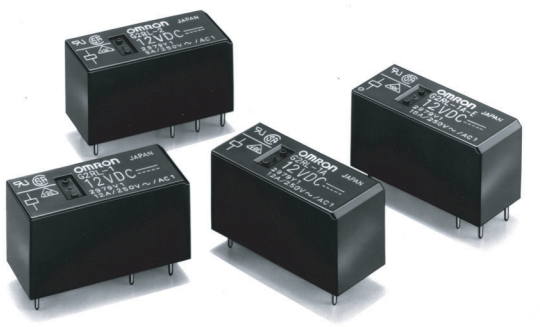
OMRON

PCB Relay

G2RL

Next-generation PCB Relay Available in 24 Models

- Low profile: 15.7 mm max. in height
- Conforms to VDE (EN61810-1), UL508 and CSA22.2.
- Meets EN60335-1 requirements for household products.
- Clearance and creepage distance: 10 mm/10 mm.
- Tracking resistance: CTI>250
  (Both standard and class F type)
- Coil Insulation system: Class F (UL1446)
- High sensitivity: 400 mW



RoHS Compliant Refer to pages 16 to 17 for details.

Ordering Information

Classification		Enclosure ratings	Contact form			
			SPST-NO	SPDT	DPST-NO	DPDT
Standard	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	---	---

Note: When ordering, add the rated coil voltage to the model number.
Example: G2RL-1A 12 VDC
Rated coil voltage

Model Number Legend

G2RL-□□□-□-□
1 2 3 4 5

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)
5. **Approved Standards**
   None: UL, CSA, VDE, UL Class B Insulation

Specifications

■ Coil Ratings

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%.

■ Contact Ratings

Number of poles	1 pole	2 poles
Contact material	$AgSnO_2$	AgNi
Load	Resistive load (cosϕ=1)	Resistive load (cosϕ=1)
Rated load	12 A (16 A) at 250 VAC 12 A (16 A) at 24 VDC (See note 2.)	8 A at 250 VAC 8 A at 30 VDC (See note 2.)
Rated carry current	12 A (16 A) (See note 2.)	8 A (70°C)/5 A (85°C) (See note 2.)
Max. switching voltage	440 VAC, 300 VDC	
Max. switching current	12 A (16 A)	8 A
Max. switching power	3,000 VA (4,000 VA)	2,000 VA

Note: 1. Values in parentheses are those for the high-capacity model.

2. Contact your OMRON representative for the ratings on fully sealed models.

■ Characteristics

Item	1 pole	2 poles
Contact resistance	100 mΩ max.	
Operate (set) time	15 ms max. (Approx. 7 ms typical)	
Release (reset) time	5 ms max. (Approx. 2 ms typical)	
Max. operating frequency	Mechanical:18,000 operation/hr 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 1,000 VAC, 1 min between contacts of same polarity	5,000 VAC, 1 min between coil and contacts 2,500 VAC, 1 min between contacts of different polarity 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) 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 Malfunction: Energized: 100 m/s^2 Not energized: 100 m/s^2	
Endurance (Mechanical)	20,000,000 operations (at 18,000 operations/hr)	
Ambient temperature	Operating: –40°C to 85°C (with no icing) 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

UL508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings
G2RL-1A	SPST-NO	3 to 48 VDC	12 A at 250 VAC (General use) 12 A at 24 VDC (Resistive)
G2RL-1	SPDT		
G2RL-1A-E	SPST-NO (High capacity)		16 A at 250 VAC (General use) 16 A at 24 VDC (Resistive)
G2RL-1-E	SPDT (High capacity)		
G2RL-2A	DPST-NO		8 A at 277 VAC (General use) 8 A at 30 VDC (Resistive)
G2RL-2	DPDT		

CSA C22.2 (No. 14) (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings
G2RL-1A	SPST-NO	3 to 48 VDC	12 A at 250 VAC (General use) 12 A at 24 VDC (Resistive)
G2RL-1	SPDT		
G2RL-1A-E	SPST-NO (High capacity)		16 A at 250 VAC (General use) 16 A at 24 VDC (Resistive)
G2RL-1-E	SPDT (High capacity)		
G2RL-2A	DPST-NO		8 A at 277 VAC (General use) 8 A at 30 VDC (Resistive)
G2RL-2	DPDT		

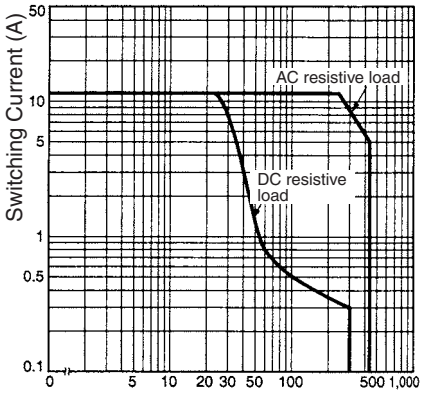
VDE (EN61810-1) (Licence No. 119650)

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

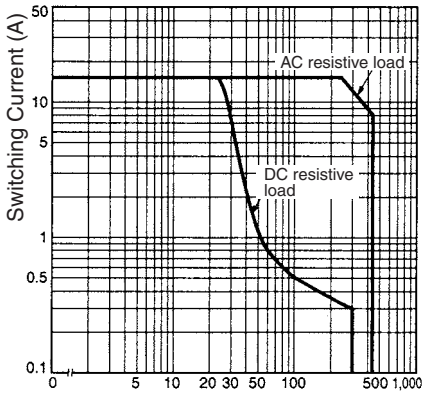
Engineering Data

Maximum Switching Capacity

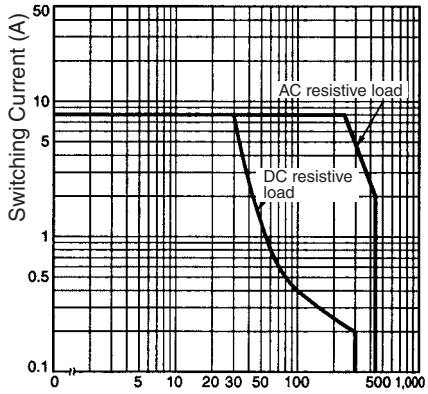
G2RL-1A, G2RL-1



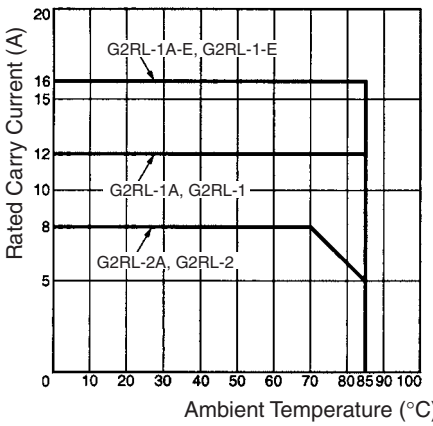
G2RL-1A-E, G2RL-1-E



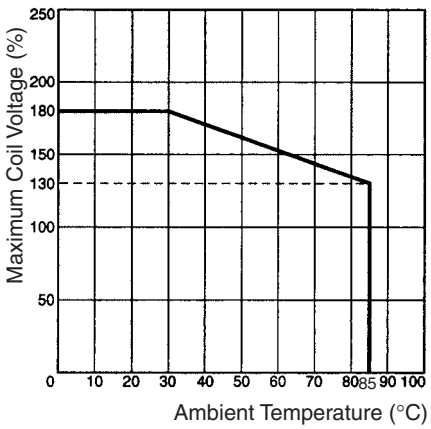
G2RL-2A, G2RL-2



Ambient Temperature vs Rated Carry Current



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.

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

Electrical Endurance Data

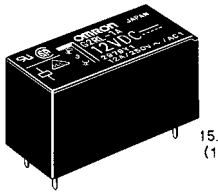
G2RL-1-E	16 A at 250 VAC (cosϕ=1) 16 A at 24 VDC 8 A at 250 VAC (cosϕ=0.4) 8 A at 30 VDC (L/R=7 ms)	30,000 operations min. 30,000 operations min. 200,000 operation min. (Normally open side operation) 10,000 operation min. (Normally open side operation)
G2RL-1	12 A at 250 VAC (cosϕ=1) 12 A at 24 VDC 5 A at 250 VAC (cosϕ=0.4) 5 A at 30 VDC (L/R=7 ms)	50,000 operations min. 30,000 operations min. 150,000 operation min. (Normally open side operation) 20,000 operation min. (Normally open side operation)
G2RL-2	8 A at 250 VAC (cosϕ=1) 8 A at 30 VDC	30,000 operations min. 30,000 operations min.
G2RL-1A-E	Pilot duty (A300), 250 VAC Pilot duty (A300), 125 VAC	250,000 operations min. 150,000 operations min.

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

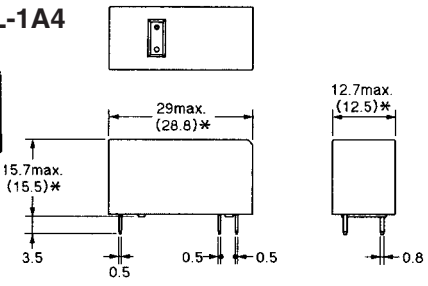
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G2RL-1A, G2RL-1A4

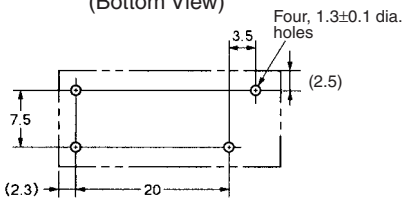


* Indicates average dimensions.

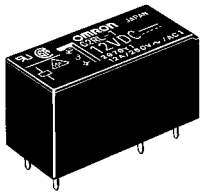


Terminal Arrangement/
Internal Connection
(Bottom View)

Mounting Holes
(Bottom View)



G2RL-1, G2RL-14



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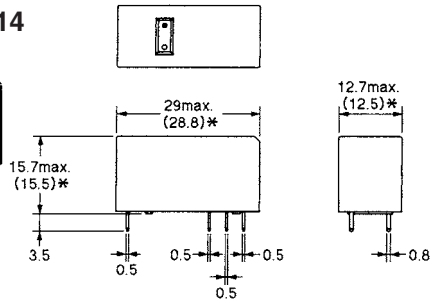

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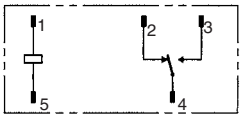

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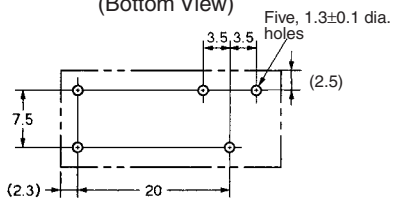
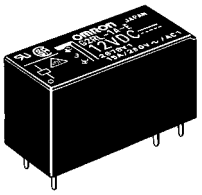


G2RL-1A-E, G2RL-1A4-E



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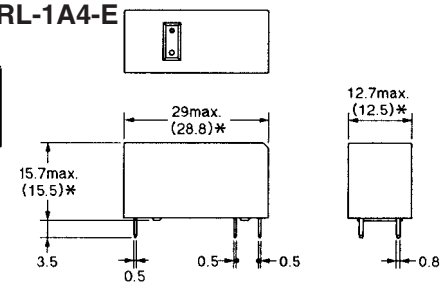

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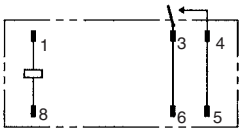

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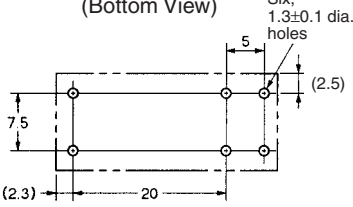
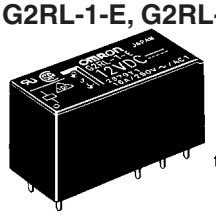
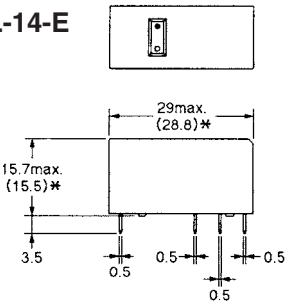


G2RL-1-E, G2RL-14-E





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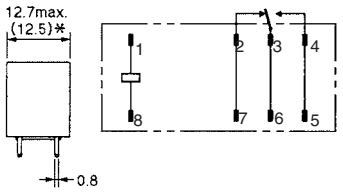

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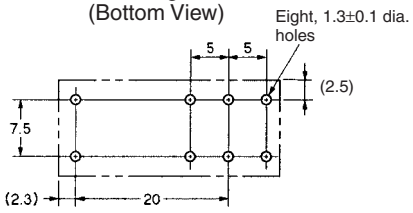
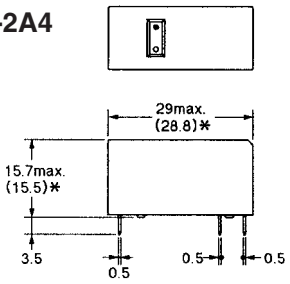


G2RL-2A, G2RL-2A4



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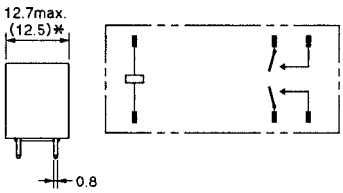

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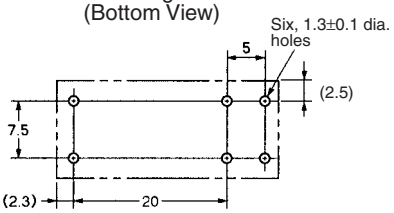
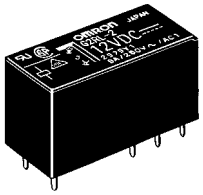
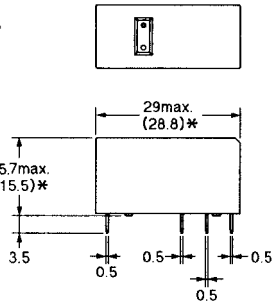


G2RL-2, G2RL-24





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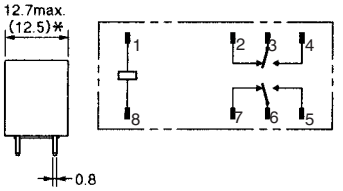

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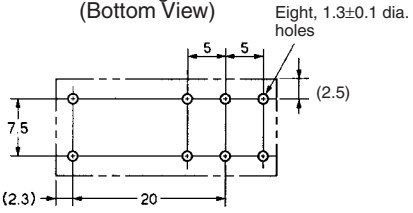

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J117-E1-03