

## Low Profile Power Relay with 15.7 mm height, ideal for incorporation in miniature equipments

- A wide variety of single pole, double pole, high-capacity (16 A) type and high-sensitivity type (250 mW) Relays are available.
- Low profile; 15.7 mm max. in height.
- Conforms to VDE (EN61810-1), UL508 and CSA22.2.
- IEC/EN 60335-1 conformed. (-HA Model)
- Satisfies ambient operating temperature requirement of 85°C and 105°C (-CV Model).
- Clearance and creepage distance: 8 mm / 8 mm min.
- Coil insulation system: Class F (UL1446).
- G2RL-1(A)-E-ASI: TV3 Rating models available.
- IEC/EN 60079-15 conformed (Except G2RL-1(A)-H, G2RL-1A-E-CV(-HA) Models).

RoHS Compliant

### Model Number Legend

G2RL-□□□-□-□-□-□  
1 2 3 4 5 6 7

#### 1. Number of poles

- 1 : 1 pole
- 2 : 2 pole

#### 2. Contact Form

- None : SPDT (1c)
- A : SPST-NO (1a)

#### 3. Enclosure rating

- None : Flux protection
- 4 : Sealed

#### 4. Classification

- None : Standard
- E : High-capacity
- H : High-sensitivity

#### 5. Contact Material

- None : Standard (Ag-alloy, Cd free)
- ASI : AgSnIn

#### 6. Special Requirement

- None : Standard
- CV : 16 A, pinning 5 mm, switching at 105°C
- PW : Coil Holding Voltage type

#### 7. Market Code

- None : General purpose
- HA : Home Appliance according to IEC/EN60335-1

### Ordering Information

| Terminal Shape   | Market Code      | Classification | Contact form    | Enclosure rating | Model         | Rated coil voltage | Minimum packing unit |               |
|------------------|------------------|----------------|-----------------|------------------|---------------|--------------------|----------------------|---------------|
| PCB terminals    | General Purpose  | Standard       | SPST-NO (1a)    | Flux protection  | G2RL-1A       | 5, 12, 24, 48 VDC  | 20 pcs/tube          |               |
|                  |                  |                |                 | Sealed           | G2RL-1A4      |                    |                      |               |
|                  |                  |                | SPDT (1c)       | Flux protection  | G2RL-1        |                    |                      |               |
|                  |                  |                |                 | Sealed           | G2RL-14       |                    |                      |               |
|                  |                  |                | DPST-NO (2a)    | Flux protection  | G2RL-2A       |                    |                      |               |
|                  |                  |                |                 | Sealed           | G2RL-2A4      |                    |                      |               |
|                  |                  |                | DPDT (2c)       | Flux protection  | G2RL-2        |                    |                      |               |
|                  |                  |                |                 |                  | G2RL-2-ASI    |                    |                      |               |
|                  |                  |                |                 | G2RL-24          |               |                    |                      |               |
|                  |                  |                |                 |                  |               |                    |                      |               |
|                  |                  | High-capacity  | SPST-NO (1a)    | Flux protection  | G2RL-1A-E     | 5, 12, 24 VDC      |                      |               |
|                  |                  |                |                 |                  | G2RL-1A-E-ASI |                    |                      |               |
|                  |                  |                |                 |                  | G2RL-1A-E-CV  |                    |                      |               |
|                  |                  |                |                 |                  | Sealed        |                    |                      | G2RL-1A4-E    |
|                  |                  |                | SPDT (1c)       | Flux protection  | G2RL-1-E      | 5, 12, 24 VDC      |                      |               |
|                  |                  |                |                 |                  | G2RL-1-E-ASI  |                    |                      | 5, 12, 24 VDC |
|                  |                  |                |                 |                  | G2RL-1-E-PW   |                    |                      |               |
|                  |                  |                |                 |                  | Sealed        |                    |                      | G2RL-14-E     |
|                  | High-sensitivity | SPST-NO (1a)   | Flux protection | G2RL-1A-H        | 5, 12, 24 VDC |                    |                      |               |
|                  |                  |                |                 | SPDT (1c)        |               | G2RL-1-H           |                      |               |
|                  |                  | SPDT (1c)      |                 | G2RL-1-HA        |               |                    |                      |               |
|                  |                  | DPST-NO (2a)   |                 | G2RL-2A-HA       |               |                    |                      |               |
| DPDT (2c)        |                  | G2RL-2-HA      |                 |                  |               |                    |                      |               |
| High-capacity    |                  | SPST-NO (1a)   |                 | G2RL-1A-E-HA     |               |                    |                      |               |
|                  |                  |                |                 | G2RL-1A-E-CV-HA  |               |                    |                      |               |
|                  |                  | SPDT (1c)      |                 | G2RL-1-E-HA      |               |                    |                      |               |
| Home Application |                  |                |                 |                  |               |                    |                      |               |

Note 1. When ordering, add the rated coil voltage to the model number.

Example: G2RL-1A DC5

Rated coil voltage

However, the notation of the coil voltage on the product case will be marked as □□VDC.

Note 2. Place your order in tube (20 pcs/tube) units.

Note 3. Contact your OMRON sales representative for sealed models.



### Application Examples

- Home appliances
- OA equipments
- Industrial machinery

## ■ Ratings

### ● Coil

|                            | Item          | Rated current<br>(mA) | Coil resistance<br>(Ω) | Must operate voltage<br>(V) | Must release voltage<br>(V) | Max. voltage<br>(V) | Power consumption<br>(mW)   |
|----------------------------|---------------|-----------------------|------------------------|-----------------------------|-----------------------------|---------------------|-----------------------------|
|                            | Rated voltage |                       |                        | % of rated voltage          |                             |                     |                             |
| Standard,<br>High-Capacity | 5 VDC         | 80.0                  | 62.5                   | 70% max.                    | 10% min.<br>10 to 32%*      | 130%<br>(at 85°C)   | Approx. 400<br>Approx. 100* |
|                            | 12 VDC        | 33.3                  | 360                    |                             |                             |                     |                             |
|                            | 24 VDC        | 16.7                  | 1,440                  |                             |                             |                     | Approx. 430                 |
|                            | 48 VDC        | 8.96                  | 5,358                  |                             |                             |                     |                             |
| High-sensitivity           | 5 VDC         | 50                    | 96                     | 75% max.                    | 10%                         |                     | Approx. 250                 |
|                            | 12 VDC        | 20.8                  | 576                    |                             |                             |                     |                             |
|                            | 24 VDC        | 10.42                 | 2,304                  |                             |                             |                     |                             |

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.

\* These numbers are only for -PW type. Power consumption with Holding Voltage is approx.100mW. Please confirm the detail in page 6 Coil Voltage Reduction (Holding Voltage).

### ● Contacts: Flux Protection Type

| Classification                               |       | Standard type (resistive load)               |                                            | High-capacity type (resistive load)          | High-sensitivity type (resistive load) |
|----------------------------------------------|-------|----------------------------------------------|--------------------------------------------|----------------------------------------------|----------------------------------------|
| Item                                         | Model | 1-pole                                       | 2-pole                                     | 1-pole                                       |                                        |
| Contact type                                 |       | Single                                       |                                            |                                              |                                        |
| Contact material                             |       | Ag-alloy (Cd free)                           |                                            |                                              |                                        |
| Rated load                                   |       | 12 A at 250 VAC<br>12 A at 24 VDC (See note) | 8 A at 250 VAC<br>8 A at 30 VDC (See note) | 16 A at 250 VAC<br>16 A at 24 VDC (See note) | 10 A at 250 VAC (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                                   |
| Failure rate (P level)<br>(reference value*) |       | 40 mA at 24 VDC                              |                                            |                                              |                                        |

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

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

## ■ Characteristics

### ● Flux Protection Type

| Classification                |                                        | Standard type                                                                                                   |                                                                                                      | High-capacity type                                                                                                                                                                              | High-sensitivity type                              |
|-------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Item                          | Number of poles                        | 1-pole                                                                                                          | 2-pole                                                                                               | 1-pole                                                                                                                                                                                          |                                                    |
| Contact resistance *1         |                                        | 100 mΩ max.                                                                                                     |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Operate (set) time            |                                        | 15 ms max.                                                                                                      |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Release (reset) time          |                                        | 5 ms max.                                                                                                       |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Insulation resistance *2      |                                        | 1,000 MΩ min.                                                                                                   |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Dielectric strength           | Between coil and contacts              | 5,000 VAC, 50/60 Hz for 1min                                                                                    |                                                                                                      |                                                                                                                                                                                                 |                                                    |
|                               | Between contacts of the same polarity  | 1,000 VAC, 50/60 Hz for 1min                                                                                    |                                                                                                      |                                                                                                                                                                                                 |                                                    |
|                               | Between contacts of different polarity | —                                                                                                               | 2,500 VAC, 50/60 Hz for 1min                                                                         | —                                                                                                                                                                                               |                                                    |
| Impulse withstand voltage     |                                        | 10 kV (1.2 x 50 μs)                                                                                             |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Vibration resistance          | Destruction                            | 10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)                                           |                                                                                                      |                                                                                                                                                                                                 |                                                    |
|                               | Malfunction                            | 10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)                                           |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Shock resistance              | Destruction                            | 1,000 m/s <sup>2</sup>                                                                                          |                                                                                                      |                                                                                                                                                                                                 |                                                    |
|                               | Malfunction                            | Energized: 100 m/s <sup>2</sup> , De-energized: 100 m/s <sup>2</sup>                                            |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Durability                    | Mechanical                             | 20,000,000 operations (at 18,000 operations/hr)                                                                 |                                                                                                      |                                                                                                                                                                                                 |                                                    |
|                               | Electrical *3 (resistive load)         | G2RL-1A, G2RL-1(-HA):<br>50,000 operations at 250 VAC, 12 A<br>30,000 operations at 24 VDC, 12 A                | G2RL-2(A)(-HA), G2RL-2-ASI:<br>30,000 operations at 250 VAC, 8 A<br>30,000 operations at 30 VDC, 8 A | G2RL-1A-E(-ASI,-HA),<br>G2RL-1-E(-ASI,-HA,-PW):<br>30,000 operations at 250 VAC, 16 A<br>30,000 operations at 24 VDC, 16 A<br>G2RL-1A-E-CV(-HA):<br>50,000 operations at 250 VAC, 16 A at 105°C | G2RL-1(A)-H:<br>50,000 operations at 250 VAC, 10 A |
| Ambient operating temperature |                                        | -40°C to 85°C (with no icing or condensation)<br>-40°C to 105°C (with no icing or condensation) by G2RL-1A-E-CV |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Ambient operating humidity    |                                        | 5% to 85% (with no icing or condensation)                                                                       |                                                                                                      |                                                                                                                                                                                                 |                                                    |
| Weight                        |                                        | Approx. 12 g                                                                                                    |                                                                                                      |                                                                                                                                                                                                 |                                                    |

Note 1. Values in the above table are the initial values at 23°C.

Note 2. Contact your OMRON sales representative for sealed models.

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

\*2. Measurement conditions: Measured at the same points as the dielectric strength using a 500 VDC ohmmeter.

\*3. 1,800 operations per hour.