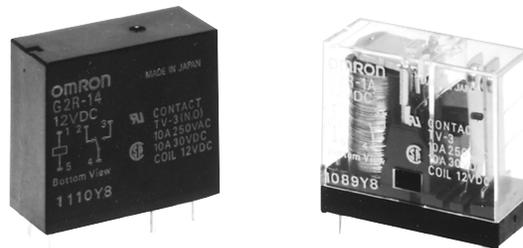


# Power PCB Relay G2R

- Creepage distance of 8.0 mm (0.31) min. between coil and contact.
- Dual-winding latching type available.
- Plug-in and quick-connect terminals available (see G2R-S(S) data sheet).
- High sensitivity (360 mW) and high capacity (16 A) types available.
- Highly stable magnetic circuit for latching endurance and excellent resistance to vibration and shock.
- Safety-oriented design assuring high surge resistance: 10,000 V min. between coil and contacts.
- UL, CSA approved, marked with CE.



## Ordering Information

To order: Select the part number and add the desired coil voltage rating (e.g., G2R-14-DC12).

### ■ Non-Latching

#### 1-Pole - PCB Types

Type	Contact material	Contact form	Construction	Model
General purpose	Ag alloy	SPDT	Semi-sealed	G2R-1
			Sealed	G2R-14
		SPST-NO	Semi-sealed	G2R-1A
			Sealed	G2R-1A4
High-capacity	Ag alloy	SPDT	Semi-sealed	G2R-1-E
			SPST-NO	G2R-1A-E
High-sensitivity	Ag alloy	SPDT	Sealed	G2R-1-H
			SPST-NO	G2R-1A-H
		SPST-NO	Semi-sealed	G2R-1A-H
			Sealed	G2R-1A4-H

#### 1-Pole - Quick-connect Types

Type	Contact material	Contact form	Terminal	Model
Upper-mount bracket	Ag alloy	SPDT	Quick connect	G2R-1-T
		SPST-NO		G2R-1A-T

#### 2-Pole - PCB Types

Type	Contact material	Contact form	Construction	Model
General purpose	Ag alloy	DPDT	Semi-sealed	G2R-2
			Sealed	G2R-24
		DPST-NO	Semi-sealed	G2R-2A
			Sealed	G2R-2A4
High sensitivity	Ag alloy	DPDT	Semi-sealed	G2R-2-H
			Sealed	G2R-24-H
		DPST-NO	Semi-sealed	G2R-2A-H
			Sealed	G2R-2A4-H

**Note:** 1. Bifurcated button available.  
2. For individual product agency approvals consult factory.

3. Class B coil insulation available.  
4. CE mark only on quick connect types.

## ■ Latching

Type	Contact form	Construction	Model
Dual coil latching	SPDT	Semi-sealed	G2RK-1
	SPST-NO		G2RK-1A
	DPDT		G2RK-2
	DPST-NO		G2RK-2A

## Specifications

### ■ Contact Data

Non-latching general purpose and upper-mount bracket.

Load	1-pole type		2-pole type	
	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)
Rated load	10 A at 250 VAC 10 A at 30 VDC	7.5 A at 250 VAC 5 A at 30 VDC	5 A at 250 VAC 5 A at 30 VDC	2 A at 250 VAC 3 A at 30 VDC
Contact material	Ag-Alloy			
Carry current	10 A		5 A	
Max. operating voltage	380 VAC, 125 VDC			
Max. operating current	10 A		5 A	
Max. switching capacity	2,500 VA, 300 W	1,875 VA, 150 W	1,250 VA, 150 W	500 VA, 90 W
Min permissible load	100 mA, 5 VDC		10 mA, 5 VDC	

Non-latching high capacity 1-pole type

Load	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)
Rated load	16 A at 250 VAC 16 A at 30 VDC	8 A at 250 VAC 8 A at 30 VDC
Contact material	Ag-Alloy	
Carry current	16 A	
Max. operating voltage	380 VAC, 125 VDC	
Max. operating current	16 A	
Max. switching capacity	4,000 VA, 480 W	2,000 VA, 240 W
Min. permissible load	100 mA, 5 VDC	

Non-latching high-sensitivity

Load	1-pole type		2-pole type	
	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)
Rated load	5 A at 250 VAC 5 A at 30 VDC	2 A at 250 VAC 3 A at 30 VDC	3 A at 250 VAC 3 A at 30 VDC	1 A at 250 VAC 1.50 A at 30 VDC
Contact material	Ag-Alloy			
Carry current	5 A		3 A	
Max. operating voltage	380 VAC, 125 VDC			
Max. operating current	5 A		3 A	
Max. switching capacity	1,250 VA, 150 W	500 VA, 90 W	750 VA, 90 W	250 VA, 45 W
Min permissible load	100 mA, 5 VDC		10 mA, 5 VDC	

Latching

Load	1-pole type		2-pole type	
	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)	Resistive load (p.f. = 1)	Inductive load (p.f. = 0.4) (L/R = 7 ms)
Rated load	5 A at 250 VAC 5 A at 30 VDC	3.50 A at 250 VAC 2.50 A at 30 VDC	3 A at 250 VAC 3 A at 30 VDC	1.50 A at 250 VAC 2 A at 30 VDC
Contact material	Ag-Alloy			
Carry current	5 A		3 A	
Max. operating voltage	380 VAC, 125 VDC			
Max. operating current	5 A		3 A	
Max. switching capacity	1,250 VA, 150 W	875 VA, 75 W	750 VA, 90 W	375 VA, 60 W
Min permissible load	100 mA, 5 VDC		10 mA, 5 VDC	

- Note: 1. P standard:  $\lambda_{50} = 0.10 \times 10^{-6}$  operation.  
 2. For individual product agency approvals consult factory.

■ Coil Data

Non-latching DC coil

Rated voltage (VDC)	Rated current (mA)	Coil resistance ( $\Omega$ )	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON				
3	176	17	0.07	0.14	70% max.	15% min.	110% max. at 70°C (158°F)	Approx. 530
5	106	47	0.20	0.39				
6	88.20	68	0.28	0.55				
12	43.60	275	1.15	2.29				
24	21.80	1,100	4.27	8.55				
48	11.50	4,170	13.86	22.71				
100	5.30	18,860	67.20	93.20				
110	4.80	22,900	81.50	110.60				

Non-latching AC coil

Rated voltage (VAC)	Rated current (mA)	Coil resistance ( $\Omega$ )	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (VA)
			Armature OFF	Armature ON				
6	150	16	0.05	0.10	80% max.	30% min.	110% max. at 70°C (158°F)	Approx. 0.9
12	75	65	0.19	0.39				
24	37.50	260	0.81	1.55				
50	18	1,130	3.25	6.73				
110	10.60	4,600	13.34	26.84				
120	7.50	6,500	21	42				
220	5.30	22,000	51.30	102				
240	3.80	30,000	65.50	131				

Non-latching high-sensitivity DC coil

Rated voltage (VDC)	Rated current (mA)	Coil resistance ( $\Omega$ )	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON				
3	120	25	0.13	0.26	70% max.	15% min.	110% max. at 70°C (158°F)	Approx. 360
5	71.40	70	0.37	0.75				
6	60	100	0.63	1.07				
12	30	400	2.14	4.27				
24	15	1,600	7.80	15.60				
48	7.50	6,400	31.20	62.40				

**Latching dual coil type - Set coil**

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON				
3	227	10.80	0.026	0.052	70% max.	70% max.	110% max. at 70° C (158° F)	Approx. 850
5	167	30	0.073	0.146				
6	138	43.50	0.104	0.208				
12	70.60	170	0.42	0.83				
24	34.60	694	1.74	3.43				

**Latching dual coil type - Reset coil**

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption (mW)
			Armature OFF	Armature ON				
3	200	15	0.001	0.002	70% max.	70% max.	110% max. at 70° C (158° F)	Approx. 600
5	119	42	0.003	0.006				
6	100	60	0.005	0.009				
12	50	240	0.018	0.036				
24	25	960	0.079	0.148				

**Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with a tolerance of ±10%.  
 2. The operating characteristics are measured at a coil temperature of 23°C (73°F).

**■ Characteristics**

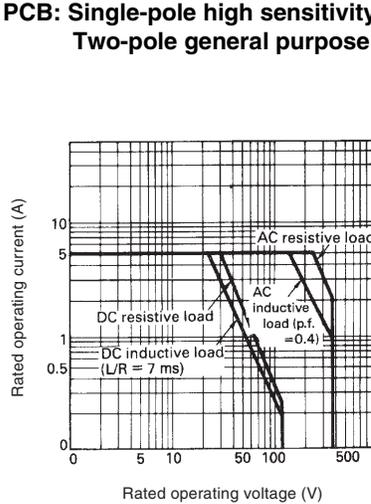
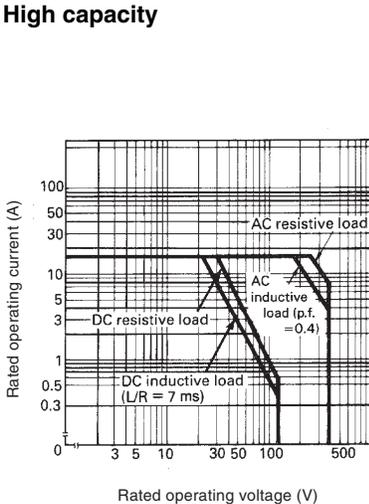
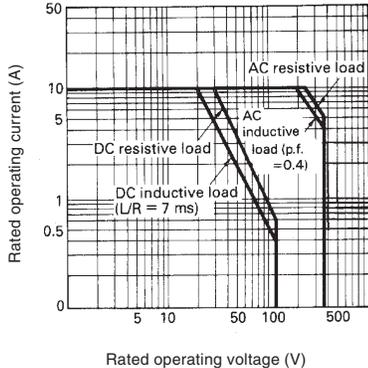
Item		Non-latching	Latching
Contact resistance		100 mΩ	
Operate (set) time		15 ms. max.	20 ms max.
Release (reset) time		AC: 10 ms max.; DC: 5 ms max.	20 ms max.
Bounce time	Operate	---	Mean value approx. 3 ms
	Release	---	Mean value approx. 8 ms
Operating frequency	Mechanical	18,000 operations/hour	
	Electrical	1,800 operations/hour (under rated load)	
Insulation resistance		1,000 MΩ min. (at 500 VDC)	
Dielectric strength		5,000 VAC, 50/60 Hz for 1 minute between coil and contacts	
		1,000 VAC, 50/60 Hz for 1 minute across contacts of same pole	
		3,000 VAC, 50/60 Hz for 1 minute between contact sets, 2-pole non-latching	
		1,000 VAC, 50/60 Hz for 1 minute between set and reset coils of dual coil latching	
Vibration	Mechanical durability	10 to 55 Hz; 1.50 mm (0.06) double amplitude	
	Malfunction durability	10 to 55 Hz; 1.50 mm (0.06) double amplitude	
Shock	Mechanical durability	1,000 m/s <sup>2</sup> (approx. 100G)	
	Malfunction durability	200 m/s <sup>2</sup> (approx. 20 G) when energized 100 m/s <sup>2</sup> (approx. 10 G) when de-energized	500 m/s <sup>2</sup> (approx. 50 G) at set 100 m/s <sup>2</sup> (approx. 10 G) at reset
Ambient temperature		-40 to 70° C (-40 to 158° F)	
Humidity		35% to 85% RH	
Service life	Mechanical	AC: 10,000,000 operations min. DC: 20,000,000 operations min. (at 18,000 operations/hour)	10,000,000 operations min. (at 18,000 operations/hour)
	Electrical	See "Characteristics Data"	
Weight		Approx. 17 g (0.60 oz.)	Approx. 17 g (0.60 oz.)

**Note:** Data shown are of initial value.

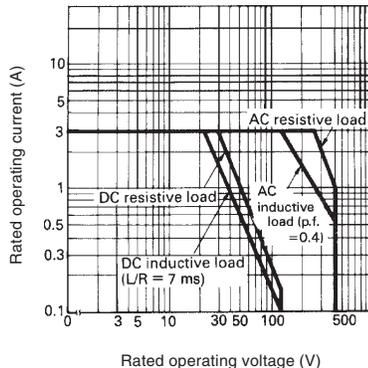
# Characteristic Data

## Maximum Switching Capacity - Non-latching Types

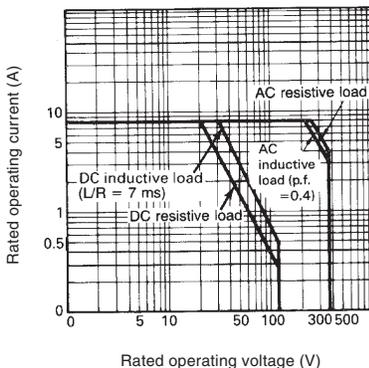
PCB: Single-pole general purpose  
Semi-sealed  
Quick-connect: Single-pole single button



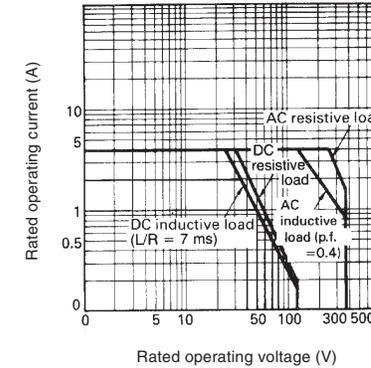
PCB: Two-pole high sensitivity



PCB: Single-pole general purpose Sealed



PCB: Two-pole general purpose Sealed

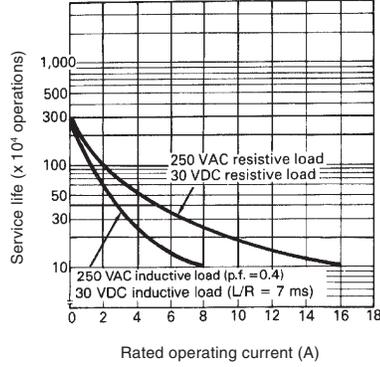
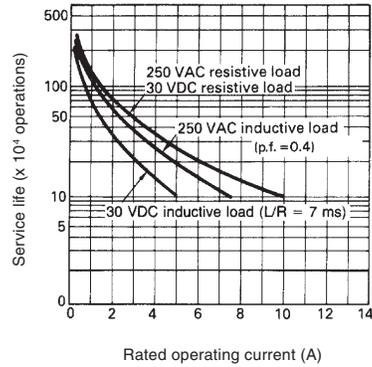


## Electrical Service Life - Non-latching Types

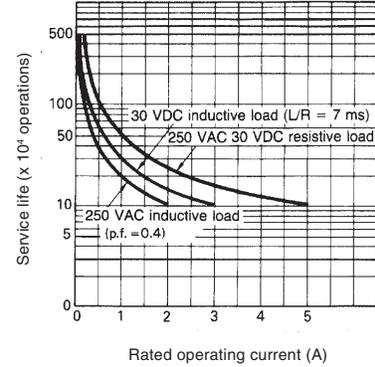
**PCB: Single-pole general purpose  
Semi-sealed**

**High capacity**

**Quick-connect: Single-pole single  
button**



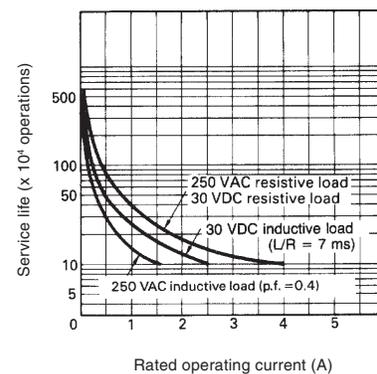
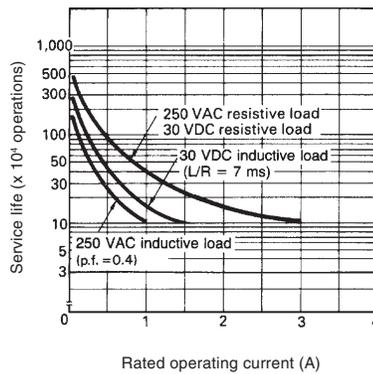
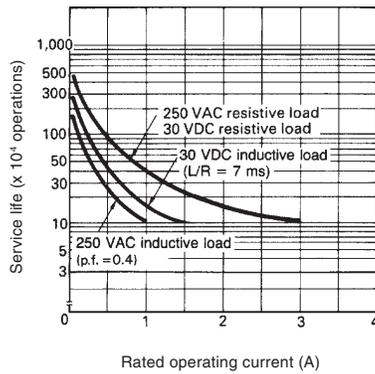
**PCB: Single-pole high sensitivity  
Two-pole general purpose**



**PCB: Two-pole high sensitivity**

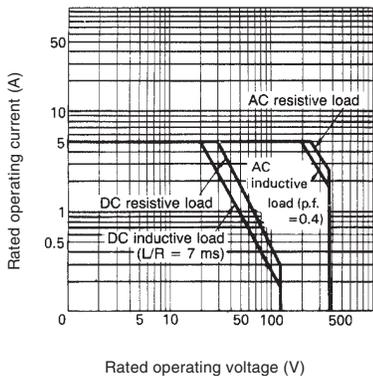
**PCB: Single-pole general purpose  
Sealed**

**PCB: Two-pole general purpose  
Sealed**

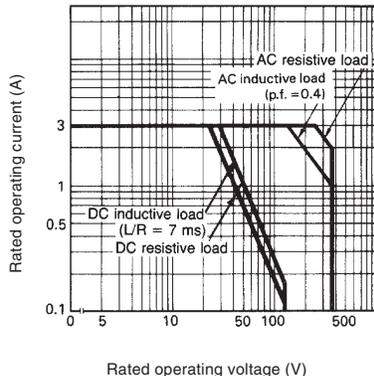


# Maximum Switching Capacity - Latching Types

One pole

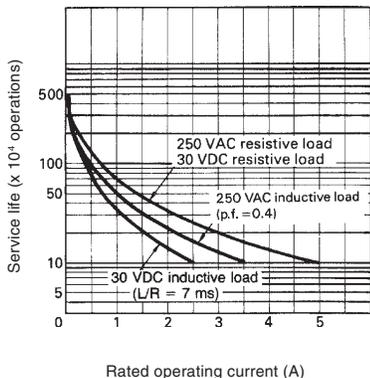


Two-pole

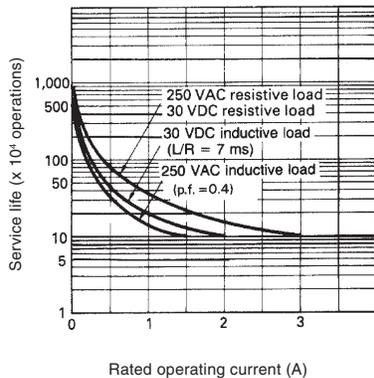


# Electrical Service Life - Latching Types

One pole



Two-pole

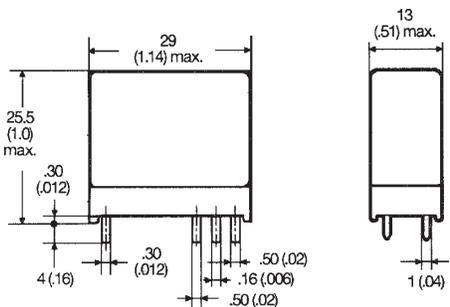


# Dimensions

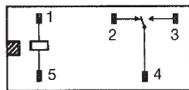
Unit: mm (inch)

## ■ Non-latching

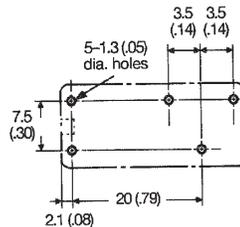
PCB Terminal: SPDT, general purpose & high sensitivity



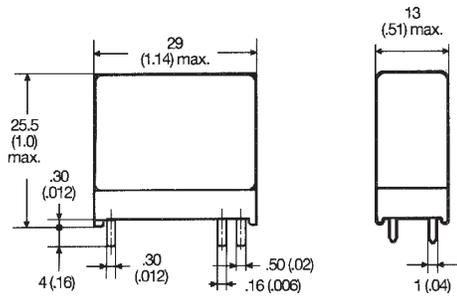
Terminal arrangement/  
Internal connections  
(Bottom view)



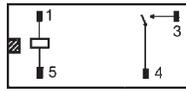
Mounting holes  
(Bottom view)



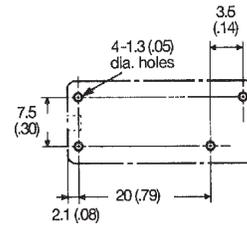
**PCB Terminal: SPST-NO, general purpose & high sensitivity**



**Terminal arrangement/  
Internal connections**  
(Bottom view)

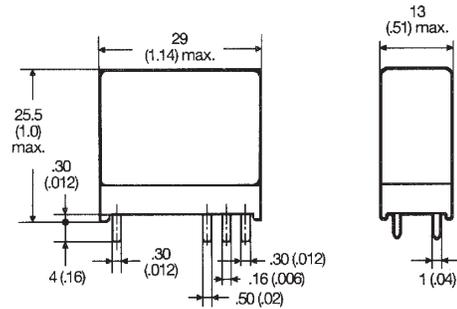


**Mounting holes**  
(Bottom view)

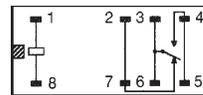


- Note:** 1. and indicate mounting orientation marks.  
2. A tolerance of  $\pm 0.10$  (0.004) applies to the above dimensions.

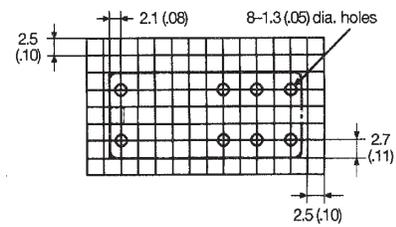
**PCB Terminal: SPDT, high capacity**



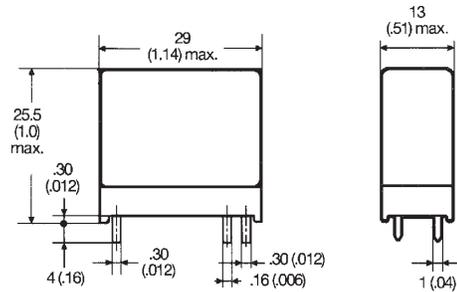
**Terminal arrangement/  
Internal connections**  
(Bottom view)



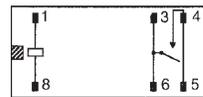
**Mounting holes**  
(Bottom view)



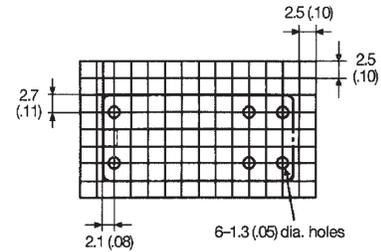
**PCB Terminal: SPST-NO, high capacity**



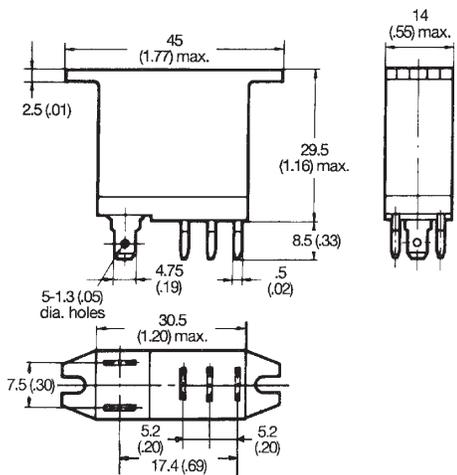
**Terminal arrangement/  
Internal connections**  
(Bottom view)



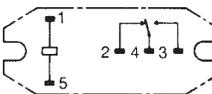
**Mounting holes**  
(Bottom view)



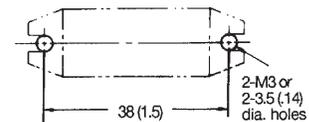
**Quick-connect: SPDT**



**Terminal arrangement/  
Internal connections**  
(Bottom view)

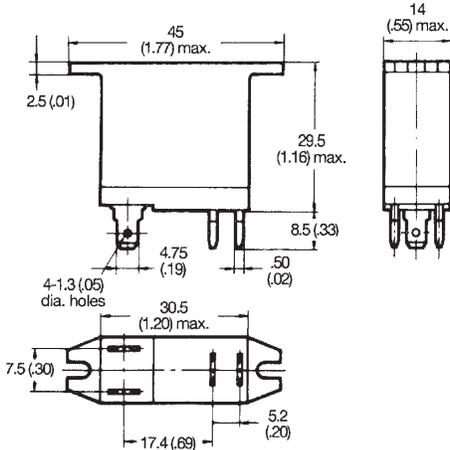


**Mounting holes**  
(Bottom view)

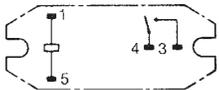


- Note:** 1. and indicate mounting orientation marks.  
2. A tolerance of  $\pm 0.10$  (0.004) applies to the above dimensions.

**Quick-connect: SPST-NO**



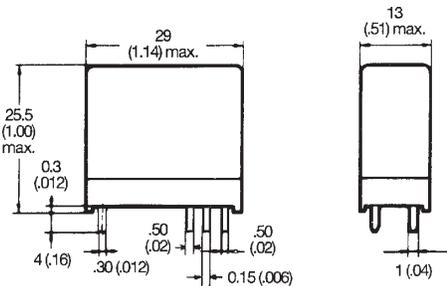
**Terminal arrangement/  
Internal connections**  
(Bottom view)



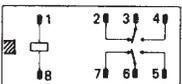
**Mounting holes**  
(Bottom view)



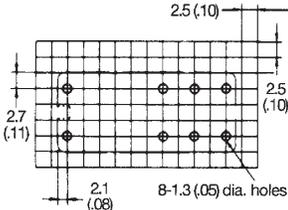
**PCB Terminal: DPDT, general purpose & high sensitivity**



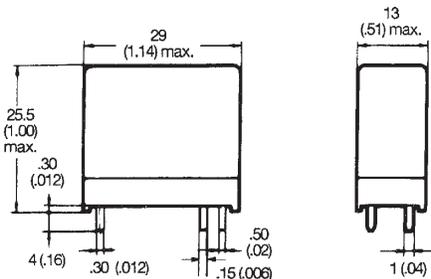
**Terminal arrangement/  
Internal connections**  
(Bottom view)



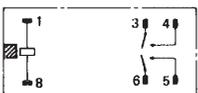
**Mounting holes**  
(Bottom view)



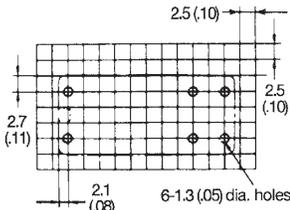
**PCB Terminal: DPST-NO, general purpose & high sensitivity**



**Terminal arrangement/  
Internal connections**  
(Bottom view)



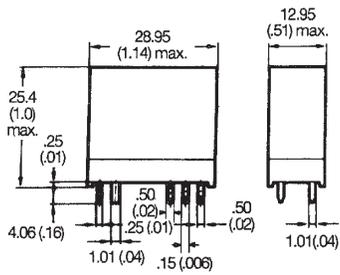
**Mounting holes**  
(Bottom view)



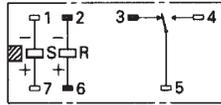
- Note:** 1.  and  indicate mounting orientation marks.  
2. A tolerance of  $\pm 0.10$  (0.004) applies to the above dimensions.

# Latching

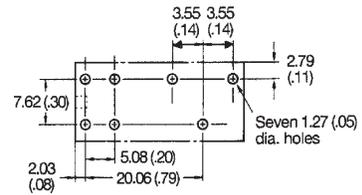
## SPDT, Dual coil latching G2RK-1



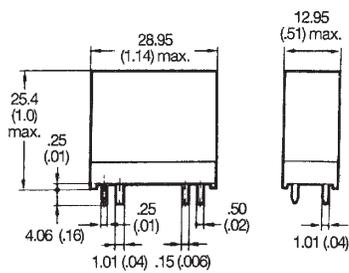
Dual coil



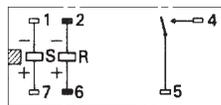
Dual coil



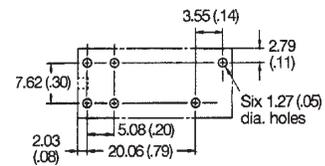
## SPST-NO, Dual coil latching G2RK-1A



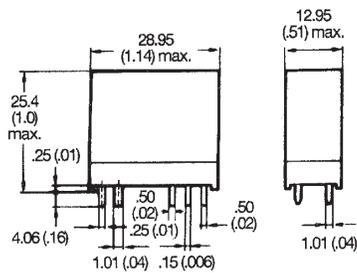
Dual coil



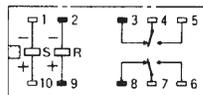
Dual coil



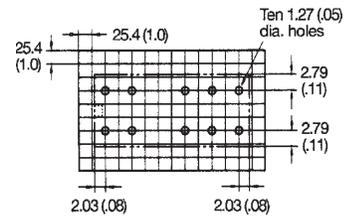
## DPDT, Dual coil latching G2RK-2



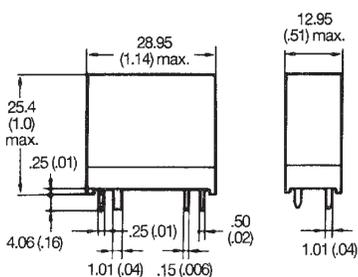
Dual coil



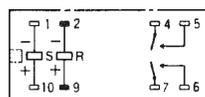
Dual coil



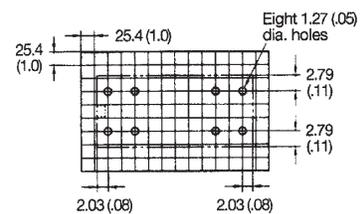
## DPST-NO, Dual coil latching G2RK-2A



Dual coil



Dual coil



- Note:** 1.   indicate mounting orientation marks.  
2. A tolerance of  $\pm 0.10$  (0.004) applies to the above dimensions.

## ■ Approvals

UL (File No. E41643)/ CSA (File No. 31928)

Type	Contact form	Coil rating	Contact ratings
G2R-1 G2R-14 G2R-1-H G2R-14-H G2R-1-T	SPDT	3 to 110 VDC 3 to 240 VDC	10 A, 30 VDC (Resistive) 10 A, 250 VAC (General purpose) 10 A, 277 VAC (General purpose) TV-3, 120 VAC (NO contact) 360 WT, 120 VAC (Tungsten)
G2R-1A G2R-1A4 G2R-1A-H G2R-1A4-H G2R-1A-T	SPST-NO		1/3 HP, 125 VAC (NO contact) 1/2 HP, 250 VAC (NO contact) 1/2 HP, 277 VAC (NO contact) TV-8, 120 VAC (NO contact, ASI contacts) B300 (Pilot duty)
G2R-1-E	SPDT	3 to 110 VDC 3 to 240 VAC	20 A, 277 VAC (General purpose) 16 A, 30 VDC (Resistive) 16 A, 250 VAC (General purpose) 360 WT, 120 VAC (Tungsten)
G2R-1A-E	SPST-NO		TV-3, 120 VAC (NO contact) 1/2 HP, 240 VAC 1 HP, 240 VAC TV-8, 120 VAC (No contact, ASI contacts)
G2R-2 G2R-24 G2R-2-H G2R-24-H G2R-2-A G2R-2A4 G2R-2A-H G2R-2A4-H	DPDT	3 to 110 VDC 3 to 240 VAC	10 A, 30 VDC (Resistive) 10 A, 277 VAC (General purpose) 5 A, 250 VAC (General purpose) TV-3, 120 VAC (NO contact) 1/6 HP, 120 VAC 1/3 HP, 240 VAC 1/3 HP, 265 VAC 250 VA, 120 VAC (Pilot duty) B300 (Pilot duty)
G2RK-1	SPDT	3 to 24 VDC	10 A, 30 VDC (Resistive)
G2RK-1A	SPST-NO		10 A, 250 VAC (General purpose) TV-3 (NO contact) 1/6 HP, 120 VAC 1/2 HP, 120 VAC A300 (Pilot duty)
G2RK-2	DPDT	3 to 24 VDC	5 A, 30 VDC (Resistive)
G2RK-2A	DPST-NO		5 A, 250 VAC (General purpose) TV-3 (NO contact) 1/6 HP, 120 VAC 1/3 HP, 240 VAC

**Note:** 1. The rated values approved by each of the safety standards (e.g., UL and CSA) may be different from the performance characteristics individually defined in this catalog.

2. In the interest of product improvement, specifications are subject to change.

# Omron Electronic Components, LLC

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### I. GENERAL

- Definitions:** The words used herein are defined as follows.
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  - Seller:** Omron Electronic Components LLC and its subsidiaries
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- Severability:** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision.

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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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