Power PCB Relay

- Creepage distance of 8.0 mm min. between coil and con-
- 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
- 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 recognized / CSA certified. RoHS Complaint

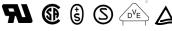












Ordering Information

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

■ Non-Latching

1-Pole - PCB Types

Туре	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		SPDT	Semi-sealed	G2R-1-E
		SPST-NO		G2R-1A-E
High-sensitivity		SPDT		G2R-1-H
			Sealed	G2R-14-H
		SPST-NO	Semi-sealed	G2R-1A-H
			Sealed	G2R-1A4-H

1-Pole - Quick-connect Types

Туре	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

Туре	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		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.

■ Latching

Туре	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 (semi-sealed) and upper-mount bracket.

Load	1-p	ole 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 (8A at 250VAC/30VDC)	7.5 A at 250 VAC 5 A at 30 VDC (6A at 250VAC, 4A at 30VDC)			
Contact material	Ag-Alloy				
Carry current	10 A (8A)		5 A (4A)		
Max. operating voltage	380 VAC, 125 VDC				
Max. operating current	10 A (8A)		5 A (4A)		
Max. switching capacity	. switching capacity 2,500 VA, 300 W 1,875 VA, 15 (2,000 VA, 240W) 1,500 VA, 1		1,250 VA, 150 W (1,000 VA, 120 W)	500 VA, 90 W (375 VA, 75 W)	
Min permissible load	100 mA, 5 VDC		10 mA, 5 VDC		

Note: Values in parenthesis are for sealed models.

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-po	le 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		

Note: 1. P standard: $\lambda_{50} = 0.10 \text{ x } 10^{-6}$ operation, for all models

2. For individual product agency approvals consult factory.

Latching

Load	1-po	le 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: $\lambda_{50} = 0.10 \text{ x } 10^{-6}$ operation for all models

2. For individual product agency approvals consult factory.

■ Coil Data

Non-latching DC coil

Rated voltage (VDC)	Rated current (mA)	Coil resistance	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption
		(Ω)	Armature OFF	Armature ON	%	of rated volta	(mW)	
3	176	17	0.07	0.14	70% max.	15% min.	110% max.	Approx. 530
5	106	47	0.20	0.39			at 70°C	
6	88.20	68	0.28	0.55			(158°F)	
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)(at 60Hz)	resistance	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption
		(Ω)	Armature OFF	Armature ON	%	ge	(VA)	
6	150	16	0.05	0.10	80% max.	30% min.	110% max.	Approx. 0.9
12	75	65	0.19	0.39			at 70°C	
24	37.50	260	0.81	1.55			(158°F)	
50	18	1,130	3.25	6.73				
100/(110)	9/(10.60)	4,600	13.34	26.84				
120	7.50	6,500	21	42				
200/(220)	4.5/(5.3)	20,200	51.3	102	1			
220	4.1	25,000	57.5	117	1			
240	3.80	30,000	65.50	131	1			

Non-latching high-sensitivity DC coil

Rated voltage (VDC)	Rated current (mA)	Coil resistance	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption
		(Ω)	Armature OFF	Armature ON	% of rated voltage			(mW)
3	120	25	0.13	0.26	70% max.	15% min.	110% max.	Approx. 360
5	71.40	70	0.37	0.75]		at 70°C	
6	60	100	0.53	1.07]		(158°F)	
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	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption
		(Ω)	Armature OFF	Armature ON	% of rated voltage			(mW)
3	227	10.80	0.026	0.052	70% max.	70% max.	110% max.	Approx. 850
5	167	30	0.073	0.146			at 70°C (158°F)	
6	138	43.50	0.104	0.208				
12	70.60	170	0.42	0.83	1			
24	34.60	694	1.74	3.43				

Latching dual coil type - Reset coil

Rated voltage (VDC)	Rated current (mA)	Coil resistance	Coil inductance (ref. value) (H)		Pick-up voltage	Dropout voltage	Maximum voltage	Power consumption
		(Ω)	Armature OFF	Armature ON	% of rated voltage		(mW)	
3	200	15	0.001	0.002	70% max.	70% max.	110% max.	Approx. 600
5	119	42	0.003	0.006			at 70°C	
6	100	60	0.005	0.009			(158°F)	
12	50	240	0.018	0.036		ļ		
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 $\pm 10\%$.

■ 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 ² (approx. 100G)			
	Malfunction durability	200 m/s ² (approx. 20 G) when energized	500 m/s ² (approx. 50 G) at set (1-pole)		
		100 m/s ² (approx. 10 G) when de-energized	200 m/s ² (approx 20G) at set (2-pole) 100 m/s ² (approx. 10 G) at reset		
Ambient temperature		-40 to 70°C (-40 to 158°F)			
Humidity		5% to 85% RH			
Service life	Mechanical	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	100,000 operations min. (at 1,800 operations	hr) at rated load. See "Characteristics Data"		
Weight		Approx. 17 g (0.60 oz.) Approx. 17 g. (Approx 20g for quick-connect ty			

Note: Data shown are of initial value.

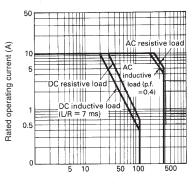
^{2.} The operating characteristics are measured at a coil temperature of 23°C (73°F).

■ Characteristic Data

Maximum Switching Capacity - Non-latching Types

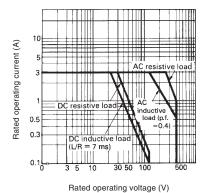
PCB: Single-pole general purpose Semi-sealed

Quick-connect: Single-pole single button

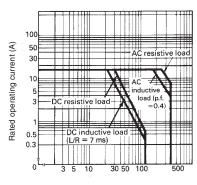


Rated operating voltage (V)

PCB: Two-pole high sensitivity

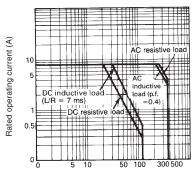


High capacity



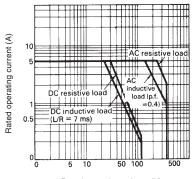
Rated operating voltage (V)

PCB: Single-pole general purpose Sealed



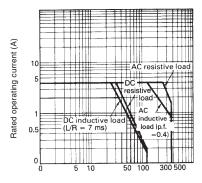
Rated operating voltage (V)

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



Rated operating voltage (V)

PCB: Two-pole general purpose Sealed



Rated operating voltage (V)

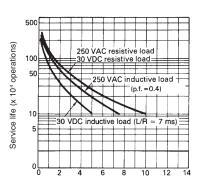
Electrical Service Life - Non-latching Types

PCB: Single-pole general purpose

Semi-sealed

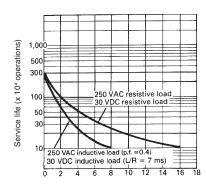
Quick-connect: Single-pole single button

High capacity



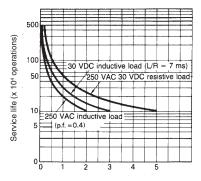
Rated operating current (A)

PCB: Two-pole high sensitivity



Rated operating current (A)

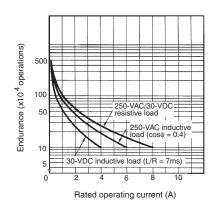
PCB: Single-pole general purpose Sealed



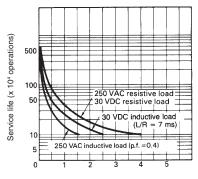
PCB: Single-pole high sensitivity

Two-pole general purpose

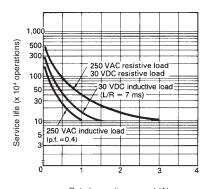
Rated operating current (A)



PCB: Two-pole general purpose Sealed



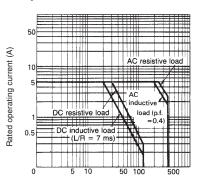
Rated operating current (A)



Rated operating current (A)

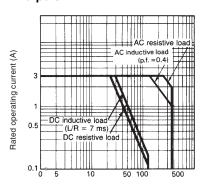
Maximum Switching Capacity - Latching Types

One pole



Rated operating voltage (V)

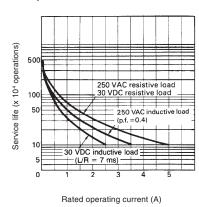
Two-pole



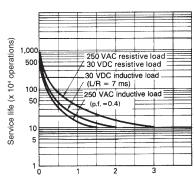
Rated operating voltage (V)

Electrical Service Life - Latching Types

One pole



Two-pole



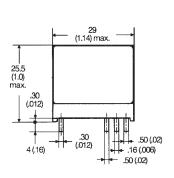
Rated operating current (A)

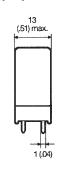
Dimensions

Unit: mm (inch)

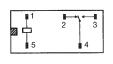
■ Non-latching

PCB Terminal: SPDT, general purpose & high sensitivity

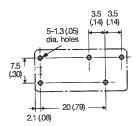




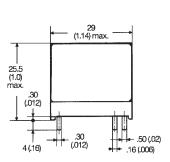
Terminal arrangement/ Internal connections (Bottom view)

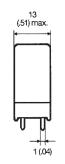


Mounting holes (Bottom view)

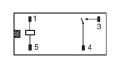


PCB Terminal: SPST-NO, general purpose & high sensitivity



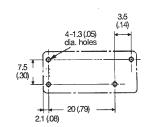


Terminal arrangement/ Internal connections (Bottom view)



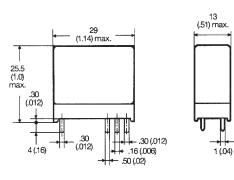
Mounting holes

(Bottom view)

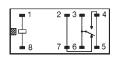


- **Note: 1.** Indicate mounting orientation marks.
 - **2.** A tolerance of ± 0.10 (0.004) applies to the above dimensions.

PCB Terminal: SPDT, high capacity

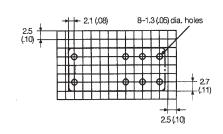


Terminal arrangement/ Internal connections (Bottom view)

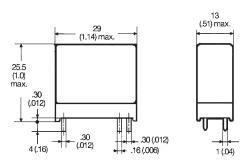


Mounting holes

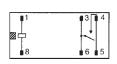
(Bottom view)



PCB Terminal: SPST-NO, high capacity

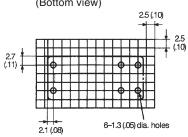


Terminal arrangement/ Internal connections (Bottom view)

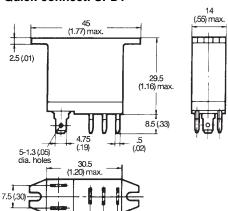


Mounting holes

(Bottom view)

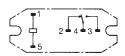


Quick-connect: SPDT



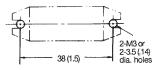
17.4 (.69)

Terminal arrangement/ Internal connections (Bottom view)



Mounting holes

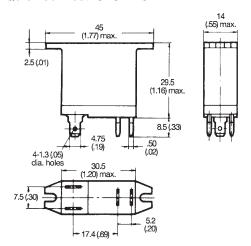
(Bottom view)



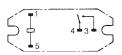
- **Note: 1.** and $\begin{bmatrix} \ \ \ \end{bmatrix}$ indicate mounting orientation marks.
 - **2.** A tolerance of ± 0.10 (0.004) applies to the above dimensions.

2-3.5 (.14) dia. holes

Quick-connect: SPST-NO



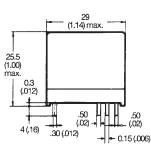
Terminal arrangement/ Internal connections (Bottom view)

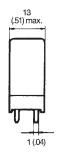


Mounting holes (Bottom view)

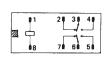
38 (1.5)

PCB Terminal: DPDT, general purpose & high sensitivity



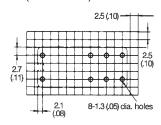


Terminal arrangement/ Internal connections (Bottom view)

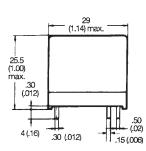


Mounting holes

(Bottom view)



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

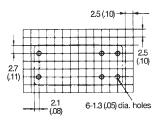




Terminal arrangement/ Internal connections (Bottom view)



Mounting holes (Bottom view)



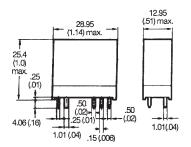
Note: 1. Indicate mounting orientation marks.

2. A tolerance of ± 0.10 (0.004) applies to the above dimensions.

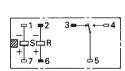


■ Latching

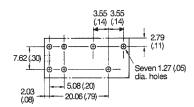
SPDT, Dual coil latching G2RK-1



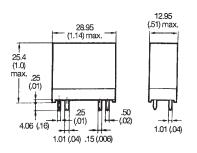
Dual coil



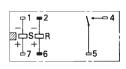
Dual coil



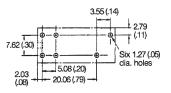
SPST-NO, Dual coil latching G2RK-1A



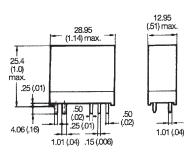
Dual coil



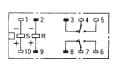
Dual coil



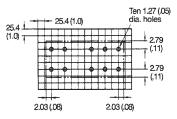
DPDT, Dual coil latching G2RK-2



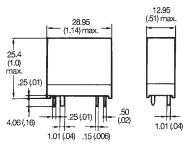
Dual coil



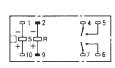
Dual coil



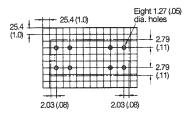
DPST-NO, Dual coil latching G2RK-2A



Dual coil



Dual coil



- Note: 1. ______ and ______ indicate mounting orientation marks.
 - 2. A tolerance of ± 0.10 (0.004) applies to the above dimensions.

■ Approvals

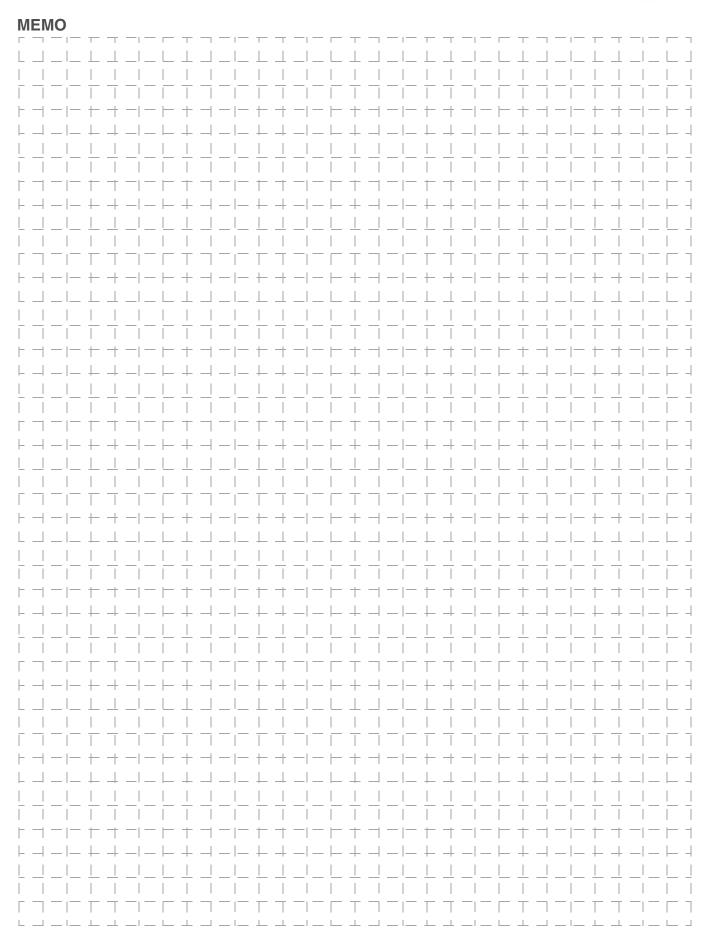
UL Recognized (File No. E41643) / CSA Certified (File No. 31928)

Туре	Coil rating	Contact ratings	Number of test operations	
G2R-1(A)	3 to 110 VDC	10A, 30 VDC (Resistive), 40°C	100 x 10 ³	
G2R-1(A)4 G2R-1(A)-H	3 to 240VAC	10A , 250 VAC (General purpose), 40°C	7	
MZII-I(A)-II		10A , 277 VAC (General purpose), 40°C	6 x 10 ³	
		TV-3 , 120 VAC (N.O. contact) , 40°C	7	
		600WT, 120VAC (Tungsten), 40°C	25 x 10 ³	
		1/3 HP , 125 VAC (N.O. contact), 70°C	30 x 10 ³	
		1/2 HP , 277 VAC , 40°C	6 x 10 ³	
		TV-8 , 120 VAC (N.O. contact , ASI contacts), 40°C	25 x 10 ³	
		B300 (Poilot duty), 60°C	30 x 10 ³	
G2R-1(A)-E	3 to 110 VDC 3 to 240VAC	16A , 30 VDC (Resistive), 40°C	6 x 10 ³	
		16A , 250 VAC (General purpose), 40°C	30 x 10 ³	
		360 WT , 120 VAC (Tungsten), 40°C	25 x 10 ³	
		TV-3 , 120 VAC , 40°C	7	
		1HP , 240 VAC, 40°C	6 x 10 ³	
		TV-8 , 120 VAC (N.O. contact), 40°C	25 x 10 ³	
G2R-2(A)	3 to 110 VDC	10A , 30 VDC (Resistive), 40°C	50 x 10 ³	
G2R-2(A)4 G2R-2(A)-H	3 to 240VAC	10A , 277 VAC (General purpose), 40°C	20 x 10 ³	
G211 2(71) 11		5A , 250 VAC (General purpose), 70°C	100 x 10 ³	
		TV-3 , 120 VAC (N.O. contact), 40°C	25 x 10 ³	
		1/6 HP , 120 VAC, 40°C	6 x 10 ³	
		1/3 HP , 265 VAC, 40°C	30 x 10 ³	
		250 VA , 120 VAC (Pilot duty), 70°C		
		B300 (Poilot duty), 40°C	6 x 10 ³	
G2RK-1(A)	3 to 24 VDC	10A , 30 VDC (Resistive), 40°C	6 x 10 ³	
		10A , 250 VAC (General use), 40°C		
		TV-3 (N.O. contact), 40°C	25 x 10 ³	
		1/2 HP , 250 VAC, 40°C	6 x 10 ³	
		A300 (Pilot duty), 40°C		
G2RK-2(A)	3 to 24 VDC	5A , 30 VDC (Resistive), 40°C	6 x 10 ³	
		5A , 250 VAC (General use), 40°C		
		TV-3 (N.O. contact), 40°C	25 x 10 ³	
		1/6 HP , 120 VAC, 40°C	6 x 10 ³	
		1/3 HP , 240 VAC, 40°C		
		B300 (Pilot duty), 40°C		

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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