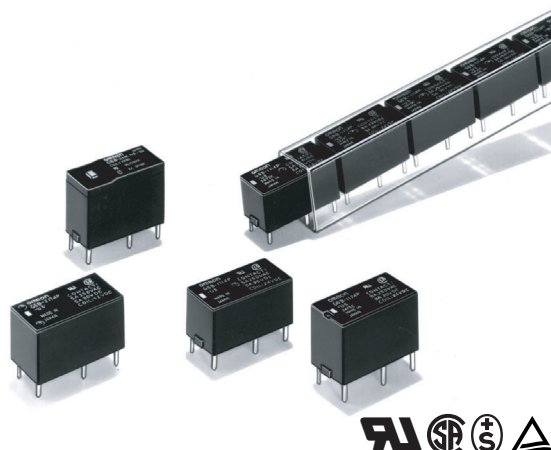


### Subminiature Relay that Switches up to 5 A

- Subminiature: 20 × 10 × 10 mm (L × W × H).
- Low power consumption: 200 mW.
- Unique moving loop armature reduces relay size, magnetic interference, and contact bounce time.
- Single- and double-winding latching types also available.

RoHS Compliant

Refer to pages 16 to 17 for details.



### Ordering Information

| Classification                   | Contact form    | Straight PCB  | Self-clinching PCB |
|----------------------------------|-----------------|---------------|--------------------|
| Single-side stable               | SPST-NO         | G6B-1114P-US  | G6B-1114C-US       |
|                                  | SPST-NO+SPST-NC | G6B-2114P-US  | G6B-2114C-US       |
|                                  | DPST-NO         | G6B-2214P-US  | G6B-2214C-US       |
|                                  | DPST-NC         | G6B-2014P-US  | G6B-2014C-US       |
| Single-winding latching          | SPST-NO         | G6BU-1114P-US | G6BU-1114C-US      |
| Double-winding latching          | SPST-NO         | G6BK-1114P-US | G6BK-1114C-US      |
| High-capacity single-side stable | SPST-NO         | G6B-1174P-US  | G6B-1174C-US       |

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

Example: G6B-1114P-US 12 VDC

Rated coil voltage

### Model Number Legend

G6B               -     VDC

1   2   3   4   5   6   7

#### 1. Relay Function

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

#### 2. Contact Form

21: SPST-NO + SPST-NC  
22: DPST-NO  
20: DPST-NC  
11: SPST-NO

#### 3. Contact Type

1: Standard  
7: High-capacity

#### 4. Enclosure Ratings

4: Fully sealed

#### 5. Terminals

P: Straight PCB  
C: Self-clinching PCB

#### 6. Approved Standards

US: UL/CSA certified

#### 7. Rated Coil Voltage

5, 6, 12, 24 VDC

## ■ Accessories (Order Separately)

### Back Connecting Sockets

| Applicable relay | Back connecting socket* |
|------------------|-------------------------|
| G6B(U)-1114P-US  | P6B-04P                 |
| G6BK-1114P-US    | P6B-06P                 |
| G6B-2□□4P-US-P6B | P6B-26P                 |
| G6B-1174P-US     | P6B-04P                 |

\*Not applicable to the self-clinching type.

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

## Specifications

### ■ Coil Ratings

#### Single-side Stable Type

| Item                             | SPST-NO                         |      |      |       | SPST-NO + SPST-NC, DPST-NO, DPST-NC |     |     |       |
|----------------------------------|---------------------------------|------|------|-------|-------------------------------------|-----|-----|-------|
| Rated voltage (VDC)              | 5                               | 6    | 12   | 24    | 5                                   | 6   | 12  | 24    |
| Rated current (mA)               | 40                              | 33.3 | 16.7 | 8.3   | 60                                  | 50  | 25  | 12.5  |
| Coil resistance ( $\Omega$ )     | 125                             | 180  | 720  | 2,880 | 83.3                                | 120 | 480 | 1,920 |
| Coil inductance (H) (ref. value) | Armature OFF                    | 0.28 | 0.31 | 1.2   | 4.9                                 | --- | --- | ---   |
|                                  | Armature ON                     | 0.26 | 0.28 | 1.1   | 4.1                                 | --- | --- | ---   |
| Must operate voltage             | 70% max. of rated voltage       |      |      |       | 80% max. of rated voltage           |     |     |       |
| Must release voltage             | 10% min. of rated voltage       |      |      |       |                                     |     |     |       |
| Max. voltage                     | 160% of rated voltage (at 23°C) |      |      |       | 140% of rated voltage (at 23°C)     |     |     |       |
| Power consumption                | Approx. 200 mW                  |      |      |       | Approx. 300 mW                      |     |     |       |

#### Single-winding Latching Type

|                                  |                                 |              |              |                |
|----------------------------------|---------------------------------|--------------|--------------|----------------|
| Rated voltage                    | 5 VDC                           | 6 VDC        | 12 VDC       | 24 VDC         |
| Rated current                    | 40 mA                           | 33.3 mA      | 16.7 mA      | 8.3 mA         |
| Coil resistance                  | 125 $\Omega$                    | 180 $\Omega$ | 720 $\Omega$ | 2,880 $\Omega$ |
| Coil inductance (H) (ref. value) | Armature OFF                    | 0.28         | 0.31         | 1.2            |
|                                  | Armature ON                     | 0.26         | 0.28         | 4.1            |
| Must operate voltage             | 70% max. of rated voltage       |              |              |                |
| Must release voltage             | 70% min. of rated voltage       |              |              |                |
| Max. voltage                     | 160% of rated voltage (at 23°C) |              |              |                |
| Power consumption                | Approx. 200 mW                  |              |              |                |

#### Double-winding Latching Type

|                    |                                                        |               |                |              |
|--------------------|--------------------------------------------------------|---------------|----------------|--------------|
| Rated voltage      | 5 VDC                                                  | 6 VDC         | 12 VDC         | 24 VDC       |
| Set coil           | Rated current                                          | 56 mA         | 46.8 mA        | 23.3 mA      |
|                    | Coil resistance                                        | 89.2 $\Omega$ | 128.5 $\Omega$ | 515 $\Omega$ |
|                    | Coil inductance (H) (ref. value)                       | Armature OFF  | 0.15           | 0.18         |
|                    |                                                        | Armature ON   | 0.15           | 0.18         |
| Reset coil         | Rated current                                          | 56 mA         | 46.8 mA        | 23.3 mA      |
|                    | Coil resistance                                        | 89.2 $\Omega$ | 128.5 $\Omega$ | 515 $\Omega$ |
|                    | Coil inductance (H) (ref. value)                       | Armature OFF  | 0.15           | 0.18         |
|                    |                                                        | Armature ON   | 0.15           | 0.18         |
| Must set voltage   | 70% max. of rated voltage                              |               |                |              |
| Must reset voltage | 70% min. of rated voltage                              |               |                |              |
| Max. voltage       | 130% of rated voltage (at 23°C)                        |               |                |              |
| Power consumption  | Set coil: Approx. 280 mW<br>Reset coil: Approx. 280 mW |               |                |              |

**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.

## ■ Contact Ratings

| Item                           | SPST-NO                              |                                                      | SPST-NO + SPST-NC, DPST-NO, DPST-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                     | 5 A at 250 VAC;<br>5A at 30 VDC      | 2 A at 250 VAC;<br>2 A at 30 VDC                     | 5 A at 250 VAC;<br>5A at 30 VDC      | 1.5 A at 250 VAC;<br>1.5 A at 30 VDC                 |
| Contact material               | Ag Alloy (Cd free)                   |                                                      |                                      |                                                      |
| Rated carry current            | 5 A                                  |                                                      |                                      |                                                      |
| Max. switching voltage         | 380 VAC, 125 VDC                     |                                                      |                                      |                                                      |
| Max. switching current         | 5 A                                  |                                                      |                                      |                                                      |
| Max. switching power           | 1,250 VA, 150 W                      | 500 VA, 60 W                                         | 1,250 VA, 150 W                      | 375 VA, 80 W                                         |
| Failure rate (reference value) | 10 mA at 5 VDC                       |                                                      |                                      |                                                      |

| Item                           | SPST-NO (High-capacity)           |                                                   |
|--------------------------------|-----------------------------------|---------------------------------------------------|
| Load                           | Resistive load ( $\cos\phi = 1$ ) | Inductive load ( $\cos\phi = 0.4$ ; $L/R = 7$ ms) |
| Rated load                     | 8 A at 250 VAC; 8 A at 30 VDC     | 2 A at 250 VAC; 2 A at 30 VDC                     |
| Contact material               | Ag Alloy (Cd free)                |                                                   |
| Rated carry current            | 8 A                               |                                                   |
| Max. switching voltage         | 380 VAC, 125 VDC                  |                                                   |
| Max. switching current         | 8 A                               |                                                   |
| Max. switching power           | 2,000 VA, 150 W                   |                                                   |
| Failure rate (reference value) | 10 mA at 5 VDC                    |                                                   |

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

## ■ Characteristics

|                             |                                                                                                                                                                                                                                                                                           |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contact resistance          | 30 m $\Omega$ max.                                                                                                                                                                                                                                                                        |
| Operate (set) time          | 10 ms max. (mean value: 1-pole approx. 3 ms, 2-pole approx. 4 ms)                                                                                                                                                                                                                         |
| Release (reset) time        | Single-side stable types: 10 ms max. (mean value: 1-pole approx. 1 ms, 2-pole approx. 2 ms)<br>Latching types: 10 ms max. (mean value: approx. 3 ms)                                                                                                                                      |
| Min. set/reset signal width | Latching type: 15 ms min. (at 23°C)                                                                                                                                                                                                                                                       |
| Max. operating frequency    | Mechanical: 18,000 operations/hr<br>Electrical: 1,800 operations/hr (under rated load)                                                                                                                                                                                                    |
| Insulation resistance       | 1,000 M $\Omega$ min. (at 500 VDC, at 250 VDC between set coil and reset coil)                                                                                                                                                                                                            |
| Dielectric strength         | 3,000 VAC (Latching types: 2,000 VAC), 50/60 Hz for 1 min between coil and contacts<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<br>2,000 VAC, 50/60 Hz for 1 min between contacts of different polarity |
| Vibration resistance        | Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)<br>Malfunction: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)                                                                                                                  |
| Shock resistance            | Destruction: 1,000 m/s <sup>2</sup><br>Malfunction: Single-side stable: 100 m/s <sup>2</sup> ; Latching: 300 m/s <sup>2</sup>                                                                                                                                                             |
| Endurance                   | Mechanical: 50,000,000 operations min. (at 18,000 operations/hr)<br>Electrical: 100,000 operation min. (at 1,800 operations/hr)                                                                                                                                                           |
| Ambient temperature         | Operating: -25°C to 70°C (with no icing)                                                                                                                                                                                                                                                  |
| Ambient humidity            | Operating: 5% to 85%                                                                                                                                                                                                                                                                      |
| Weight                      | Double-winding latching: Approx. 3.7 g<br>High-capacity: Approx. 4.6 g<br>Double pole: Approx. 4.5 g<br>Other: Approx. 3.5 g                                                                                                                                                              |

Note: The data shown above are initial values.

## ■ Approved Standards

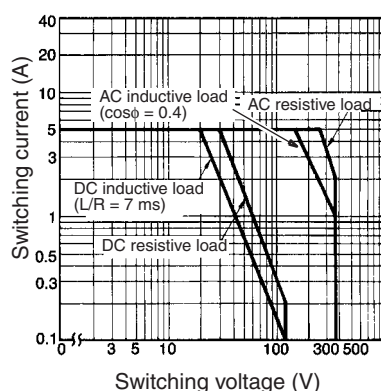
UL508 (File No. E41643)/CSA C22.2 No.14 (File No. LR31928)

| Model                                                                                            | Contact form                            | Coil rating | Contact rating                                             |
|--------------------------------------------------------------------------------------------------|-----------------------------------------|-------------|------------------------------------------------------------|
| G6B-1114P-US<br>G6B-1114C-US<br>G6BU-1114P-US<br>G6BU-1114C-US<br>G6BK-1114C-US<br>G6BK-1114C-US | SPST-NO                                 | 3 to 24 VDC | 5 A, 250 VAC (general use)<br>5 A, 30 VDC (resistive load) |
| G6B-1174P-US<br>G6B-1174C-US                                                                     |                                         |             | 8 A, 250 VAC (general use)<br>8 A, 30 VDC (resistive load) |
| G6B-2114P-US<br>G6B-2114C-US<br>G6B-2214P-US<br>G6B-2214C-US<br>G6B-2014P-US<br>G6B-2014C-US     | SPST-NO + SPST-NC<br>DPST-NO<br>DPST-NC |             | 5 A, 250 VAC (general use)<br>5 A, 30 VDC (resistive load) |

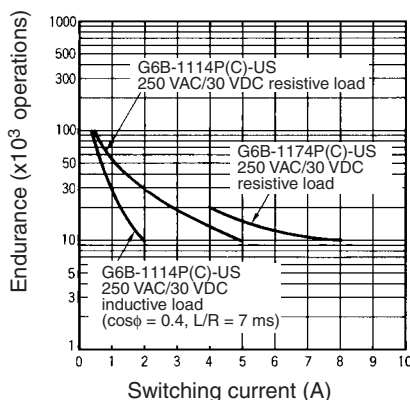
## Engineering Data

### G6B-1114P-US

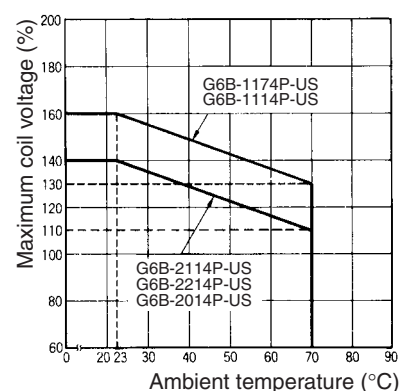
#### Maximum Switching Power



#### Endurance



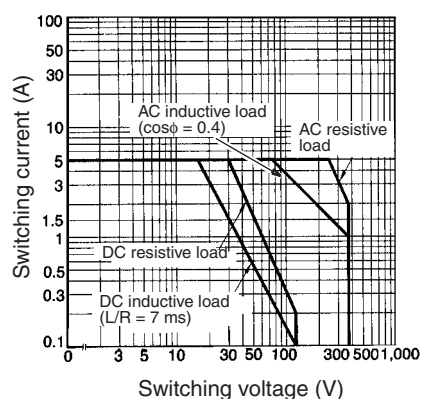
#### Ambient Temperature vs. Maximum Coil Voltage



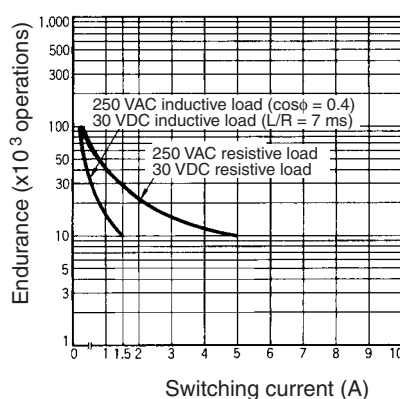
**Note:** The maximum coil voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

### G6B-2114P-US, G6B-2214P-US G6B-2014P-US

#### Maximum Switching Power



#### Endurance

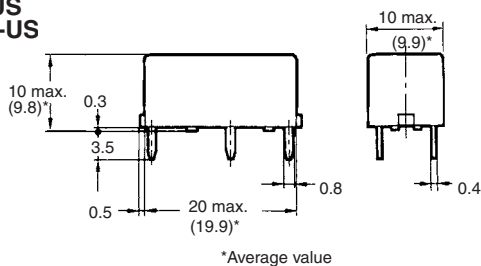
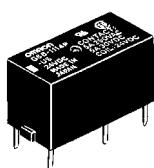


# Dimensions

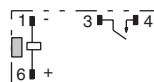
**Note:** 1. All units are in millimeters unless otherwise indicated.

2. Orientation marks are indicated as follows:  

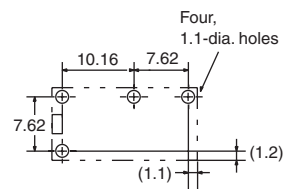
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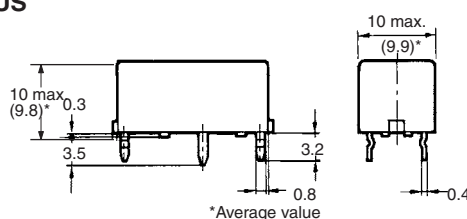
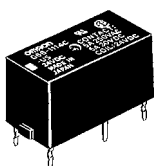
**Terminal Arrangement/Internal Connections (Bottom View)**  
G6B-1114P, -1114C



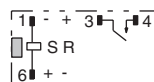
**Mounting Holes (Bottom View)**  
G6B-1114P, -1114C  
G6BU-1114P, -1114C



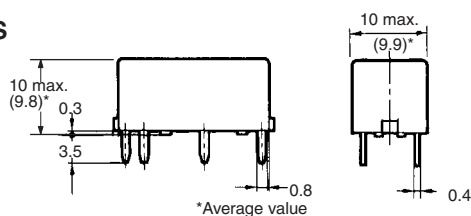
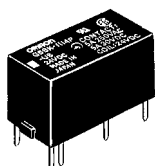
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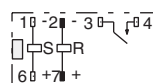
**G6BU-1114P, -1114C**



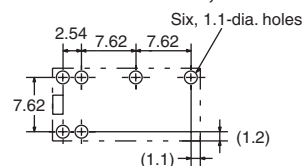
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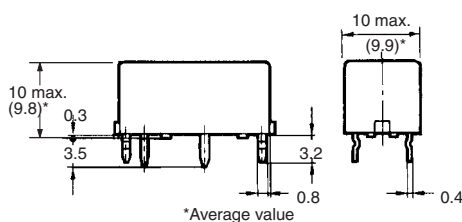
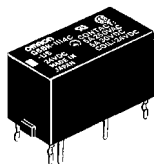
**Terminal Arrangement/Internal Connections (Bottom View)**  
G6BK-1114P, -1114C



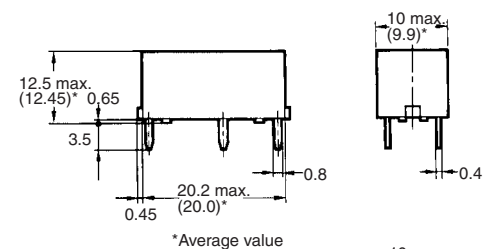
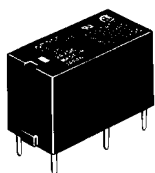
**Mounting Holes (Bottom View)**  
G6BK-1114P, -1114C



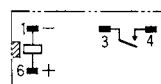
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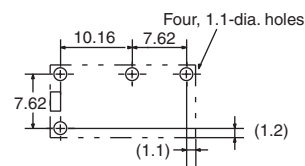
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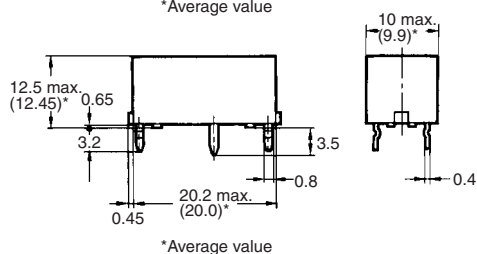
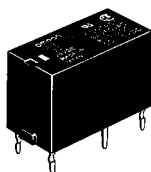
**Terminal Arrangement/Internal Connections (Bottom View)**  
G6B-1174P, -1174C



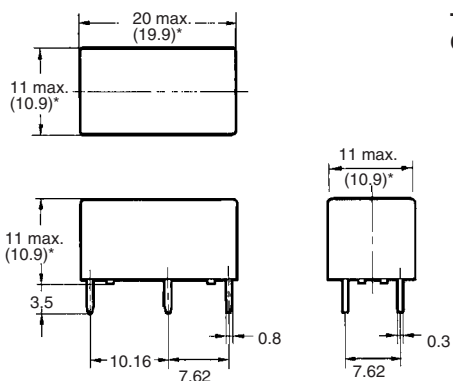
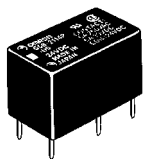
**Mounting Holes (Bottom View)**



## G6B-1174C-US

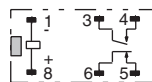


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G6B-2214P-US  
G6B-2014P-US

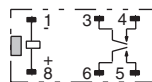


Terminal Arrangement/Internal  
Connections (Bottom View)

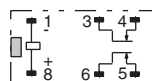
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G6B-2214P-US

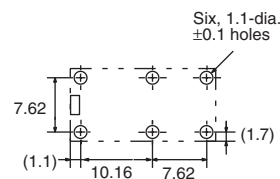


G6B-2014P-US

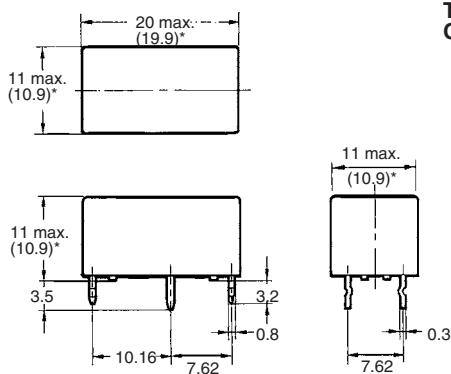
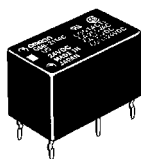


Mounting Holes  
(Bottom View)

Tolerance:  $\pm 0.1$

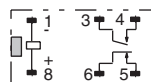


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G6B-2214C-US  
G6B-2014C-US

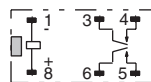


Terminal Arrangement/Internal  
Connections (Bottom View)

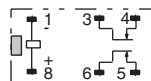
G6B-2114C-US



G6B-2214C-US

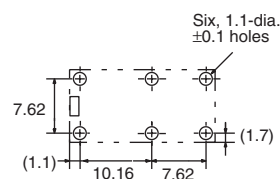


G6B-2014C-US

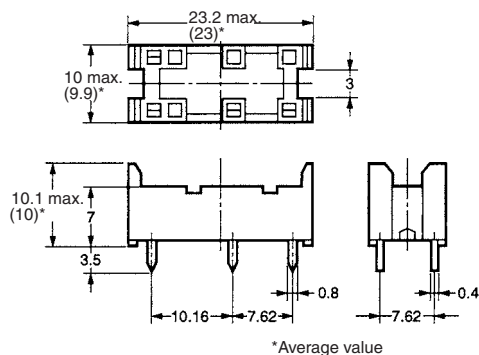
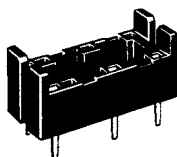


Mounting Holes  
(Bottom View)

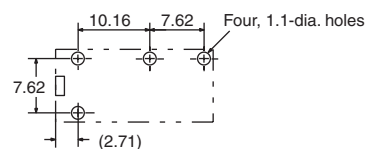
Tolerance:  $\pm 0.1$

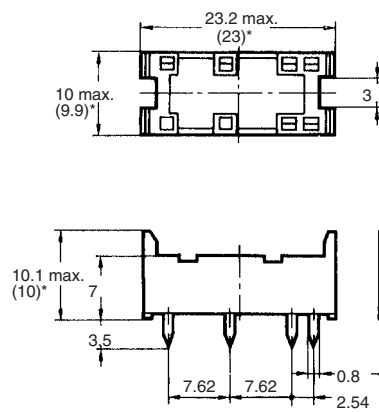
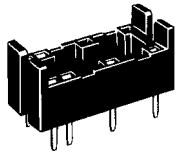


Back Connecting Socket  
P6B-04P

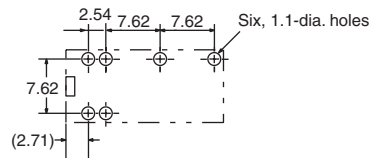
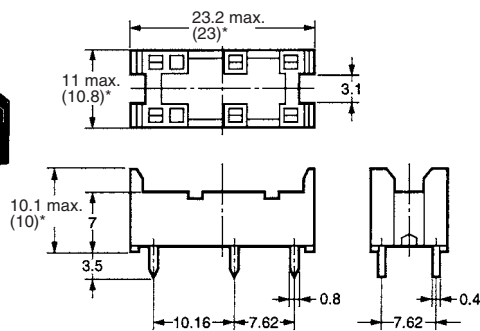
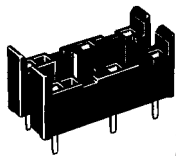


Mounting Holes (Bottom View)

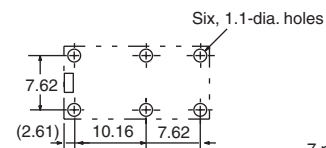
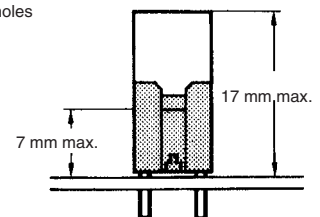
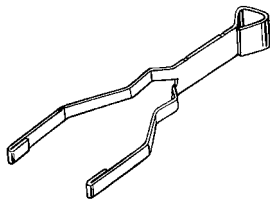
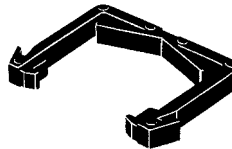


**P6B-06P**

\*Average value

**Mounting Holes (Bottom View)****P6B-26P**

\*Average value

**Mounting Holes (Bottom View)****Note:** Rated current of socket is 5 A max.**Mounting Height of Relay with Connecting Socket****Note:** Height of G6B-1174P-US is 19.5 mm max.**Removal Tool  
P6B-Y1****Hold-down Clips  
P6B-C2****Note:** P6B-C2 Hold-down Clips cannot be used for G6B-1174P-US.**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.