

## Miniature High Capacity Relays with SPST-NO 10A and SPST-NO + **SPST-NC 8A**

- SPST-NO 10A and SPST-NO + SPST-NC 8A for power switching and output that satisfy the needs for space-saving.
- Small High-capacity Relays Compact:  $20 \times 15 \times 10$  mm (L  $\times$  W  $\times$  H).
- Low power consumption: 200 mW.
- Ultrasonically cleanable models is available.
- Exclusive P6C model for sockets is now available.

**RoHS Compliant** 

## Model Number Legend



### 1. Relay Function

- None: Single-side stable
  - U : Single-winding latching
  - K : Double-winding latching

### 2. Contact Form

- 11: SPST-NO (1a)
- 21: SPST-NO (1a) + SPST-NC (1b)

### 3. Contact Type

1: Single

### 4. Enclosure rating

- 4: Fully sealed
- 7: Flux protection
- 5. Terminal Shape
- P: PCB terminals
  - Socket mounting Terminals
- C: Self-clinching PCB

### 6. Contact Material

- None: Standard (Ag-alloy (Cd free))
- FD : AgSnIn Contacts
  - (Suitable for DC inductive load with high inrush current)
- 7. Approved Standards
- US: UL/CSA

### 8. Washability

- None: Standard model
  - (not compatible with ultrasonically cleanable models)
  - U : For ultrasonically cleanable

### 9. Mounting

- None: Mounted directly to PCB P6C : Mounted to Socket

## Application Examples

Ideal for output applications of control equipments









## Ordering Information

### Standard Models (UL, CSA certified)

		Relay Function	Single-side sta	able	Single-winding la	atching	Double-winding la	atching	Minimun
Enclosure rating	Contact form	Terminals	Model	Rated coil voltage	Model	Rated coil voltage	Model	Rated coil voltage	packing unit
				3 VDC		3 VDC		3 VDC	
				5 VDC		5 VDC		5 VDC	
			G6C-1117P-US	6 VDC	G6CU-1117P-US	-	G6CK-1117P-US	6 VDC	
		Straight PCB		12 VDC		12 VDC		12 VDC	
		Straight 1 OD		24 VDC		24 VDC		24 VDC	
SPSTNO	SPST-NO (1a)			5 VDC		5 VDC		-	
	3F31-NO (1a)		G6C-1117P-FD-US	12 VDC	G6CU-1117P-FD-US	12 VDC	G6CK-1117P-FD-US	12 VDC	
			24 VDC		24 VDC		-		
				3 VDC		-		-	-
		Self-clinching	G6C-1117C-US	5 VDC	_	-	G6CK-1117C-US	-	
		PCB	000-11170-03	12 VDC		-	00011170-03	12 VDC	
Flux				24 VDC		-		24 VDC	100 maa/
protection				3 VDC		3 VDC		3 VDC	100 pcs/ tray
protoction				5 VDC		5 VDC		5 VDC	
			G6C-2117P-US	6 VDC	G6CU-2117P-US	6 VDC	G6CK-2117P-US	6 VDC	
		Straight PCB		12 VDC		12 VDC		12 VDC	
		Straight 1 OD		24 VDC		24 VDC		24 VDC	
				5 VDC		5 VDC		5 VDC	
	SPST-NO (1a) + SPST-NC (1b)		G6C-2117P-FD-US	12 VDC	G6CU-2117P-FD-US	12 VDC	G6CK-2117P-FD-US	-	
				24 VDC		24 VDC		24 VDC	
				3 VDC		-		24 VDC - 12 VDC - - 12 VDC 24 VDC 24 VDC 5 VDC 6 VDC 12 VDC 24 VDC 24 VDC 24 VDC 5 VDC - 24 VDC 5 VDC - - - - - - - - - - - - -	
				5 VDC		5 VDC		5 VDC	
		Self-clinching PCB	G6C-2117C-US	6 VDC	G6CU-2117C-US	-	G6CK-2117C-US	-	
				12 VDC		12 VDC	-	12 VDC	
				24 VDC		I		24 VDC	

		Relay Function	Single-side st	able	Single-winding la	Itching	Double-winding la	atching	Minimun
Enclosure rating	Contact form	Terminals	Model	Rated coil voltage	Model	Rated coil voltage	Model	Rated coil voltage	packing unit
				3 VDC		3 VDC		3 VDC	
				5 VDC		5 VDC		5 VDC	
			G6C-1114P-US	6 VDC	G6CU-1114P-US	6 VDC	G6CK-1114P-US	6 VDC	
SPST-NO (1a)	Straight PCB		12 VDC		12 VDC		12 VDC		
		Straight I OD		24 VDC		24 VDC		24 VDC	
	SPST-NO (1a)			5 VDC		5 VDC		5 VDC	
		G6C-1114P-FD-US	12 VDC	G6CU-1114P-FD-US	12 VDC	G6CK-1114P-FD-US	12 VDC		
				24 VDC		24 VDC		24 VDC	
				3 VDC		-		3 VDC	
		Self-clinching	G6C-1114C-US	5 VDC	G6CU-1114C-US	-	G6CK-1114C-US	5 VDC	
		PCB		12 VDC		12 VDC		3 VDC 5 VDC 12 VDC 24 VDC 3 VDC 5 VDC	100 pos/
Fully				24 VDC		-		24 VDC	
sealed			3 VDC		3 VDC		3 VDC		
				5 VDC		5 VDC		5 VDC	
			G6C-2114P-US	6 VDC	G6CU-2114P-US	6 VDC	G6CK-2114P-US	6 VDC	
		Straight PCB		12 VDC		12 VDC		12 VDC	
		oliaighti OD		24 VDC		24 VDC		24 VDC	
	SPST-NO (1a) +			5 VDC		5 VDC		-	
	SPST-NC (1b)		G6C-2114P-FD-US	12 VDC	G6CU-2114P-FD-US	12 VDC	G6CK-2114P-FD-US	-	
				24 VDC		24 VDC		24 VDC	
				3 VDC	-	-			
		Self-clinching		5 VDC		5 VDC	G6CK-2114C-US	24 VDC 5 VDC 3 12 VDC 24 VDC 3 VDC 5 VDC 12 VDC 24 VDC 12 VDC 24 VDC 12 VDC 24 VDC 12 VDC 24 VDC 3 VDC 5 VDC 100 (trained) 5 VDC 12 VDC 24 VDC 5 VDC 100 (trained) 5 VDC 12 VDC 12 VDC 100 (trained) 5 VDC 12 VDC 12 VDC 12 VDC 100 (trained) 5 VDC 12 VDC 5 VDC 12 VDC	-
		PCB	G6C-2114C-US	6 VDC	G6CU-2114C-US	-		6 VDC	
				12 VDC		-		12 VDC	
				24 VDC		-		24 VDC	

Note. When ordering, add the rated coil voltage to the model number. Example: G6C-1117P-US DC3 Rated coil voltage

However, the notation of the coil voltage on the product case as well as on the packing will be marked as

### **Outrasonically Cleanable Models (UL, CSA certified)**

		Relay Function	Single-side st	table	Single-winding la	atching	Double-winding	atching	Minimun
Enclosure rating	Contact form	Terminals	Model	Rated coil voltage	Model	Rated coil voltage	Model	Rated coil voltage	packing unit
				3 VDC		-		-	
				5 VDC		5 VDC		5 VDC	
		Straight PCB	G6C-1114P-US-U	6 VDC	G6CU-1114P-US-U	-	G6CK-1114P-US-U	-	
	SPST-NO (1a)			12 VDC		12 VDC		U 12 VDC 24 VDC  5 VDC t	
				24 VDC		-			
		Self-clinching	G6C-1114C-US-U	12 VDC		-			100 mag/
Fully sealed		PCB	600-11140-03-0	24 VDC	_	-	_	-	100 pcs/ tray
				5 VDC		-		5 VDC	liay
		Straight PCB	G6C-2114P-US-U	12 VDC	-	-	G6CK-2114P-US-U	12 VDC	
	SPST-NO (1a) +			24 VDC		-		-	
	SPST-NC (1b)	0 11 11		5 VDC		-		-	
		Self-clinching PCB	G6C-2114C-US-U	12 VDC	-	-	-	-	
		100		24 VDC		-		-	

Note. When ordering, add the rated coil voltage to the model number. Example: G6C-1114P-US-U DC3 Rated coil voltage

- Rated coil voltage

However, the notation of the coil voltage on the product case as well as on the packing will be marked as  $\Box\Box$  VDC.

## •Connecting Sockets (Sold Separately)

Applicable relays	Model	Minimun packing unit
G6C-2114P-US-P6C G6C-2117P-US-P6C G6C-1114P-US-P6C G6C-1117P-US-P6C G6CU-2114P-US-P6C G6CU-2117P-US-P6C G6CU-1114P-US-P6C G6CU-1114P-US-P6C	P6C-06P	20 pcs/tube
G6CK-2114P-US-P6C G6CK-2117P-US-P6C G6CK-1114P-US-P6C G6CK-1117P-US-P6C	P6C-08P	
Removal Tool	P6B-Y1	1
Hold-down Clips	P6B-C2	I

Note 1. Use the G6C-DDP-US-P6C to mount to a P6C Socket.

2. When using by combining sockets, the rated current will be 5A due to its rated switching current.

## Ratings

### Coil: 1-Pole, Single-side Stable Type (Including models for ultrasonically cleanable)

Item	Rated current (mA)	Coil resistance (Ω)	Must operate voltage (V)	Must release voltage (V)	Max. voltage (V)	Power consumption (mW)
Rated voltage	(1117)	(22)	%	of rated voltag	je	(11100)
3 VDC	67	45				
5 VDC	40	125			1000/	
6 VDC	33.3	180	70% max.	10% min.	160% (at 23°C)	Approx. 200
12 VDC	16.7	720			(4.20 0)	
24 VDC	8.3	2,880				

### Coil: Single-winding Latching Type (Including models for ultrasonically cleanable)

Item	Rated	Coil	Must set	Must reset	Max.	Power cor	nsumption	
	current (mA)	resistance (Ω)	voltage (V)	voltage (V)	voltage (V)	Set coil	Reset coil	
Rated voltage	(1174)	(52)	%	of rated volta	ige	(mW)	(mW)	
3 VDC	67	45						
5 VDC	40	125						
6 VDC	33.3	180	70% max.	70% max.	160% (at 23°C)	200	200	
12 VDC	16.7	720			(01 20 0)			
24 VDC	8.3	2,880						

### Coil: Double-winding Latching Type (Including models for ultrasonically cleanable)

Item	Rated cu	rrent (mA)	Coil resis	stance (Ω)	Must set	Must reset	Max.	Power cor	Reset coil (mW)
	Set coil	Reset coil	Set coil	Reset coil	voltage (V)	voltage (V)	voltage (V)	Set coil	
Rated voltage					c	% of rated voltage	ge (mW		(mvv)
3 VDC	93.5	93.5	32.1	32.1					280
5 VDC	56.0	56.0	89.3	89.3				280	
6 VDC	46.7	46.7	129	129	70% max.	70% max.	130% (at 23°C)		
12 VDC	23.3	23.3	514	514			(al 25 C)		
24 VDC	11.7	11.7	2,056	2,056					

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

Contact Form	SPST-I	NO (1a)	SPST-NO (1a)	+ SPST-NC (1b)	
Rated load	Resistive load         Inductive load $(\cos\phi = 0.4; L/R = 7 \text{ m})$		Resistive load	Inductive load ( $\cos\phi = 0.4$ ; L/R = 7 ms)	
	10 A (8 A) at 250 VAC 10 A (10 A) at 30 VDC	5 A (5 A) at 250 VAC 5 A (5 A) at 30 VDC	8 A (8 A) at 250 VAC 8 A (8 A) at 30 VDC	3.5 A (3.5 A) at 250 VAC 3.5 A (3.5 A) at 30 VDC	
Contact type		Sir	ngle		
Contact material		Ag-Alloy	(Cd free)		
Rated carry current	10 A	(10 A)	8 A (8 A)		
Max. switching voltage	380 VAC, 125 VDC				
Max. switching current	10 A	(10 A)	8 A (8 A)		

Note. The values shown in parentheses ( ) are for -FD models only.

## Characteristics (Including models for ultrasonically cleanable)

Item	Classification	Single-side Stable	Single-winding Latching	Double-winding Latching	ĺ		
Contact resista			30 m $\Omega$ max.				
Operate (set) ti		10 ms max.					
Release (reset			10 ms max.				
Min. set pulse		-		(at 23°C)			
Min. reset puls		-	20 ms (	(at 23°C)	Ĺ		
	Between coil and contacts		1,000 MΩ min.				
Insulation	Between contacts of the same polarity		1,000 MΩ min.				
resistance *2	Between contacts of different polarity	1,000 M $\Omega$ min. (SPST-NO, SPST-NC)					
	Between set and reset coils	-	-	1,000 MΩ min.			
Dielectric	Between coil and contacts	2,000 VAC 50/60Hz for 1min					
	Between contacts of the same polarity	1,000 VAC 50/60Hz for 1min					
strength	Between contacts of different polarity	2,000 VAC 50/60Hz for 1min (SPST-NO, SPST-NC)					
	Between set and reset coils	-	-	250 VAC 50/60Hz for 1min			
Vibration	Destruction	10 to 55 to 10 Hz, 0.7	5 mm single amplitude (1.	5 mm double amplitude)	ĺ		
resistance	Malfunction	10 to 55 to 10 Hz, 0.7	75 mm single amplitude (1.	5 mm double amplitude)	ĺ		
Shock	Destruction		1,000 m/s <sup>2</sup>		١		
resistance	Malfunction		100 m/s <sup>2</sup>		*		
Durability	Mechanical		operations min. (at 18,000		ĺ		
Durability	Electrical	100,000 operation	n min. (at 1,800 operations	/hr under rated load)	*		
Failure rate (P	level) (reference value) *3	10 mA at 5 VDC					
Ambient opera	ting temperature	-25°C to 70°C (with no icing or condensation)					
Ambient opera	ting humidity	5% to 85%					
Weight		Approx. 5.6 g			ſ		

Note. The given values are initial values.

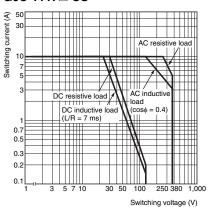
- Measurement conditions: 5 VDC, 1 A, voltage drop method.
- Testing conditions: measured with a 500 VDC megohmmeter (at 250 VDC between set/reset coil).

G 6 C

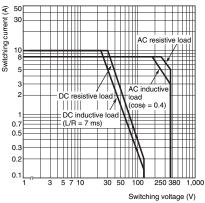
This value was measured at a switching frequency of 120 operations/min.

## ■Engineering Data

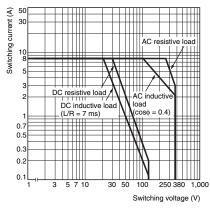
### Maximum Switching Capacity G6C-1114 US G6C-1117 US

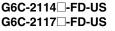


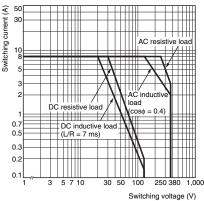
### G6C-1114□-FD-US G6C-1117□-FD-US



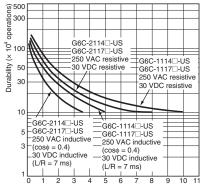
### G6C-2114□-US G6C-2117□-US





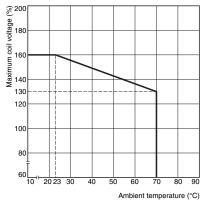


### Durability G6C-1114 -- US, G6C-2114 -- US G6C-1117 -- US, G6C-2117 -- US



Switching current (A)

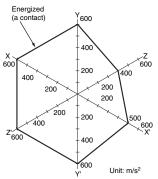
### • Ambient Temperature vs. Maximum Coil Voltage



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

### Shock Malfunction

G 6 C



#### De-energized Y<sub>600</sub> (b contact) 400 600 600 200 400 400 200 200 200 200 100 200 600 `X' 400 Z<sub>600</sub> 400 Shock direction -X 600 Unit: m/s<sup>2</sup> T

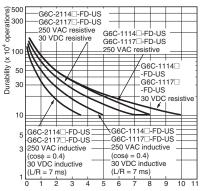
z 💿 Z' 🛇 (coil)

rate on the basis of rated value (OV) (%) nax. ¥ Change r -2 : (Mounting pitch -3 l1=5.08a l₂=7.62a ℓ1=7.62a Initia ℓ1=2.54a l2=5.08a l2=10.16a

Magnetic Interference (between Relays)

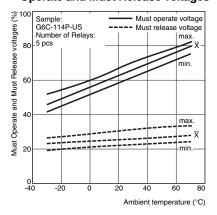
Sample: G6C-2114P-US DC24V Number of Relays: 6 pcs Test conditions: Shock is applied in  $\pm X$ ,  $\pm Y$ , and  $\pm Z$ directions three times each with without energizing the Relays to check the number of malfunctions. Requirement: 100 m/s<sup>2</sup>

### G6C-1114 -FD-US, G6C-2114 -FD-US G6C-1117 -FD-US, G6C-2117 -FD-US

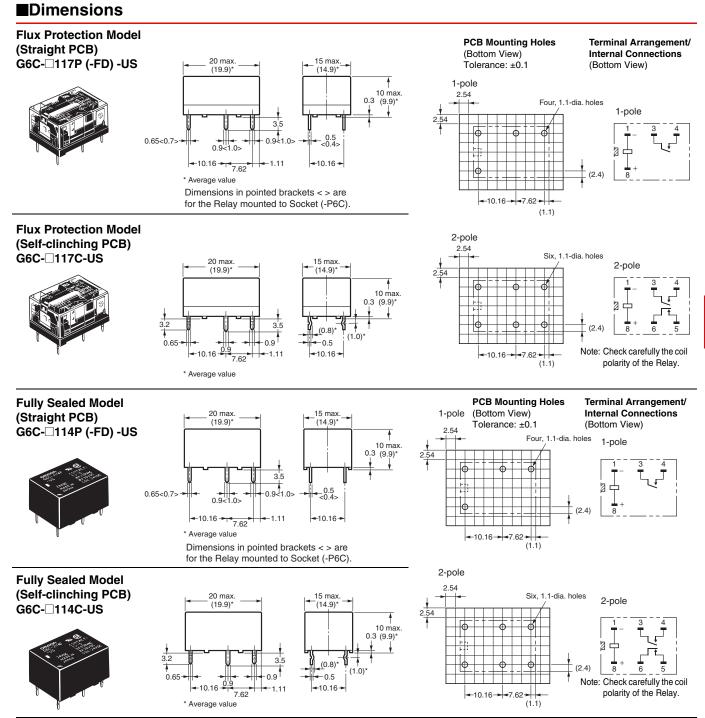


Switching current (A)

### Ambient Temperature vs Must **Operate and Must Release voltages**



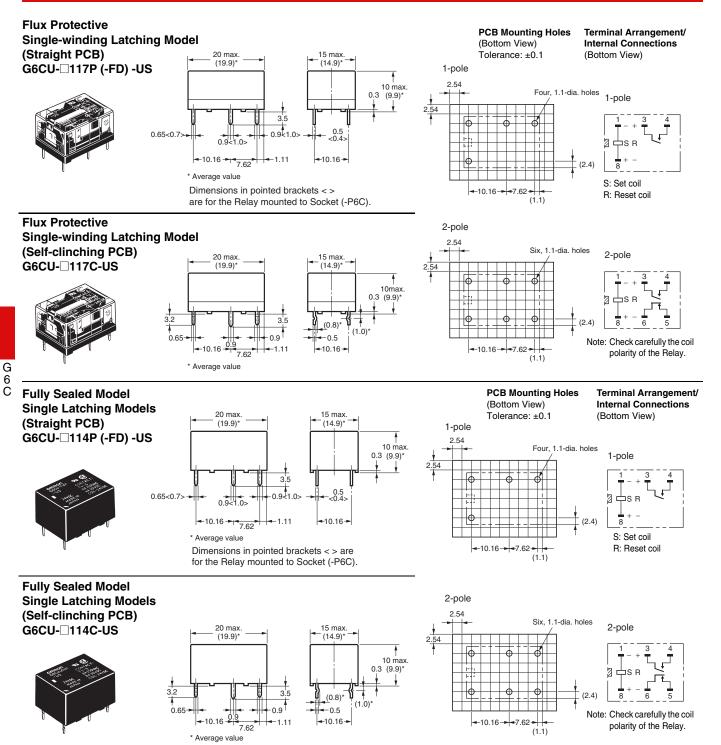
## PCB Power Relay



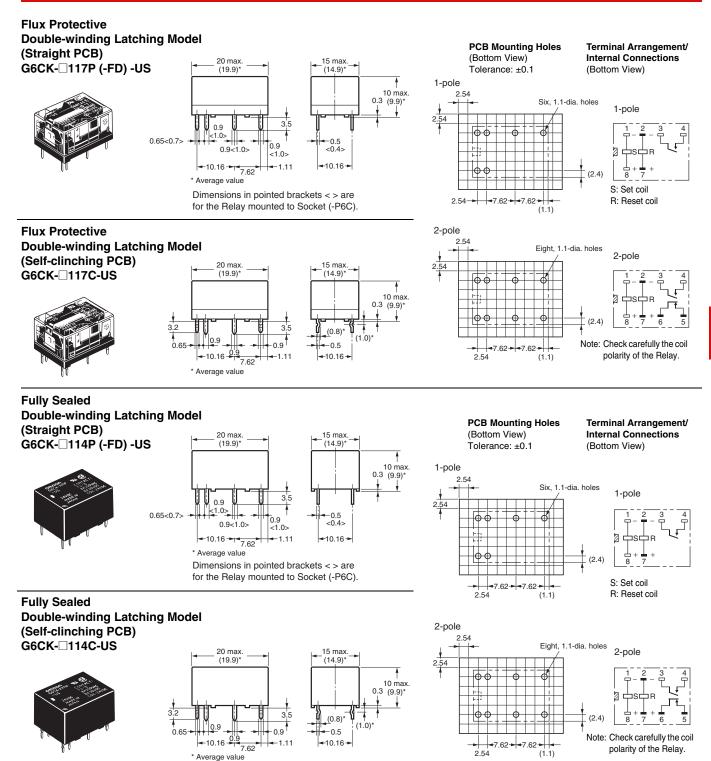
Note: Orientation marks are indicated as follows: []

G 6 C

## **PCB** Power Relay



Note: Orientation marks are indicated as follows: 门 💹



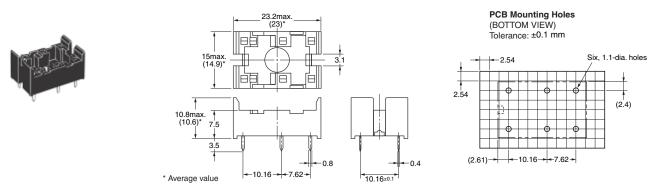
Note: Orientation marks are indicated as follows:

G 6 C

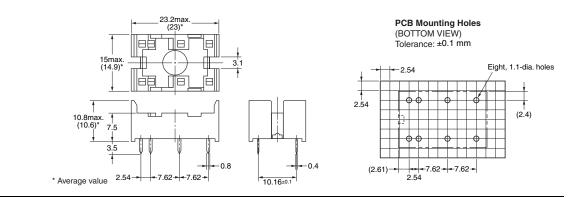
## Connecting Sockets Dimensions

## Socket for single-winding latching/single-side a table Models





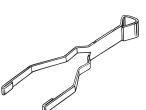
### Socket for double-winding latching Models P6C-08P



Note: Orientation marks are indicated as follows: []  $\boxtimes$ 

## Removal Tool

P6B-Y1



## ■Hold-down Clips

P6B-C2



## ■Approved Standards

•The rated values approved by each of the safety standards may be different from the performance characteristics individually defined in this catalog.

UL Recognized 🔊 (File No. E41643)

CSA Certified (File No. LR31928)

Model	Number of poles	Coil ratings	Contact ratings	Number of test operations
	1		10 A, 250 VAC (General use) 80°C 10 A, 30 VDC (Resistive) 80°C 1/6 HP 125 VAC, 1/4 HP, 125 VAC 80°C 1/3 HP 250 VAC, 1/4 HP, 250 VAC 80°C 600 W, 120 VAC, (Tungsten) 80°C (excluding -FD Models)	6,000
		3 to 24 VDC	530 VA, 20 to 265 VAC Max 2A (Pilot Duty) 80°C 43.2 VA, 30 VDC (Pilot Duty) 80°C	6,000
G6C ( )			12 LRA, 2.2 FLA, 30 VDC 80°C	30,000 1,000 (-FD Models)
			8 A, 250 VAC (General use) 80°C 8 A, 30 VDC (Resistive) 80°C 1/6 HP 125 VAC, 1/4 HP, 125 VAC 80°C 1/3 HP 250 VAC, 1/4 HP, 250 VAC 80°C 600 W, 120 VAC, (Tungsten) 80°C (excluding -FD Models)	6,000
	_		530 VA, 20 to 265 VAC Max 2A (Pilot Duty) 80°C 43.2 VA, 30 VDC (Pilot Duty) 80°C	6,000
			12 LRA, 2.2 FLA, 30 VDC 80°C	30,000 1,000 (-FD Models)

### EN/IEC, VDE Certified (Certificate No. 40014439)

Model	Number of poles	Coil ratings	Contact ratings	Approved switching operations
G6C ( )	1	3, 5, 6, 12, 24 VDC	10 A, 250 VAC (cosφ = 1) 40°C 5 A, 250 VAC (cosφ = 0.4) 40°C	20.000
G6C ( )	2	<ul> <li>Single-stable:</li> <li>3, 5, 6, 12, 24 VDC</li> </ul>	7 A, 250 VAC (cosφ = 1) 40°C 3.5 A, 250 VAC (cosφ = 0.4) 40°C	20,000

EN/IEC, TÜV Certified (Registration No. R50158249)

Model	Number of poles	Coil ratings	Contact ratings	Approved switching operations
	1	• Single-stable: 3, 5, 6, 12, 24 VDC	10 A, 250 VAC (cosφ = 1) 40°C 5 A, 250 VAC (cosφ = 0.4) 40°C 10 A, 30 VDC (L/R = 0 ms) 40°C	20.000
G6C()	2	• Latching: 3, 5, 6, 12, 24 VDC	8 A, 250 VAC (cosφ = 1) 40°C 3.5 A, 250 VAC (cosφ = 0.4) 40°C 8 A, 30 VDC (L/R = 0 ms) 40°C	20,000

## Precautions

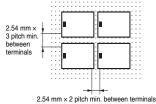
### ●Please refer to "PCB Relays Common Precautions" for correct use.

### Correct Use

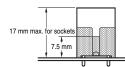
### Mounting

- Do not reverse the polarity of the coil (+, -).
- When mounting more than two relays side by side, keep the gap between Relays as shown below to ensure a good heat dissipation. It may result in malfunction if heat is not dissipated

### smoothly from the Relay.



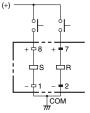
### Sockets



- When mounting the Relay, make sure to insert the Relay terminals perpendicularly and correctly into the socket contact pin.
- Hold-down clips (for mounting and removal) are also available.
- The P6C model has a flux-resistant construction. Do not wash it down with water.
- The max. carry current of sockets is 5A.
- Not applicable to the self-clinching type.

### Double-winding Latching Circuit

 It is recommended to perform wiring of No.1 and No.2 of the negative (-) terminal as COM wiring, in order to improve the operation stability for Double-winding Latching.



### Using SPDT contact of the SPST-NO+SPST-NC Relay

 Do not construct a circuit so that overcurrent and burning occur if the NO, NC and SPDT contacts are shortcircuited with the SPST-NO+SPST-NC Relay. Arcing may generate shortcircuiting between contacts if there is short-circuiting because of conversion to the MBB contact caused by asynchronous operation of the NO and NC contacts, the interval between the NO and NC contacts is small, or a large current is left open.

#### Other precautions

 This Relay is a Power Relay which is suitable for power load switching. Do not use the G6C for signal purposes such as micro load switching under 10 mA.

Please check each region's Terms & Conditions by region website.

### OMRON Corporation Electronic and Mechanical Components Company

### **Regional Contact**

Americas https://www.components.omron.com/ Asia-Pacific https://ecb.omron.com.sg/ Korea https://www.omron-ecb.co.kr/ Europe http://components.omron.eu/ China https://www.ecb.omron.com.cn/ Japan https://www.omron.co.jp/ecb/

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In the interest of product improvement, specifications are subject to change without notice.

Cat. No. K018-E1-11 0318(0207)(O)

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