

Power PCB Relay G6B

- Subminiature 20 L x 9.90 W x 9.90 H mm (0.79 L x 0.39 W x 0.39 H in).
- Low power consumption (200 mW).
- Sealed construction permits automatic soldering and cleaning of the PC board.
- High-capacity and latching types available.
- Meets FCC Part 68 requirements.
- Unique moving magnet armature (Moving Loop System) reduces relay size, magnetic interference, and contact bounce time.



Ordering Information

To Order: Select the part number and add the desired coil voltage rating (e.g., G6B-1114P-US-DC6).

■ Non-Latching

| Type | Contact form | Construction | Model |
|--|-------------------|--------------|-----------------|
| Standard | SPST-NO | Sealed | G6B-1114P-US |
| | SPST-NO + SPST-NC | | G6B-2114P-US |
| | DPST-NO | | G6B-2214P-US |
| | DPST-NC | | G6B-2014P-US |
| High-capacity LED indicator & diode surge suppression | SPST-NO | Sealed | G6B-1174P-US |
| | | Semi-sealed | G6B-1177P-ND-US |

■ Latching

| Type | Contact form | Model |
|----------------------|--------------|---------------|
| Single coil latching | SPST-NO | G6BU-1114P-US |
| Dual coil latching | | G6BK-1114P-US |

■ Accessories

Back Connecting Sockets

| Relay | Model |
|---------------|---------|
| G6B-1114P-US | P6B-04P |
| G6B-1174P-US | |
| G6B-1177P-US | |
| G6BU-1114P-US | P6B-26P |
| G6B-2114P-US | |
| G6B-2214P-US | |
| G6B-2014P-US | |
| G6BK-1114P-US | P6B-06P |

Specifications

■ Contact Data

Non-latching Standard and High-capacity Types

| Load | Standard | | High-capacity | |
|-------------------------|---------------------------------|---|---------------------------------|---|
| | Resistive load (p.f. = 1) | Inductive load (p.f. = 0.4) (L/R = 7 ms) | Resistive load (p.f. = 1) | Inductive load (p.f. = 0.4) (L/R = 7 ms) |
| Rated load | 5 A at 250 VAC 5 A at 30 VDC | 2 A at 250 VAC 2 A at 30 VDC | 8 A at 250 VAC 8 A at 30 VDC | 2 A at 250 VAC 2 A at 30 VDC |
| Contact material | AgCdO | | | |
| Carry current | 5 A | | 8 A | |
| Max. operating voltage | 380 VAC, 125 VDC | | | |
| Max. operating current | 5 A | | 8 A | |
| Max. switching capacity | 1,250 VA, 150 W | 500 VA, 60 W | 2,000 VA, 240 W | 500 VA, 60 W |
| Min. permissible load | 10 mA, 5 VDC | | 10 mA, 5 VDC | |

Latching

| Load | Resistive load (p.f. = 1) | Inductive load (p.f. = 0.4) (L/R = 7 ms) |
|-------------------------|--------------------------------|---|
| Rated load | 5A at 250 VAC 5 A at 30 VDC | 2 A at 250 VAC 2 A at 30 VDC |
| Contact material | AgCdO | |
| Carry current | 5 A | |
| Max. operating voltage | 380 VAC, 125 VDC | |
| Max. operating current | 5 A | |
| Max. switching capacity | 1,250 VA, 150 W | 500 VA, 60 W |
| Min. permissible load | 10 mA, 5 VDC | |

■ Coil Data

Non-latching, SPST-NO

| Rated voltage (VDC) | Rated current (mA) | Coil resistance (Ω) | Pick-up voltage | Dropout voltage | Max. voltage | Power consumption (mW) |
|------------------------|-----------------------|------------------------|--------------------|-----------------|--------------|---------------------------|
| | | | % of rated voltage | | | |
| 3 | 67 | 45 | 70% max. | 10% min. | 130% max. | Approx. 200 |
| 5 | 40 | 125 | | | | |
| 6 | 33.30 | 180 | | | | |
| 12 | 16.70 | 720 | | | | |
| 24 | 8.30 | 2,880 | | | | |

Non-latching, LED Indicator Type

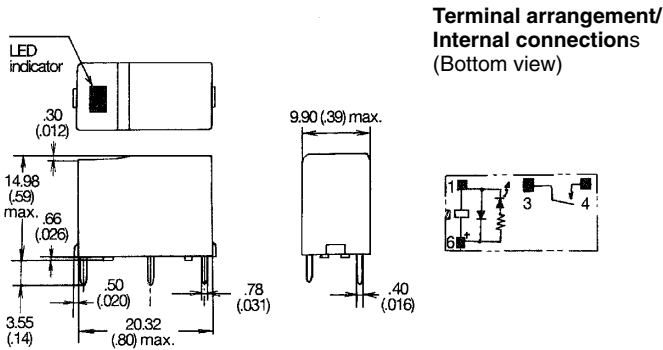
| Rated voltage (VDC) | Rated current (mA) | Coil resistance (Ω) | Pick-up voltage | Dropout voltage | Max. voltage | Power consumption (mW) |
|------------------------|-----------------------|------------------------|--------------------|-----------------|--------------|---------------------------|
| | | | % of rated voltage | | | |
| 5 | 43 | 116 | 70% max. | 10% min. | 130% max. | 215 |
| 12 | 19.70 | 610 | | | | 236 |
| 24 | 11.30 | 2,120 | | | | 271 |

Note: The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with a tolerance of ±10%.

■ Coil Data

Non-latching, 2-pole Type (SPST-NO + SPST-NC, DPST-NO, DPST-NC)

| Rated voltage (VDC) | Rated current (mA) | Coil resistance (Ω) | Pick-up voltage | Dropout voltage | Max. voltage | Power consumption (mW) |
|---------------------|--------------------|---------------------|--------------------|-----------------|--------------|------------------------|
| | | | % of rated voltage | | | |
| 3 | 100 | 30 | 80% max. | 10% min. | 110% max. | Approx. 300 |
| 5 | 60 | 83.30 | | | | |
| 6 | 50 | 120 | | | | |
| 12 | 25 | 480 | | | | |
| 24 | 12.50 | 1,920 | | | | |
| 48 | 6.25 | 7,680 | | | | |



Latching, Single-winding Type

| Rated voltage (VDC) | At set | | | Set pick-up voltage | Reset pick-up voltage | Maximum voltage | Power consumption (mW) |
|---------------------|--------------------|---------------------|----------------------------------|---------------------|-----------------------|---|------------------------|
| | Rated current (mA) | Coil resistance (Ω) | Coil inductance (ref. value) (H) | % of rated voltage | | | |
| 3 | 67 | 45 | 0.18 | 70% max. | 70% max. | 160% max. at 23°C (73°F) 130% max. at 70°C (158°F) | Approx. 200 |
| 5 | 40 | 125 | 0.26 | | | | |
| 6 | 33.30 | 180 | 0.28 | | | | |
| 12 | 16.70 | 720 | 1.10 | | | | |
| 24 | 8.30 | 2,880 | 4.10 | | | | |

Latching, Dual Coil Type - Set/Reset Coil

| 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 | | | | |
| 3 | 93.20 | 32.20 | 0.11 | 0.11 | 70% max. | 70% max. | 130% max. at 23°C (73°F) | Approx. 280 |
| 5 | 56 | 89.20 | 0.15 | 0.15 | | | | |
| 6 | 46.80 | 128.50 | 0.18 | 0.18 | | | | |
| 12 | 23.30 | 515 | 0.52 | 0.52 | | | | |
| 24 | 11.70 | 2,060 | 1.20 | 1.20 | | | | |

Note: The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with a tolerance of ±10%.

■ Characteristics

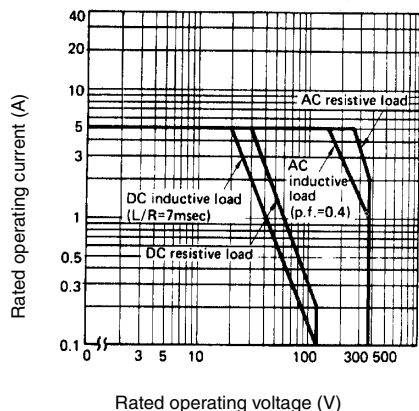
| | | Non-latching | Latching |
|-----------------------|--|---|-------------------------------------|
| Contact resistance | | 30 mΩ max | |
| Operate (set) time | | 10 ms max. (mean value: approx. 3 ms) | |
| Release (reset) time | | 10 ms max. (mean value: approx. 3 ms) (15 ms: LED indicator and diode surge suppression type) | |
| Bounce time | Operate (set) | 3 ms (5 ms: 2-pole type) | 5 ms max. (mean value approx. 3 ms) |
| | Release (reset) | 1 ms | 5 ms max. (mean value approx. 1 ms) |
| Operating frequency | Mechanical | 18,000 operations/hour | |
| | Electrical | 1,800 operations/hour (under rated load) | |
| Insulation resistance | | 1,000 MΩ min. (at 500 VDC) | |
| Dielectric strength | | 3,000 VAC, 50/60 Hz for 1 minute between coil and contacts, non-latching types 1,000 VAC, 50/60 Hz for 1 minute between contacts of same pole, non-latching types 2,000 VAC, 50/60 Hz for 1 minute between contact sets, non-latching types 250 VAC, 50/60 Hz for 1 minute between set and reset coils, latching types | |
| Vibration | Mechanical durability | 10 to 55 Hz; 1.50 mm (0.06 in) double amplitude | |
| | Malfunction durability | 10 to 55 Hz; 1.50 mm (0.06 in) double amplitude | |
| Shock | Mechanical durability | Approx. 100 G | |
| | Malfunction durability | Approx. 10 G | Approx. 30 G |
| Ambient temperature | | -25° to 70°C (-13° to 158°F) | |
| Humidity | | 45 to 85% RH | |
| Service life | Mechanical | 50 million operations min. (at operating frequency of 18,000 operations/hour) | |
| | Electrical | See "Characteristic Data" | |
| Weight | Standard type | Approx. 3.5 g (0.12 oz) | Approx. 3.7 g (0.13 oz) |
| | High-capacity type | 4.6 g (0.16 oz.) | |
| | LED indicator and diode surge suppression type | 5.4 g (0.19 oz) | |
| | 2-pole type | 4.5 g (0.16 oz) | |

Note: Data shown are of initial value.

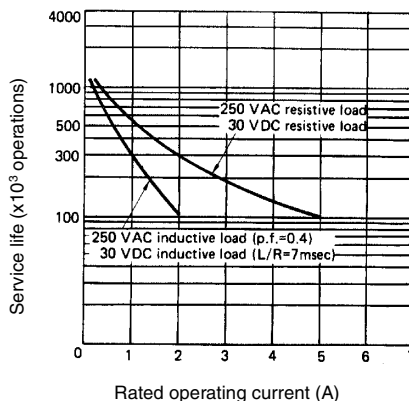
■ Characteristic Data

Standard, Non-latching Types

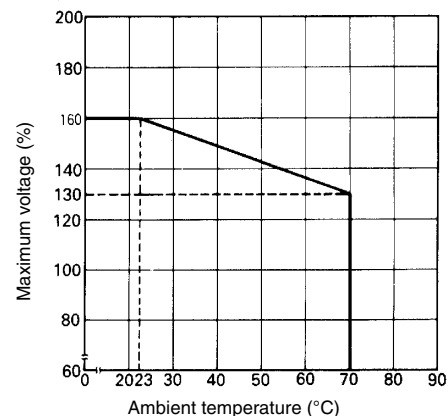
Maximum switching capacity



Electrical service life

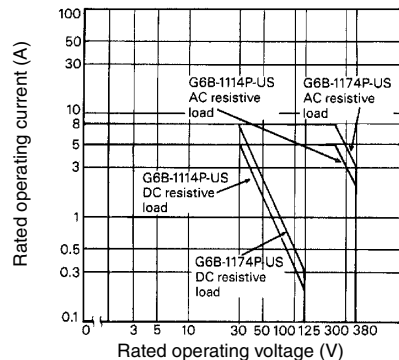


Ambient temperature vs. maximum voltage (reference only)

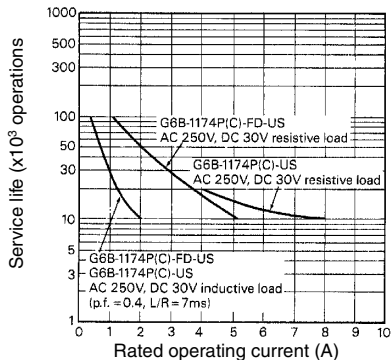


High-capacity, Non-latching Types

Maximum switching capacity

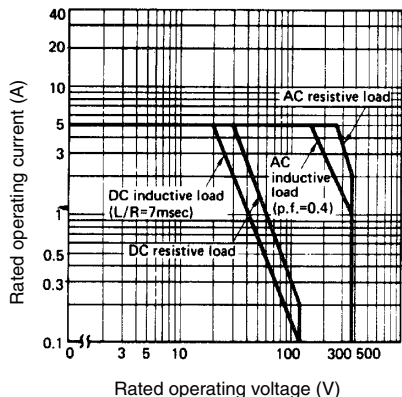


Electrical service life

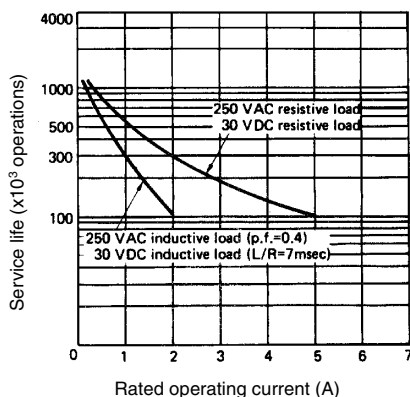


Latching Types

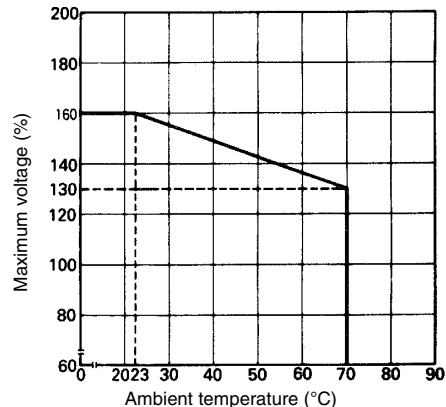
Maximum switching capacity



Electrical service life



Ambient temperature vs. maximum voltage (reference only)

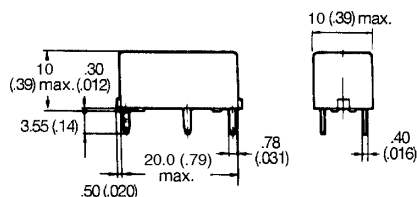


Dimensions

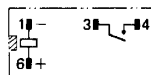
Unit: mm (inch)

■ Non-latching Relays

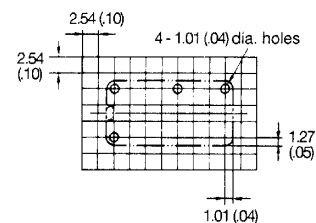
1-pole Type



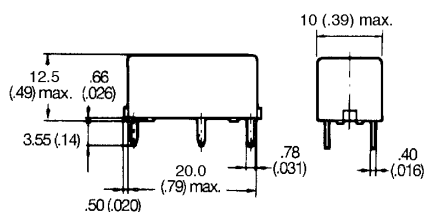
Terminal arrangement/
Internal connections
(Bottom view)



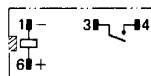
Mounting holes
(Bottom view)



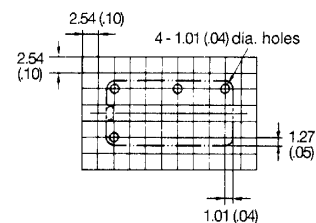
High-capacity Type



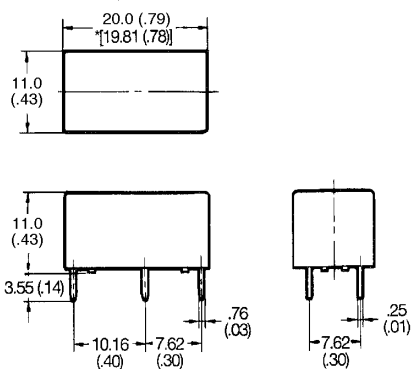
Terminal arrangement/
Internal connections
(Bottom view)



Mounting holes
(Bottom view)

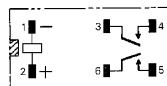


2-pole Type

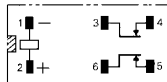


Terminal arrangement/
Internal connections
(Bottom view)

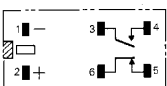
DPST-NO



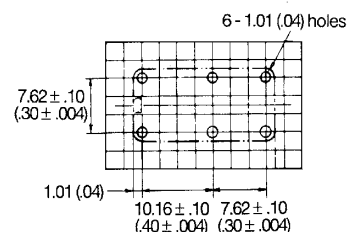
DPST-NC



DPST-NO + SPST-NC



Mounting holes
(Bottom view)



*Average value.

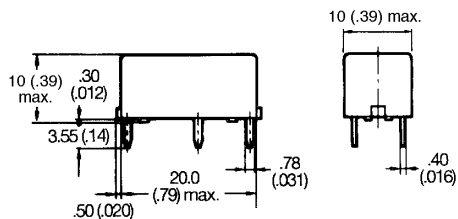
Note: and indicate mounting orientation marks.

■ Latching Relays

G6BU-1114P-US

**Terminal arrangement/
Internal connections
(Bottom view)**

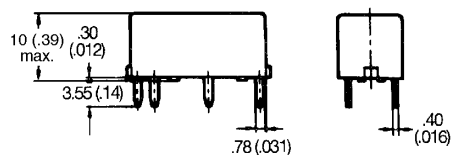
**Mounting holes
(Bottom view)**



G6BK-1114P-US

**Terminal arrangement/
Internal connections
(Bottom view)**

**Mounting holes
(Bottom view)**



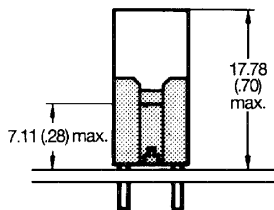
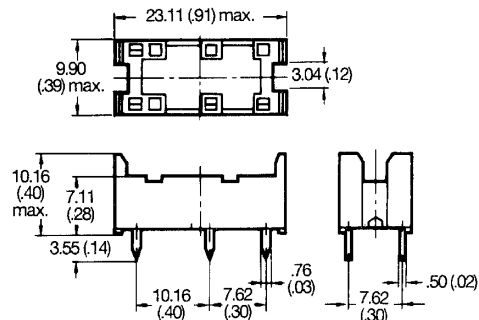
Note: Pay attention to the polarity of the coil.

■ Accessories

P6B-04P Connecting Socket

**Mounting height of relay
width connecting socket**

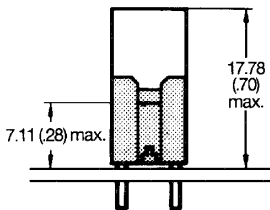
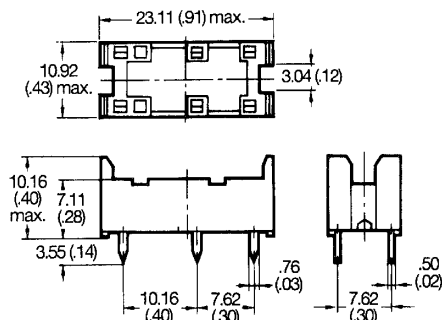
**Mounting holes
(Bottom view)**



P6B-06P Connecting Socket

**Mounting height of relay
width connecting socket**

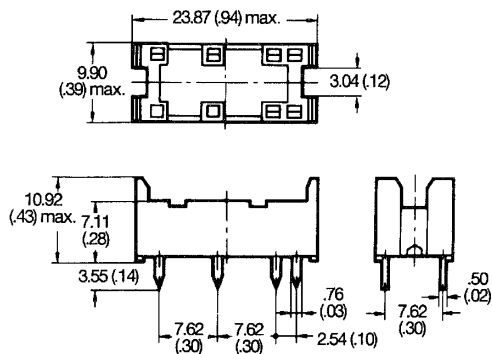
**Mounting holes
(Bottom view)**



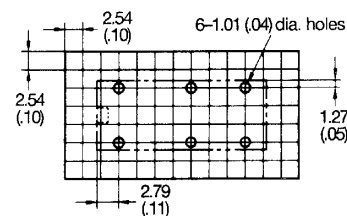
Note: and indicate mounting orientation marks.

Unit: mm (inch)

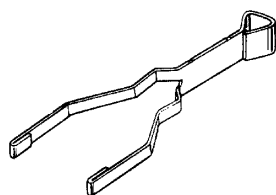
P6B-26P Connecting Socket





Mounting holes
(Bottom view)



P6B-Y1 Relay Extractor



- Note:** 1.  and  indicate mounting orientation marks.
2. Relay hold-down clip, P6B-C2, is available.

■ Approvals

UL (File No. E41643)/ CSA (File No. LR31928)

| Type | Contact form | Coil ratings | Contact ratings |
|---|--|--------------|---|
| G6B-1114P-US | SPST-NO | 3 to 24 VDC | 5 A, 250 VAC (General purpose) 5 A, 30 VDC (Resistive) 1/6 HP, 250 VAC 1/8 HP, 250 VAC TV-2 360 WT, 120 VAC Tungsten |
| G6B-2014P-US G6B-2214P-US G6B-2114P-US | DPST-NC DPST-NO SPST-NC + SPST-NO | 3 to 24 VDC | 5 A, 250 VAC (General purpose) 5 A, 30 VDC (Resistive) 1/6 HP, 250 VAC 1/8 HP, 250 VAC 360 WT, 120 VAC Tungsten B300 (Pilot duty) |
| G6B-1174P-US G6B-1177P-US G6B-1177P-ND-US | SPST-NO | 3 to 24 VDC | 8 A, 250 VAC (General purpose) 8 A, 30 VDC (Resistive) 1/6 HP, 250 VAC 1/8 HP, 250 VAC 360 WT, 120 VAC Tungsten B300 (Pilot duty) |
| G6BU-1114P-US G6BK-1114P-US | SPST-NO | 3 to 24 VDC | 5 A, 250 VAC (General purpose) 5 A, 30 VDC (Resistive) 1/6 HP, 250 VAC (Motor load) 1/8 HP, 250 VAC (Motor load) 360 WT, 120 VAC Tungsten |

- Note:** 1. The rated values approved by each of the safety standards (e.g., UL and CSA) may be different from the performance characteristics individually defined in this catalog.
2. In the interest of product improvement, specifications are subject to change.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, divide by 25.4



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