PCB Relay G2RL

High Capacity, Low Profile Relay

- Designed for cooking and HVAC controls: blower motor, damper, active air purification, duct flow boost fans, etc.
- 10 kV impulse surge withstand.
- Available in traditional full PCB mounting or with PCB coil driving terminals with quick connect (5 or 7.5 mm) contact load terminals.
- Provides high circuit insulation, with minimum 10 mm both creepages and clearances (8 mm for -1APT type).
- Meets EC required tracking resistance of CTI > 250.
- Class-F coil insulation standard. For high temperature appliance and HVAC applications, the -1APT type is related to 16A @ 250 VAC @105°C for 100K operations.
- Low 400 mW coil power consumption.
- UL, CSA and VDE approved.









Ordering Information _____

Classification		Enclosure ratings	Contact form			
			SPST-NO	SPDT	DPST-NO	DPDT
			Model			
Class-F	General-purpose	Flux protection	G2RL-1A	G2RL-1	G2RL-2A	G2RL-2
		Fully sealed	G2RL-1A4	G2RL-14	G2RL-2A4	G2RL-24
	High-capacity (-E)	Flux protection	G2RL-1A-E	G2RL-1-E		
		Fully sealed	G2RL-1A4-E	G2RL-14-E		
QC contact	QC contact terminal F		G2RL-1APT-E			

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

■ MODEL NUMBER LEGEND



1. Number of Poles

1: 1 pole 2: 2 poles

2. Contact Form

None: □PDT A: □PST-NO

3. Enclosure Ratings

None: Flux protection (vented)

TP: Flux protection with quick-connect contact/load terminals (fully sealed in development)

4: Fully sealed (with "knock off vent nib")

4. Classification

None: General purpose (not in -1APT type)

E: High capacity (1 pole)

5. Approved Standards

None: UL, CSA, VDE, UL Class F Insulation

Specifications _____

■ COIL RATINGS

Rated voltage		5 VDC	12 VDC	24 VDC	48 VDC
Rated current		80.0 mA	33.33 mA	16.7 mA	8.96 mA
Coil resistance		62.5 Ω	360 Ω	1,440 Ω	5,358 Ω
Coil inductance (H) (ref. value)	Armature OFF	0.18	1.01	4.19	15.91
	Armature ON	0.44	2.47	9.72	33.65
Must operate voltage		70% max. of the rated voltage			
Must release voltage		10% min. of the rated voltage			
Max. voltage		130% of the rated voltage (at 85°C;105°C for -1APT type)			
Power consumption		Approx. 400 mW		Approx. 430 mW	

■ 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	8 A at 250 VAC 8 A at 30 VDC
Rated carry current	12 A (16 A)	8 A (70°C)/5 A (85°C)
Max. operating voltage	440 VAC, 300 VDC	
Max. operating current	12 A (16 A)	8 A
Max. switching power	3,000 VA (4,000 VA), 288 W (384 W)	2,000 VA, 240 W
Minimum load	40 mA @ 24 VDC (vented)	20 mA @ 24 VDC (sealed)

Note: Values in parentheses are those for the high-capacity and quick connect models.

■ CHARACTERISTICS

Item	1 pole	2 poles	
Contact resistance	100 mΩ max.		
Operate (set) time	Approx. 7 ms		
Release (reset) time	Approx. 2 ms		
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 Hz, 1.5-mm double amplitude Malfunction: 10 to 55 Hz, 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		
Life expectancy (Mechanical)	20,000,000 operations (at 18,000 operations/hr)		
Ambient temperature	Operating: -40°C to 85°C (with no icing) (G2RL-1APT 105°C max) Storage: -40°C to 85°C (with no icing)		
Ambient humidity	35% to 85%		
Weight	Approx. 12 g		
Packaging	Standard: 20 relays/stick -1APT: 40 relays/tray		

■ APPROVED STANDARDS

UL508 (File No. E41643)/CSA C22.2 (No.14) (File No. LR31928)

Part number	Contact form	Coil ratings	Contact ratings
G2RL-1A G2RL-1	SPST-NO SPDT	3 to 48 VDC	12 A at 250 VAC (General use), 100k ops. 12 A at 24 VDC (Resistive), 50k ops. 1/3 hp, 120 VAC, 30k ops., 60°C
G2RL-1A-E	SPST-NO (High capacity)		16 A at 250 VAC (General use), 100k ops. 16 A at 24 VDC (Resistive), 50k ops. 20 A at 240 VAC (General use), 85°C 15 A at 240 VAC (General use), 105°C 1/2 hp, 120 VAC, 100k ops., 70°C (NO)
G2RL-1ATP-E	SPST-NO (QC contact terminals)	DC12, DC24	16 A at 250 VAC (Resistive), 100k ops. 105°C
G2RL-1-E	SPDT (High capacity)	3 to 48 VDC	16 A at 250 VAC (General use), 100k ops. 16 A at 24 VDC (Resistive), 50k ops. 20 A at 240 VAC (General use), 85°C 15 A at 240 VAC (General use), 105°C 1/2 hp, 120 VAC, 100k ops., 70°C (NO)
G2RL-2A	DPST-NO		8 A at 277 VAC (General use), 100k ops.
G2RL-2	DPDT		8 A at 30 VDC (Resistive), 100k ops.

VDE (VDE0435)

Part number	Contact form	Coil ratings	Contact ratings
G2RL	1 pole	5, 12, 18, 22, 24, 48 VDC	12 A at 250 VAC (cos 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

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

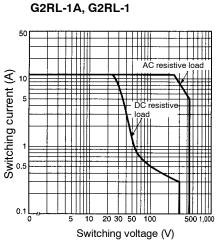
Electrical Life Data ——

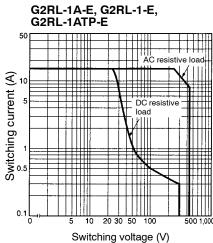
Part number	Contact rating	Minimum operations
G2RL-1-E	16 A at 250 VAC (cosφ=1)	100,000 operations min. (1 sec. ON / 9 sec. OFF)
	16 A at 24 VDC	30,000 operations min.
	8 A at 250 VAC (cosφ=0.4)	200,000 operations min. (N.O. side operation)
	8 A at 30 VDC (L/R=7 ms)	10,000 operations min.
G2RL-1	12 A at 250 VAC (cosφ=1)	100,000 operations min. (1 sec. ON / 9 sec. OFF)
	12 A at 24 VDC	30,000 operations min.
	5 A at 250 VAC (cosφ=0.4)	150,000 operations min.
	5 A at 30 VDC (L/R=7 ms)	20,000 operations min.
G2RL-2	8 A at 250 VAC (cosφ=1)	100,000 operations min. (1 sec. ON / 9 sec. OFF)
	8 A at 30 VDC	30,000 operations min.
G2RL-1A-E	Pilot duty (A300), 250 VAC	250,000 operations min. (1 sec. ON / 9 sec OFF)
	Pilot duty (A300), 125 VAC	150,000 operations min. (1 sec. ON / 9 sec OFF)
G2RL-1ATP-E	16A at 250 VAC	100,000 operations min.

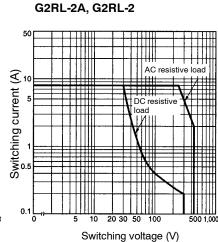
- Note: 1. The results shown reflect minimum cycles using a very severe duty cycle of 1 sec ON/1 sec OFF (unless otherwise specified
 - 2. In order to obtain the full rated life cycles on the fully sealed models, the relay should be properly vented by removing the "knock off vent nib" on top of the relay case after the soldering / washing process of the P.C.B. Contact Omron for applications where venting of the sealed relay is not possible.

Engineering Data

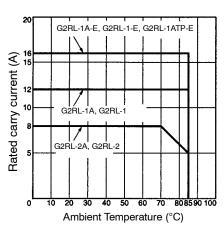
■ MAXIMUM SWITCHING CAPACITY



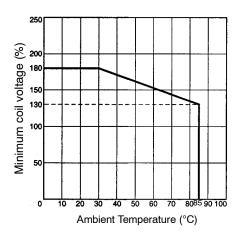




■ AMBIENT TEMPERATURE VS RATED CARRY CURRENT



■ AMBIENT TEMPERATURE VS MAXIMUM COIL VOLTAGE



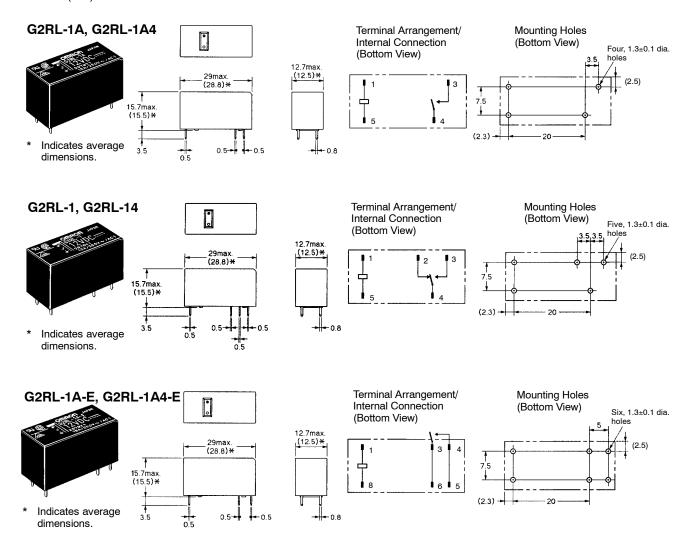
Note: The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

Connections.

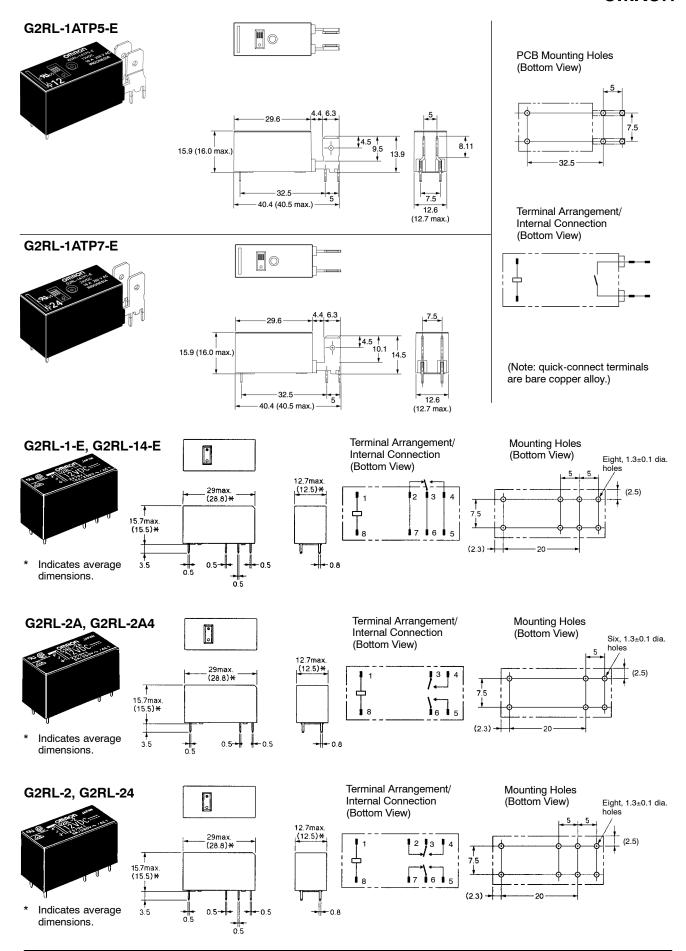
Company	Description	Model Number
JST	TP5 Housing	RSFP-3V
	TP5 Contact	SRSF-61T-250A
	TP7 Housing	PS-250-A
	TP7 Contact	SPS-61T-250
AMP	TP5 Connector	928344-2
	TP7 Positive Locking Housing	178833
	TP7 Contact for 178833	170327, 8, 9
Molex	TP5 RAST5 Female Connector	90835-0001

Dimensions

Unit: mm (inch)



OMRON



Omron Electronic Components, LLC

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Specifications subject to change without notice

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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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01/07

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