

# G8P

## PCB Power Relay

**Up to 30 A switching capacity in compact package. 2.0 mm contact gap type available (G8P-1A4P-BG)**

- Available with quick-connect contact terminals for easy load connecting with either QC or PCB coil terminals.
- UL Class F coil insulation standard.
- Minimum 6 kV Impulse Surge Withstand.
- Standard model conforms to UL/CSA standards.
- VDE approved.
- NEW G8P-1A4P-BG (Special type)  
2.0 mm contact gap, high dielectric strength 4,000VAC.



RoHS Compliant

### Model Number Legend

G8P-        -  -    
 1 2 3 4 5 6

- |   |  |  |
|---|--|--|
| <p><b>1. Number of poles</b><br/>1: 1-pole</p> <p><b>2. Contact Form</b><br/>A: SPST-NO (1a)<br/>C: SPDT (1c)</p> | <p><b>3. Enclosure rating</b><br/>None: Open frame<br/>2: Unsealed (Vented)<br/>4: Fully sealed (Sealed with ventable nib)</p> <p><b>4. Terminal Shape</b><br/>P: PCB terminals<br/>T: Quick-connect terminals (#250 terminals for contacts and #187 terminals for coil)<br/>TP: PCB &amp; Quick-connect terminals (#250 terminals) and straight PCB for contacts, and straight PCB for coil</p> | <p><b>5. Mounting</b><br/>None: PCB mounting<br/>F: Flanged mounting</p> <p><b>6. Special</b><br/>BG: 2.0 mm contact gap</p> |
|---|--|--|

### Application Examples

- Ideal for home and industrial appliances
- HVAC (heating, ventilating, and air conditioning)
- Solar Inverter
- Many other applications

### Ordering Information

Classification	Relay Function	Terminal Shape	Contact form	Enclosure rating	Model	Rated coil voltage	Minimum packing unit	
Standard	Single-side Stable	PCB terminals	SPST-NO (1a)	Open frame	G8P-1AP	5VDC 9VDC 12VDC 24VDC 48VDC 110VDC  (-BG: 12VDC, 24VDC)	50 pcs/tray	
				Sealed with ventable nib	G8P-1A4P-BG			
			SPDT (1c)	Open frame	G8P-1CP			
				Sealed with ventable nib	G8P-1C4P			
				PCB & Quick connect terminals	Open frame			G8P-1ATP
					Sealed with ventable nib			G8P-1A4TP
		SPDT (1c)	Open frame	G8P-1CTP				
			Sealed with ventable nib	G8P-1C4TP				
		Quick-contact terminals	SPST-NO (1a)	Vented	G8P-1A2T-F			
				Vented	G8P-1C2T-F			

**Note:** When ordering, add the rated coil voltage to the model number.  
 Example: G8P-1AP 12 VDC  
 \_\_\_\_\_ Rated coil voltage

## ■ Ratings

### ● Coil

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
			% of rated voltage			
5	185	27	75% max.	10% min.	120% max.	Approx. 900
9	93	97				
12	77	155				
24	36	660				
48	19	2,480				
110	9	12,400				

- Note:**
1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.
  2. The operating characteristics are measured at a coil temperature of 23°C.
  3. The “Max. voltage” is the maximum voltage that can be applied to the relay coil.

### ● Contact

Load	Resistive load	
	SPST-NO (1a)	SPDT (1c)
Contact Type	Single	
Contact material	Ag-alloy (Cd free)	
Rated load	30A at 250VAC (-BG: 20A at 250VAC) 20A at 28VDC (-BG: ---- )	20A/10A (See note.) at 250VAC 20A/10A (See note.) at 28VDC
Rated carry current	30A (-BG: 20A)	20A/10A (See note.)
Max. switching voltage	250VAC 28VDC (-BG: 250VAC)	250VAC 28VDC
Max. switching current	AC30A DC20A (-BG: AC20A)	AC20A/10A DC20A/10A (See note.)

**Note:** NO contact/NC contact

## ■ Characteristics

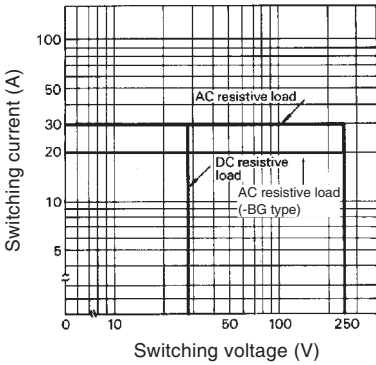
Item	Classification	Standard model
Contact resistance *1		100 mΩ max.
Operate time		15 ms max. (-BG: 20ms max.)
Release time		10 ms max.
Insulation resistance *2		100 MΩ min. (at 500 VDC)
Dielectric strength	Between coil and contacts	2,500 VAC, 50/60 Hz for 1 min (-BG: 4,000VAC)
	Between contacts of the same polarity	1,500 VAC, 50/60 Hz for 1 min
Impulse withstand voltage	Between coil and contacts	6,000 V (1.2/50 μs) between coil and contacts
Vibration resistance	Destruction	10 to 55 to 10 Hz, 0.825-mm single amplitude (1.65-mm double amplitude) for 2 hours (-BG: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) for 2 hours)
	Malfunction	10 to 55 to 10 Hz, 0.825-mm single amplitude (1.65-mm double amplitude) for 5 minutes
Shock resistance	Destruction	1,000m/s <sup>2</sup> (approx. 100G)
	Malfunction	100 m/s <sup>2</sup> (approx. 10G)
Durability	Mechanical	10,000,000 operation min. (at 18,000 operations/hr) (-BG: 5,000,000 operation min.)
	Electrical	100,000 operations approx. (at 360 operations/hr) (-BG: 40,000 operation min.)
Ambient operating temperature		-55° to 105°C, cold coil condition (with no icing) -55° to 85°C, hot coil condition (hot start) (with no icing)
Ambient operating humidity		5% to 85%
Weight		Approx. 24 g to 31g

**Note:** The data shown above are initial value.

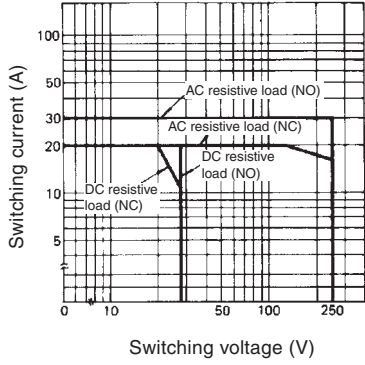
1. Measurement conditions: 5 VDC, 1 A, voltage drop method.
2. Measurement conditions: Measured at the same points as the dielectric strength using a 500 VDC ohmmeter.

■ Engineering Data

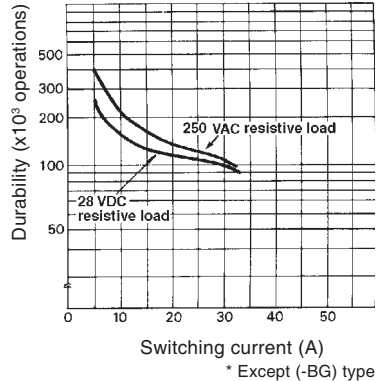
Maximum switching capacity  
SPST-NO (1a)



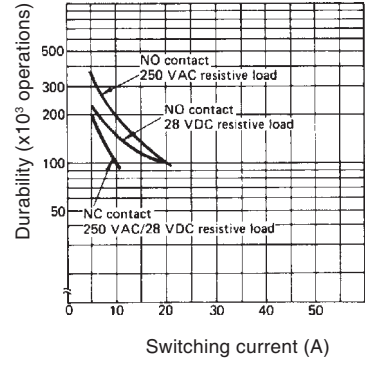
SPDT (1c)



Durability  
SPST-NO (1a)



SPDT (1c)

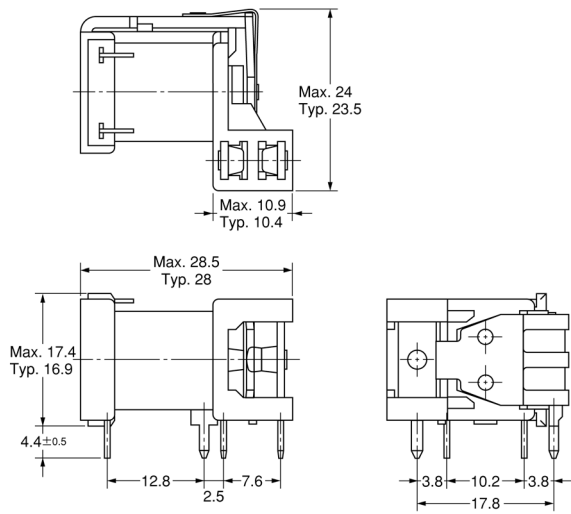


■ Dimensions

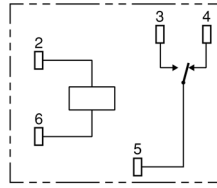
● Open Frame Types

Unit: mm

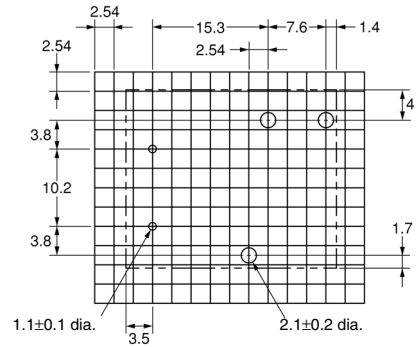
G8P-1CP/1AP



Terminal Arrangement/  
Internal Connections  
(Bottom View)

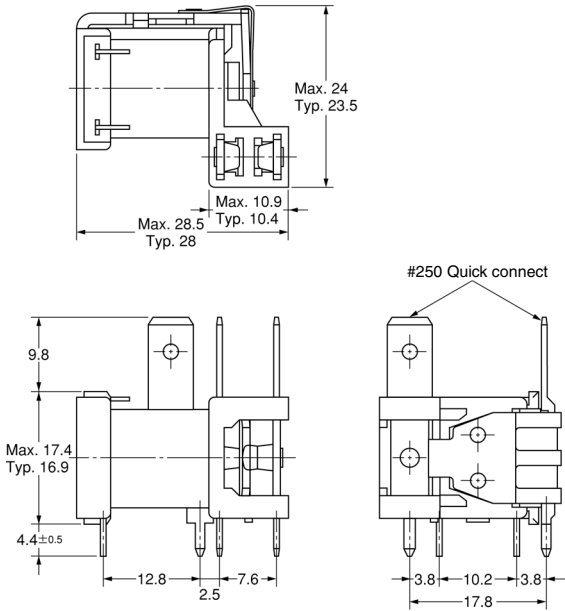


Mounting Holes (Bottom View)

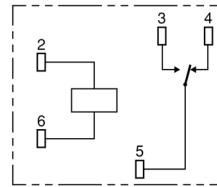


Note: Pin #4 is omitted on G8P-1AP

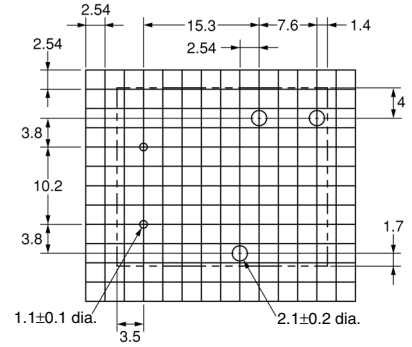
G8P-1CTP/1ATP



Terminal Arrangement/  
Internal Connections  
(Bottom View)



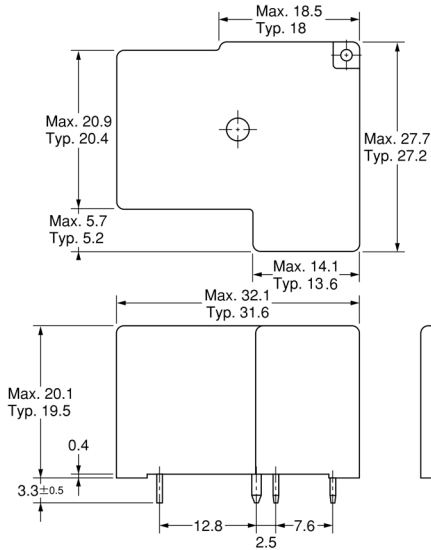
Mounting Holes (Bottom View)



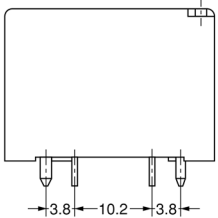
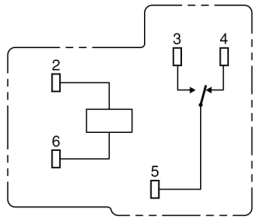
Note: Pin #4 is omitted on G8P-1ATP

● Fully-Sealed Types/Unsealed Types

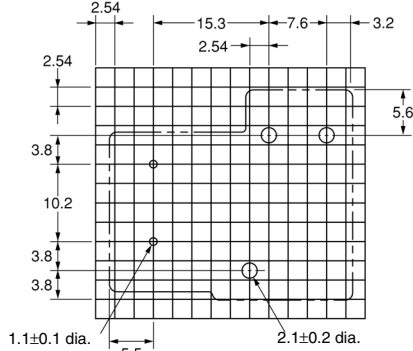
G8P-1C4P/1A4P/1C2P/1A2P



Terminal Arrangement/  
Internal Connections  
(Bottom View)

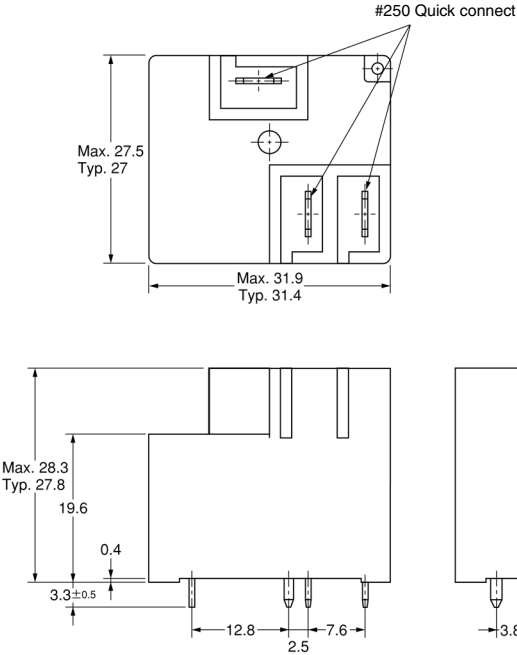


Mounting Holes (Bottom View)

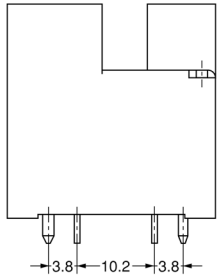
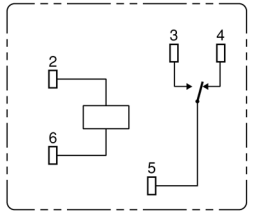


Note: Pin #4 is omitted on G8P-1A4P/1A2P

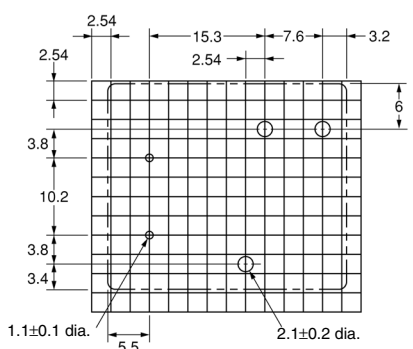
G8P-1C4TP/1A4TP/1C2TP/1A2TP



Terminal Arrangement/  
Internal Connections  
(Bottom View)



Mounting Holes (Bottom View)

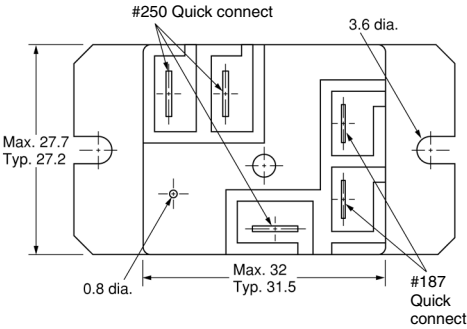


Note: Pin #4 is omitted on G8P-1A4TP/1A2TP

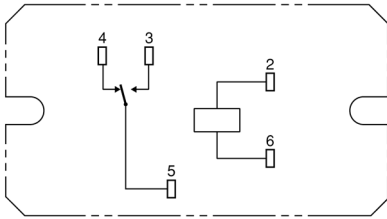
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● Flange Mounting Types

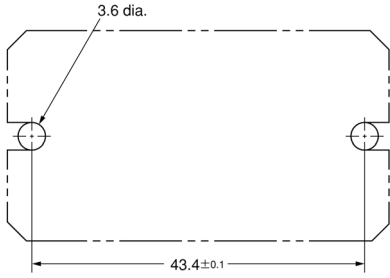
G8P-1C2T-F/1A2T-F



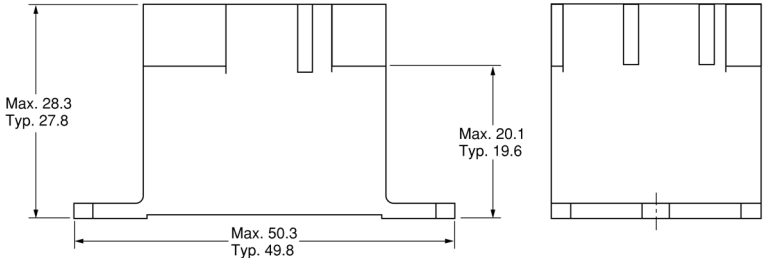
Terminal Arrangement/Internal Connections (Bottom View)



Mounting Holes (Bottom View)





Note: Pin #4 is omitted on G8P-1A2T-F



Note: Allow air circulation within the sealed type G8P by removing the knock off nib from the cover after soldering and cleaning is complete.

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■ Approved Standards

● UL Recognized  (File No. E41643), CSA Certified  (File No. LR31928)

Model	Contact form	Coil ratings	Contact ratings	Number of test operations			
G8P-1AP G8P-1A4P G8P-1ATP G8P-1A4TP G8P-1A2T-F	SPST-NO (1a)	5 to 110 VDC	30 A, 240 VAC (G.P./Res.), 40°C	50,000			
			20 A, 28 VDC (Res.), 40°C	6,000			
			20 A, 240 VAC (Res.), 70°C	100,000			
			23 A, 240 VAC (Res.), 85°C				
			1 HP, 125-250 VAC, 40°C	1,000			
			2 HP, 250 VAC, 40°C				
			A300 Pilot Duty, 40°C	6,000			
			20 FLA, 96 LRA, 125 VAC, 40°C	100,000			
			5 A, 250 VAC (Tungsten), 40°C	6,000			
			20 A, 120-277 VAC (Ballast), 40°C				
			TV-5, 40°C	25,000			
			G8P-1A4P-BG			30 A, 277 VAC (Res.), 85°C	30,000
			G8P-1CP G8P-1C4P G8P-1CTP G8P-1C4TP G8P-1C2T-F	SPDT (1c)	5 to 110 VDC	30 A/20 A, 277 VAC (Res.), 40°C	100,000 (N.O.) and 30,000 (N.C.)
20 A/15 A, 250 VAC (Res.), 105°C							
20 A/10 A, 28 VDC (Res.), 40°C	6,000						
30 A/30 A, 277 VAC (Res.), 40°C	10,000						
1/2 HP/1/2 HP, 125 VAC, 40°C	100,000						
2 HP/ 1/2 HP, 250 VAC, 40°C	1,000						
1 HP/ 1/4 HP, 125 VAC, 40°C							
B150 Pilot Duty, 40°C	100,000						
5 A/ 3 A, 250 VAC (Tungsten), 40°C	6,000						
6 A/ 3 A, 277 VAC (Ballast), 40°C							
TV-5 (N.O.), 40°C	25,000						

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● VDE certified type  (Licence No. 40004714)

- Note:**
1. The rated values approved by each of the safety standards (e.g., UL, CSA) may be different from the performance characteristics individually defined in this catalog.
  2. For information on additional ratings not included in this catalog, contact your local Omron Representative.
  3. In the interest of product improvement, specifications are subject to change.
  4. Please contact Omron for details regarding VDE approvals.
  5. Meets requirements of pollution degree 2 with Material II & III.

■ Precautions

● Please refer to "PCB Relays Common Precautions" for correct use.

Correct Use
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● Regarding the Electrical Appliance and Material Safety Law (Japan)

The G8P series is not compliant with the Electrical Appliance and Material Safety Law. Pay careful attention to select a suitable Relay for the application.

● Recommended soldering condition

Pre-heat at 120°C maximum within 120 seconds.  
Complete soldering at 265°C maximum within 6 seconds.

- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
- Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

**Note: Do not use this document to operate the Unit.**

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**OMRON Corporation**

**ELECTRONIC AND MECHANICAL COMPONENTS COMPANY**

**Contact: [www.omron.com/ecb](http://www.omron.com/ecb)**

**Cat. No. K040-E1-01**  
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