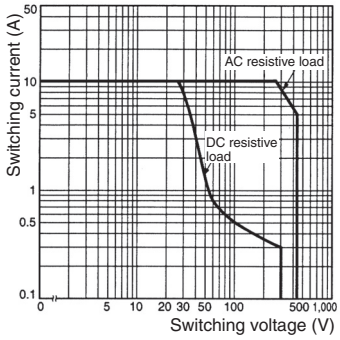

G2RL-1A-E, G2RL-1-E



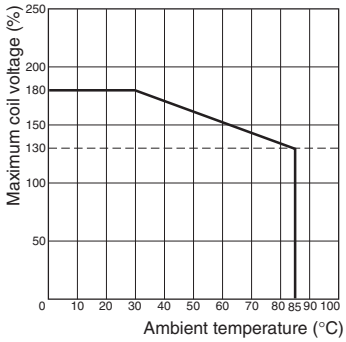

G2RL-2A, G2RL-2




G2RL-1A-H, G2RL-1-H

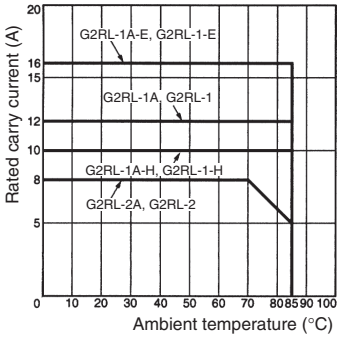



## ■ Ambient Temperature vs Maximum Coil Voltage

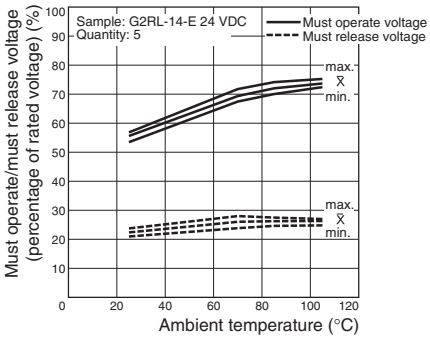



**Note:** The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

## ■ Ambient Temperature vs Rated Carry Current



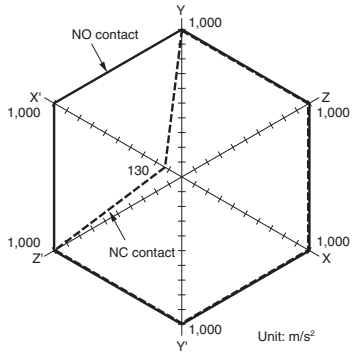

## ■ Ambient Temperature vs Must Operate and Must Release Voltages



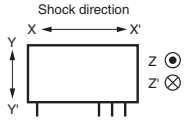

**Note:** Contact your OMRON representative for the data on fully sealed models.

## ■ Shock Malfunction

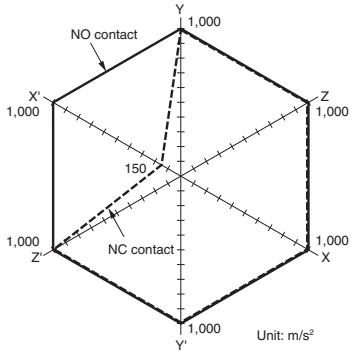
G2RL-1 (A)-E



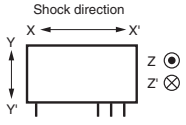

Sample: G2RL-14 DC12V
Number of Relays: 5pcs
Conditions: Shock is applied in ±X,±Y,±Z directions three times each with and without energizing the Relays to check the number of malfunctions.
Requirement: None malfunction 100m/s²




G2RL-2 (A)




Sample: G2RL-24 DC12V
Number of Relays: 5pcs
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 100m/s²

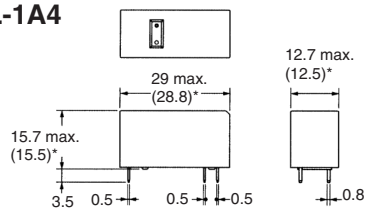


# Dimensions

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

## G2RL-1A(-H), G2RL-1A4



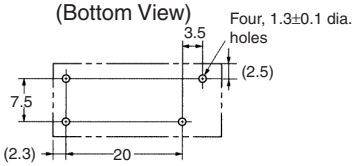



Terminal Arrangement/
Internal Connection
(Bottom View)



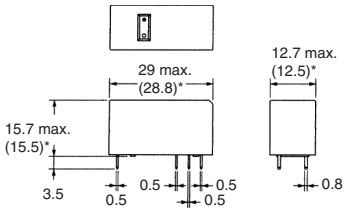

* Indicates average dimensions.

Mounting Holes
(Bottom View)

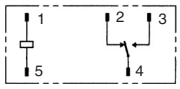



## G2RL-1(-H), G2RL-14



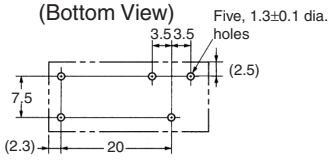



Terminal Arrangement/
Internal Connection
(Bottom View)



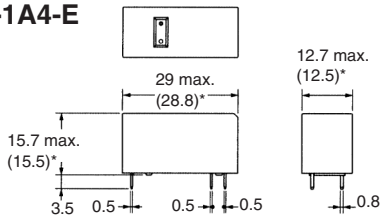

* Indicates average dimensions.

Mounting Holes
(Bottom View)

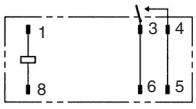



## G2RL-1A-E, G2RL-1A4-E



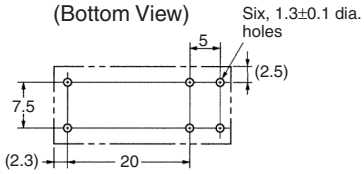



Terminal Arrangement/
Internal Connection
(Bottom View)

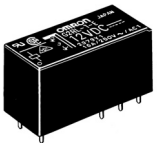


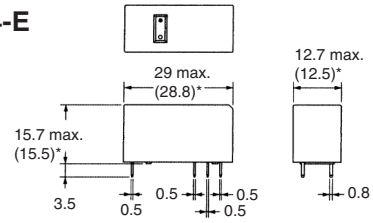

* Indicates average dimensions.

Mounting Holes
(Bottom View)

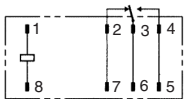



## G2RL-1-E, G2RL-14-E



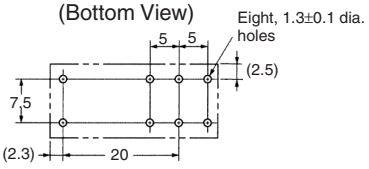



Terminal Arrangement/
Internal Connection
(Bottom View)



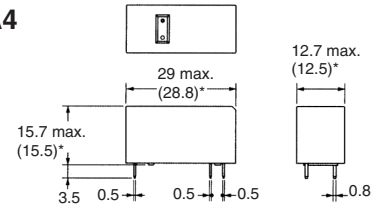

* Indicates average dimensions.

Mounting Holes
(Bottom View)




## G2RL-2A, G2RL-2A4



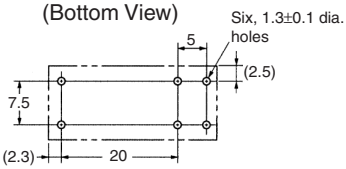



Terminal Arrangement/
Internal Connection
(Bottom View)



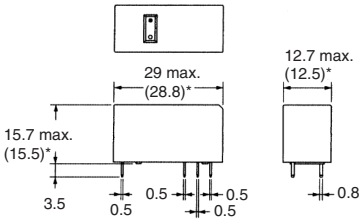

* Indicates average dimensions.

Mounting Holes
(Bottom View)

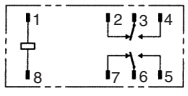



## G2RL-2, G2RL-24



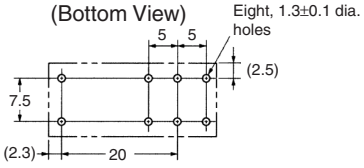



Terminal Arrangement/
Internal Connection
(Bottom View)




* Indicates average dimensions.

Mounting Holes
(Bottom View)



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Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
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**Данный компонент на территории Российской Федерации**

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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