

# Power PCB Relay G6C

## SPST-NO Type Breaks 10-A Loads; SPST-NO + SPST-NC Breaks 8-A Load

- Compact: 20 x 15 x 10 mm (L x W x H).
- Low power consumption: 200 mW.
- Semi-sealed or fully sealed construction available.
- Unique moving loop armature reduces relay size, magnetic interference, and contact bounce.
- Single and Dual coil latching types also available
- RoHS Compliant



## Ordering Information

| Classification       | Contact form      | Straight Through-hole PCB |               | Self-clinching Through-hole PCB |               |
|----------------------|-------------------|---------------------------|---------------|---------------------------------|---------------|
|                      |                   | Semi-sealed               | Fully sealed  | Semi-sealed                     | Fully sealed  |
| Non-latching         | SPST-NO           | G6C-1117P-US              | G6C-1114P-US  | G6C-1117C-US                    | G6C-1114C-US  |
|                      | SPST-NO + SPST-NC | G6C-2117P-US              | G6C-2114P-US  | G6C-2117C-US                    | G6C-2114C-US  |
| Single coil latching | SPST-NO           | G6CU-1117P-US             | G6CU-1114P-US | G6CU-1117C-US                   | G6CU-1114C-US |
|                      | SPST-NO + SPST-NC | G6CU-2117P-US             | G6CU-2114P-US | G6CU-2117C-US                   | G6CU-2114C-US |
| Dual coil latching   | SPST-NO           | G6CK-1117P-US             | G6CK-1114P-US | G6CK-1117C-US                   | G6CK-1114C-US |
|                      | SPST-NO + SPST-NC | G6CK-2117P-US             | G6CK-2114P-US | G6CK-2117C-US                   | G6CK-2114C-US |

**Note:** When ordering, add the rated coil voltage to the model number.

Example: G6C-1117P-US DC12

Rated coil voltage

### Model Number Legend

G6C  -     -  -  DC   
 1 2 3 4 5 6 7 8

**1. Relay Function**

- None: Non-latching
- U: Single coil latching
- K: Dual coil latching

**2. Contact Form**

- 11: SPST-NO
- 21: SPST-NO + SPST-NC

**3. Contact Type**

- 1: Standard

**4. Enclosure Ratings**

- 4: Fully sealed
- 7: Semi-sealed

**5. Terminals**

- P: Straight Through-hole PCB
- C: Self-clinching Through-hole PCB

**6. Approved Standards**

- US: UL/CSA certified

**7. Mounting Method**

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

**8. Rated Coil Voltage**

- 3, 5, 6, 12, or 24 VDC

## ■ Accessories (Order Separately)

### Back Connecting Sockets

| Applicable Relay   | Back Connecting Socket (See note 1.) |
|--|--------------------------------------|
| G6C(U)-1114P-US-P6C<br>G6C(U)-1117P-US-P6C<br>G6C(U)-2114P-US-P6C<br>G6C(U)-2117P-US-P6C | P6C-06P                              |
| G6CK-1114P-US-P6C<br>G6CK-1117P-US-P6C<br>G6CK-2114P-US-P6C<br>G6CK-2117P-US-P6C         | P6C-08P                              |

- Note:** 1. Not applicable to the self-clinching versions.  
The operating current for the socket is 5 A max.
2. Use the G6C(U)-□□□□P-US-**P6C** if mounting relays in a P6C Socket.

|                 |        |
|-----------------|--------|
| Removal Tool    | P6B-Y1 |
| Hold-down Clips | P6B-C2 |

## Specifications

### ■ Contact Ratings

| Item  | SPST-NO  |  | SPST-NO+SPST-NC                      |  |
|---|--|--|--------------------------------------|--|
|   | Resistive load<br>( $\cos\phi = 1$ )                     | Inductive load<br>( $\cos\phi = 0.4$ ; L/R = 7 ms) | Resistive load<br>( $\cos\phi = 1$ ) | Inductive load<br>( $\cos\phi = 0.4$ ; L/R = 7 ms) |
| Rated load  | 10 A at 250 VAC;<br>10A at 30 VDC                        | 5 A at 250 VAC;<br>5 A at 30 VDC                   | 8 A at 250 VAC;<br>8A at 30 VDC      | 3.5 A at 250 VAC;<br>3.5 A at 30 VDC               |
| Contact material                                      | Ag Alloy (Cd free)                                       |  |                                      |  |
| Rated carry current                                   | 10 A   |  | 8 A                                  |  |
| Max. switching voltage                                | 380 VAC, 125 VDC (the case of latching 250 VAC, 125 VDC) |  |                                      |  |
| Max. switching current                                | 10 A   |  | 8 A                                  |  |
| Max. switching capacity                               | 2,500 VA, 300 W  | 1,250 VA, 220 W                                    | 2,000 VA, 240 W                      | 875 VA, 170 W                                      |
| Min. permissible load<br>(reference value - see note) | 10 mA at 5 VDC   |  |                                      |  |

**Note:** P level:  $\lambda_{60} = 0.1 \times 10^{-6}$  operations

### ■ Coil Data

#### Non-latching

| Rated voltage<br>(VDC) | Rated current<br>(mA) | Coil resistance<br>( $\Omega$ ) | Coil inductance<br>(ref. value) (H) |             | Pick-up voltage | Dropout voltage | Maximum voltage      | Power consumption<br>(mW) |
|------------------------|-----------------------|---------------------------------|-------------------------------------|-------------|-----------------|-----------------|----------------------|---------------------------|
|                        |                       |                                 | Armature OFF                        | Armature ON |                 |                 |                      |                           |
| 3                      | 67                    | 45                              | 0.078                               | 0.067       | 70% max.        | 10% min.        | 160% max.<br>at 23°C | Approx. 200               |
| 5                      | 40                    | 125                             | 0.22                                | 0.18        |                 |                 |                      |                           |
| 6                      | 33.30                 | 180                             | 0.36                                | 0.29        |                 |                 |                      |                           |
| 12                     | 16.70                 | 720                             | 1.32                                | 1.13        |                 |                 |                      |                           |
| 24                     | 8.30                  | 2,880                           | 4.96                                | 4.19        |                 |                 |                      |                           |

- Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of  $\pm 10\%$ .
2. Operating characteristics are measured at a coil temperature of 23°C.

### Single Coil Latching Type

| Rated voltage (VDC) | Rated current (mA) | Coil resistance (Ω) | Coil inductance (ref. value) (H) |             | Set pick-up voltage | Reset pick-up voltage | Maximum voltage   | Power consumption (mW) |
|---------------------|--------------------|---------------------|----------------------------------|-------------|---------------------|-----------------------|-------------------|------------------------|
|                     |                    |                     | Armature OFF                     | Armature ON | % of rated voltage  |                       |                   |                        |
| 3                   | 67                 | 45                  | 0.09                             | 0.06        | 70% max.            | 70% min.              | 160% max. at 23°C | Approx. 200            |
| 5                   | 40                 | 125                 | 0.25                             | 0.20        |                     |                       |                   |                        |
| 6                   | 33.30              | 180                 | 0.36                             | 0.24        |                     |                       |                   |                        |
| 12                  | 16.70              | 720                 | 1.75                             | 1.17        |                     |                       |                   |                        |
| 24                  | 8.30               | 2,880               | 5.83                             | 3.84        |                     |                       |                   |                        |

### Dual Coil Latching Type

| Rated voltage (VDC) | Rated current (mA) | Coil resistance (Ω) | Coil inductance (ref. value) (H) |             |              |             | Set pick-up voltage | Reset pick-up voltage | Maximum voltage    | Power consumption (mW) |
|---------------------|--------------------|---------------------|----------------------------------|-------------|--------------|-------------|---------------------|-----------------------|--------------------|------------------------|
|                     |                    |                     | Set Coil                         |             | Reset Coil   |             |                     |                       |                    |                        |
|                     |                    |                     | Armature OFF                     | Armature ON | Armature OFF | Armature ON | % of rated voltage  |                       |                    |                        |
| 3                   | 93.50              | 32.10               | 0.03                             | 0.02        | 0.03         | 0.02        | 70% max.            | 70% max.              | 130% max. at 23°C) | Approx. 280            |
| 5                   | 56                 | 89.30               | 0.07                             | 0.06        | 0.08         | 0.07        |                     |                       |                    |                        |
| 6                   | 46.70              | 129                 | 0.10                             | 0.08        | 0.12         | 0.10        |                     |                       |                    |                        |
| 12                  | 23.30              | 514                 | 0.37                             | 0.32        | 0.47         | 0.38        |                     |                       |                    |                        |
| 24                  | 11.70              | 2,056               | 1.56                             | 1.18        | 1.46         | 1.13        |                     |                       |                    |                        |

- Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.  
 2. Operating characteristics are measured at a coil temperature of 23°C.  
 3. The minimum pulse width of the set and reset voltage is 20 ms.

## ■ Characteristics

|                                    |                               |  |
|------------------------------------|-------------------------------|--|
| <b>Contact resistance</b>          |                               | 30 mΩ max.   |
| <b>Operate (set) time</b>          |                               | 10 ms max. (mean value: approx. 5 ms)  |
| <b>Release (reset) time</b>        |                               | 10 ms max. (mean value: approx. 2 ms; latching types: mean value: approx. 5 ms)  |
| <b>Bounce time</b>                 |                               | 5 ms max. (Approx. 3 ms typical)   |
| <b>Min. set/reset signal width</b> |                               | Latching type: 20 ms (at 23°C)   |
| <b>Max. switching frequency</b>    | <b>Mechanical</b>             | 18,000 operations/hr   |
|                                    | <b>Electrical</b>             | 1,800 operations/hr (under rated load)   |
| <b>Insulation resistance</b>       |                               | 1,000 MΩ min. (at 500 VDC, at 250 VDC between set coil and reset coil)   |
| <b>Dielectric strength</b>         |                               | 2,000 VAC, 50/60 Hz for 1 min between coil and contacts<br>2,000 VAC, 50/60 Hz for 1 min between contacts of different polarity<br>1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity<br>250 VAC, 50/60 Hz for 1 min between set and reset coils (double winding latching type) |
| <b>Surge withstand voltage</b>     |                               | 6,000 V (1.2 x 50 μs) between coil and contacts (latching types: 4,500 V, 1.2 x 50 μs)   |
| <b>Vibration resistance</b>        | <b>Mechanical durability</b>  | 10 to 55 Hz, 1.5-mm double amplitude   |
|                                    | <b>Malfunction durability</b> | 10 to 55 Hz, 1.5-mm double amplitude   |
| <b>Shock resistance</b>            | <b>Mechanical durability</b>  | 1,000 m/s <sup>2</sup> (Approx. 100G)  |
|                                    | <b>Malfunction durability</b> | 100 m/s <sup>2</sup> (Approx. 10G)   |
| <b>Ambient temperature</b>         |                               | Operating: -25°C to 70°C (with no icing)   |
| <b>Ambient humidity</b>            |                               | Operating: 5% to 85%   |
| <b>Service Life</b>                | <b>Mechanical:</b>            | 50,000,000 operations min. (at 18,000 operations/hr)   |
|                                    | <b>Electrical:</b>            | 100,000 operations min. (at 1,800 operations/hr) See "Characteristic Data"   |
| <b>Weight</b>                      |                               | Approx. 5.6 g  |

## ■ Approved Standards

UL Recognized (File No. E41643) -- See note

| Model  | Contact form      | Coil rating | Contact rating   |
|--|-------------------|-------------|--|
| G6C-1114P-US<br>G6C-1114C-US<br>G6C-1117P-US<br>G6C-1117C-US | SPST-NO           | 3 to 60 VDC | 10 A, 250 VAC (general use)<br>10 A, 30 VDC (resistive load)<br>1/6 hp, 125 VAC<br>1/4 hp, 125 VAC<br>1/4 hp, 250 VAC<br>1/3 hp, 250 VAC<br>TV-5 (40°C, 25,000 operations)<br>600 W, 120 VAC (tungsten)<br>530 VA, 20 to 265 VAC, 2 A max. (pilot duty)<br>43.2 VA, 30 VDC (pilot duty)<br>12LRA, 2.2FLA, 30 VDC (30,000 operations) |
| G6C-2114P-US<br>G6C-2114C-US<br>G6C-2117P-US<br>G6C-2117C-US | SPST-NO + SPST-NC |             | 8 A, 250 VAC (general use)<br>8 A, 30 VDC (resistive load)<br>1/6 hp, 125 VAC<br>1/4 hp, 125 VAC<br>1/4 hp, 250 VAC<br>1/3 hp, 250 VAC<br>TV-5 (40°C, 25,000 operations)<br>600 W, 120 VAC (tungsten)<br>530 VA, 20 to 265 VAC, 2 A max. (pilot duty)<br>43.2 VA, 30 VDC (pilot duty)<br>12LRA, 2.2FLA, 30 VDC (30,000 operations)   |

Note: UL Recognition tests performed at 80°C for 6,000 operations unless otherwise specified.

CSA Certified (File No. LR31928)

| Model  | Contact form      | Coil rating | Contact rating  |
|--|-------------------|-------------|---|
| G6C-1114P-US<br>G6C-1114C-US<br>G6C-1117P-US<br>G6C-1117C-US | SPST-NO           | 3 to 60 VDC | 10 A, 250 VAC (general use)<br>10 A, 30 VDC (resistive load)<br>1/6 hp, 125 VAC<br>1/4 hp, 125 VAC<br>1/4 hp, 250 VAC<br>1/3 hp, 250 VAC<br>TV-5<br>600 W, 120 VAC (tungsten) |
| G6C-2114P-US<br>G6C-2114C-US<br>G6C-2117P-US<br>G6C-2117C-US | SPST-NO + SPST-NC | 3 to 60 VDC | 8 A, 250 VAC (general use)<br>8 A, 30 VDC (resistive load)<br>1/6 hp, 125 VAC<br>1/4 hp, 125 VAC<br>1/4 hp, 250 VAC<br>TV-5<br>600 W, 120 VAC (tungsten)                      |

VDE (Approval No. 2413) EN61810-1

| Model   | Contact form      | Coil rating  | Contact rating   | Number of test operations |
|---|-------------------|--|--|---------------------------|
| G6C-1114P-US<br>G6C-1114C-US<br>G6C-1117P-US<br>G6C-1117C-US  | SPST-NO           | 3, 12, 24 VDC  | 10 A, 250 VAC (cosφ = 1)<br>5 A, 250 VAC (cosφ = 0.4)  | 100,000 operations        |
| G6C-2114P-US<br>G6C-2114C-US<br>G6C-2117P-US<br>G6CU-2117P-VD | SPST-NO + SPST-NC | Single-stable: 3, 5, 12, 24 VDC<br>Latching: 5 VDC<br>G6CU-2117P-VD: 3 VDC | 7 A, 250 VAC (cosφ = 1)<br>3.5 A, 250 VAC (cosφ = 0.4) | 100,000 operations        |

# Engineering Data

## Maximum Switching Capacity SPST-NO



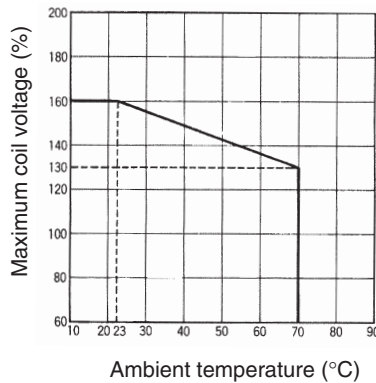
## SPST-NO + SPST-NC



## Service Life



## 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.

# Dimensions

Note: 1. All units are in millimeters unless otherwise indicated.

2. Orientation mark is indicated as follows: 

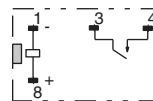
## ■ Non-latching

### G6C-□117P-US

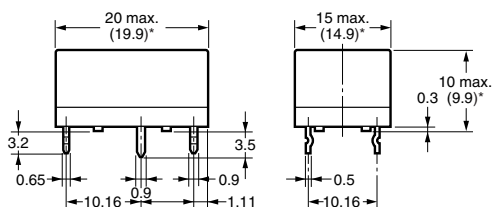
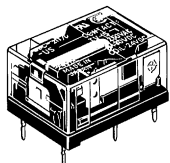


\*Average value

### G6C-1117P-US, G6C-1117C-US G6C-1114P-US, G6C-1114C-US Terminal Arrangement/Internal Connections (Bottom View)



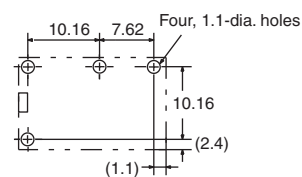
### G6C-□117C-US



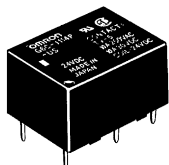
\*Average value

### Mounting Holes (Bottom View)

Tolerance: ±0.1

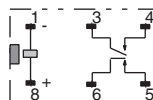


### G6C-□114P-US

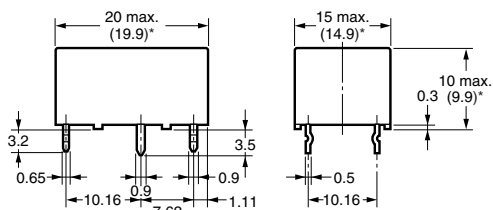
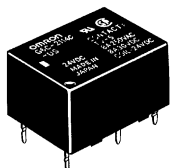


\*Average value

### G6C-2117P-US, G6C-2117C-US G6C-2114P-US, G6C-2114C-US Terminal Arrangement/Internal Connections (Bottom View)



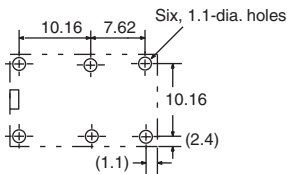
### G6C-□114C-US



\*Average value

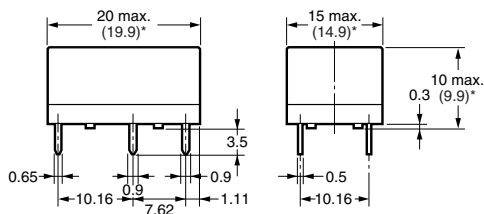
### Mounting Holes (Bottom View)

Tolerance: ±0.1



# Single Coil Latching

G6CU-□117P-US



\*Average value

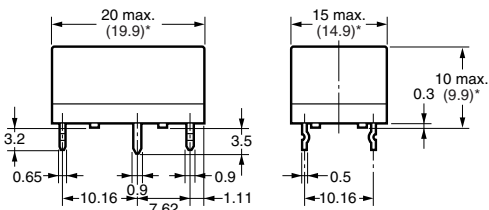
G6CU-1117P-US, G6CU-1117C-US  
G6CU-1114P-US, G6CU-1114C-US  
Terminal Arrangement/Internal Connections (Bottom View)



Mounting Holes (Bottom View)

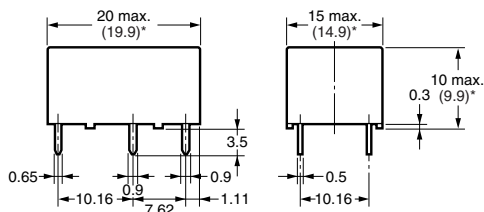


G6CU-□117C-US



\*Average value

G6CU-□114P-US

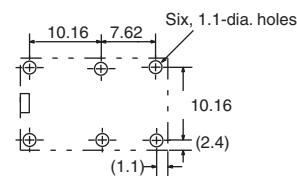


\*Average value

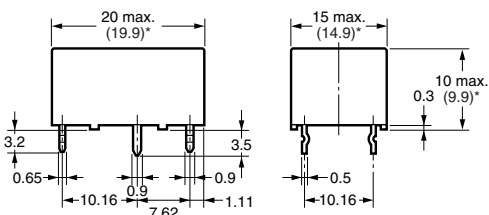
G6CU-2117P-US, G6CU-2117C-US  
G6CU-2114P-US, G6CU-2114C-US  
Terminal Arrangement/Internal Connections (Bottom View)



Mounting Holes (Bottom View)



G6CU-□114C-US



\*Average value

# ■ Dual Coil Latching

## G6CK-□117P-US



\*Average value

## G6CK-1117P-US, G6CK-1117C-US G6CK-1114P-US, G6CK-1114C-US Terminal Arrangement/Internal Connections (Bottom View)



## Mounting Holes (Bottom View)

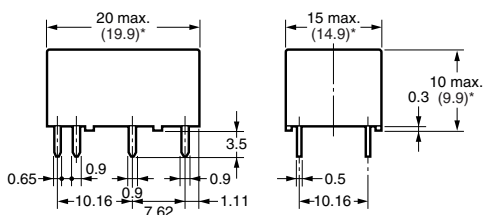
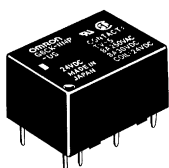


## G6CK-□117C-US



\*Average value

## G6CK-□114P-US

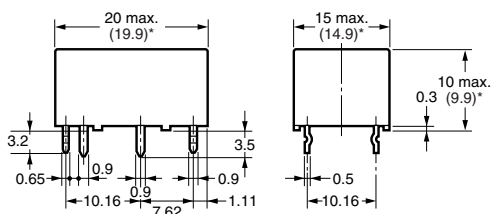
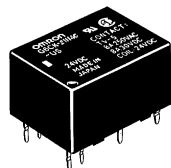


\*Average value

## G6CK-2117P-US, G6CK-2117C-US G6CK-2114P-US, G6CK-2114C-US Terminal Arrangement/Internal Connections (Bottom View)

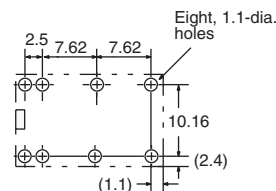


## G6CK-□114C-US



\*Average value

## Mounting Holes (Bottom View)

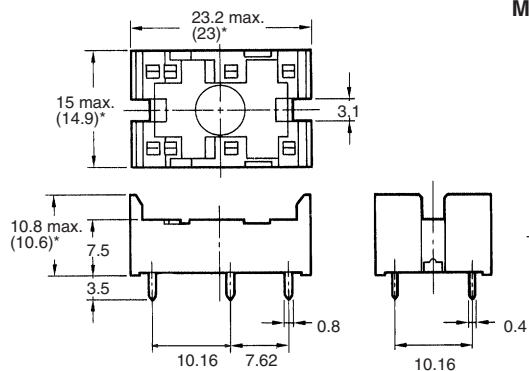
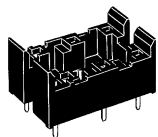




## Accessories

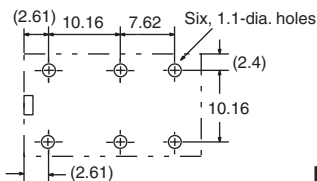
### Back Connecting Sockets

P6C-06P

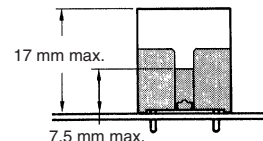


\*Average value

### Mounting Holes (Bottom View)



### Mounting Height of Relay with Connecting Socket

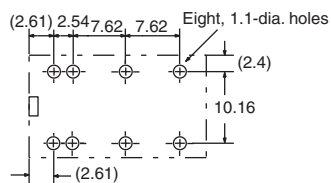


P6C-08P



\*Average value

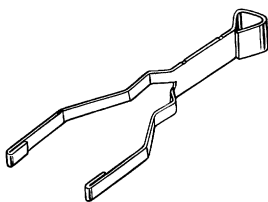
### Mounting Holes (Bottom View)



Note: Rated current of socket max. 5 A

### Removal Tool

P6B-Y1



### Hold-down Clips

P6B-C2



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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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