Power PCB Relay

Subminiature Relay that Switches up to 5 A

- Subminiature: 20 x 10 x 10 mm (L x W x H).
- · Low power consumption: 200 mW.
- Unique moving loop armature reduces relay size, magnetic interference, and contact bounce time.
- · Fully sealed construction
- Single and Dual coil latching types also available.
- · High Capacity versions available
- RoHS Compliant



Ordering Information

Classification	Contact form	Straight Through-hole PCB	Self-clinching Through-hole PCB
Non-latching	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 coil latching	SPST-NO	G6BU-1114P-US	G6BU-1114C-US
Dual coil latching	SPST-NO	G6BK-1114P-US	G6BK-1114C-US
High-capacity, Non-latching	SPST-NO	G6B-1174P-US	G6B-1174C-US

Note: When ordering, add the rated coil voltage to the model number. Example: G6B-1114P-US DC12

Rated coil voltage

Model Number Legend



- 1. Relay Function
 - None: Non-latching
 - Single coil latching U: K: Dual coil latching
- 2. Contact Form
 - SPST-NO + SPST-NC 21: DPST-NO
 - 22: 20: DPST-NC
 - SPST-NO 11:

- 3. Contact Type 1: Standard 7: High-capacity
- 4. Enclosure Ratings 4: Fully 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 P6B: Mount to Socket
- 8. Rated Coil Voltage 5, 6, 12, or 24 VDC

■ Accessories (Order Separately)

Back Connecting Sockets

Applicable Relay	Back Connecting Socket (See note 1.)
G6B(U)-1114P-US-P6B	P6B-04P
G6BK-1114P-US-P6B	P6B-06P
G6B-2□□4P-US-P6B	P6B-26P
G6B-1174P-US-P6B	P6B-04P

Note: 1. Not applicable to the self-clinching type.

2. Use the G6B-DDP-US-*P6B* if mounting relays in a P6B Socket.

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

Specifications

■ Contact Ratings

Item		SPST-NO	SPST-NO + SPS	SPST-NO + SPST-NC, DPST-NO, DPST-NC		
Load	Resistive load $(\cos \phi = 1)$	Inductive load $(\cos\phi = 0.4; L/R = 7 ms)$	Resistive load $(\cos\phi = 1)$	Inductive load $(\cos\phi = 0.4; L/R = 7 ms)$		
Rated load	5 A at 250 VAC; 5A at 30 VDC	2 A at 250 VAC; 2 A at 30 VDC	5 A at 250 VAC; 5A at 30 VDC	1.5 A at 250 VAC; 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 capacity	1,250 VA, 150 W	500 VA, 60 W	1,250 VA, 150 W	375 VA, 80 W		
Min. permissible load (reference value - see note)	10 mA at 5 VDC	·				

Item	SPS	ST-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 capacity	2,000 VA, 150 W						
Min. permissible load (reference value - see note)	10 mA at 5 VDC						

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

Coil Ratings

Rated voltage	Rated current	Coil	Coil inductance (ref. value)(H)				Dropout voltage	Max. voltage	Power
(VDC)	(mA)	(Ω)	Armature OFF	Armature ON	% of rated voltage		consumption (mW)		
5	40	125	0.28	0.26	70% max.	10% min.	160% max. @	Approx. 200	
6	33.30	180	0.31	0.28			23°C		
12	16.70	720	1.2	1.1]				
24	8.30	2,880	4.9	4.1]				

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.

Non-latching, Double Pole

Rated	Rated	Coil	Pick-up voltage	Dropout voltage	Max. voltage	Power	
voltage (VDC)	current (mA)	resistance (Ω)	% of rated voltage			consumption (mW)	
5	60	83.30	80% max.	10% min.	140% max.@ 23°C	Approx. 300	
6	50	120					
12	25	480					
24	12.50	1,920					

Single Coil Latching

Rated voltage	Rated current	Coil resistance	Coil inductance (ref. value) (H)		Set pick-up voltage	Reset pick-up voltage	Maximum voltage	Power consumption
(VDC)	(mA)	(Ω)	Armature OFF Armature ON		%	% of rated voltage		(mW)
5	40	125	0.28	0.26	70% max.	70% max.	160% max.	Approx. 200
6	33.30	180	0.31	0.28			at 23°C	
12	16.70	720	1.2	1.10				
24	8.30	2,880	4.9	4.10]			

Dual Coil Latching

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)
(VDC)	(IIIA)	(52)	Armature OFF	Armature ON	%	of rated voltage	je	(11100)
5	56	89.20	0.15	0.15	70% max.	70% max.	130% max.	Approx. 280
6	46.80	128.50	0.18	0.18			at 23°C	
12	23.30	515	0.52	0.52				
24	11.70	2,060	1.20	1.20				

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.

■ Characteristics

Contact resistance		30 m Ω max.			
Operate (set) time		10 ms max. (mean value: 1-p	oole approx. 3 ms, 2-pole approx. 4 ms)		
Release (reset) time	Non-latching	10 ms max. (mean value: 1-p	oole approx. 1 ms, 2-pole approx. 2 ms)		
	Latching	10 ms max. (mean value: ap	prox. 3 ms)		
Min. set/reset signal widt	th	Latching type: 15 ms min. (at	t 23°C)		
Max. operating Mechanical		18,000 operations/hr			
frequency	Electrical	1,800 operations/hr (under rated load)			
Insulation resistance		1,000 M Ω 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 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity 250 VAC, 50/60 Hz for 1 min between set and reset coils 2,000 VAC, 50/60 Hz for 1 min between contacts of different polarity			
Vibration resistance	Mechanical durability	10 to 55 Hz, 1.5-mm double	10 to 55 Hz, 1.5-mm double amplitude		
	Malfunction durability	10 to 55 Hz, 1.5-mm double	amplitude		
Shock resistance	Mechanical durability	1,000 m/s² (Approx 100G)			
	Malfunction durability	Single-side stable: 100 m/s ² (Approx 10G); Latching: 300 m/s ² (Approx 30G)			
Service Life	Mechanical	50,000,000 operations min. (at 18,000 operations/hr)			
	Electrical	100,000 operation min. (at 1,800 operations/hr)			
Ambient temperature		Operating: -25°C to 70°C (w	ith no icing)		
Ambient humidity		Operating: 5% to 85%			
Weight		Double-winding latching:	Approx. 3.7 g		
			Approx. 4.6 g		
		Double pole:	Approx. 4.5 g		
		Other:	Approx. 3.5 g		

Note: The data shown above are initial values.

■ Approved Standards

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

Model	Contact form	Coil rating	Contact rating
G6B-1114P-US G6B-1114C-US G6BU-1114P-US G6BU-1114C-US G6BK-1114C-US G6BK-1114C-US	SPST-NO	3 to 24 VDC	5 A at 250 VAC (General Use) 80°C 5 A at 30 VDC (Resistive) 80°C
G6B-1174P-US G6B-1174C-US			8 A at 250 VAC (General Use) 80°C 8 A at 30 VDC (Resistive) 80°C
G6B-2114P-US G6B-2114C-US G6B-2214P-US G6B-2214C-US G6B-2014P-US G6B-2014C-US	SPST-NO + SPST-NC DPST-NO DPST-NC		5 A at 250 VAC (general use) 40°C 5 A at 30 VDC (resistive load) 40°C

Engineering Data

G6B-1114P-US Maximum Switching Capacity



Electrical 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.

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









Dimensions



Double Pole



Accessories

Back Connecting Socket P6B-04P



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