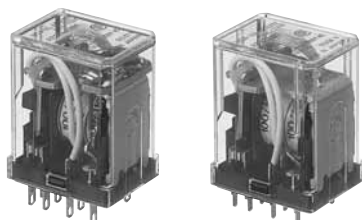


Panasonic
ideas for life

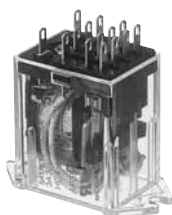
**MINIATURE RELAY FOR
WIDER APPLICATIONS**

HC RELAYS



Plug-in type

PC board type



TM type

FEATURES

1. Long track record means reliable quality.
2. Can provide switching across the range from low to high level power loads (100 μ A to 10 A).
3. Full range of types
Standard types include 1 Form C, 2 Form C, 3 Form C, 4 Form C, 4-pole bifurcated (twin), plug-in type, PC board type, and TM type.
4. HC relay with LED indication type also available
5. UL, CSA approval is standard
Compliance also with Japanese Electrical Appliance and Material Control Law.

2. Office equipment, automatic vending machines, telecommunications equipment, disaster prevention equipment, copiers, measuring devices, medical equipment, amusement devices, etc.
3. All types of household appliance

About Cd-free contacts

We have introduced Cadmium free type products to reduce Environmental Hazardous Substances. (The suffix "F" should be added to the part number. The Suffix "F" is required only for 1 Form C, 2 Form C, 3 Form C contact type. The 4 Form C and 4 Form C bifurcated (twin) contact type is originally cadmium-free, the suffix "F" is not required.) Please replace parts containing Cadmium with Cadmium-free products and evaluate them with your actual application before use because the life of a relay depends on the contact material and load.

Compliance with RoHS Directive

TYPICAL APPLICATIONS

Suitable for factory automation equipment and automotive devices

1. Control panels, power supply equipment, molding equipment, machine tools, welding equipment, agricultural equipment, etc.

ORDERING INFORMATION

Contact arrangement

- 1: 1 Form C
- 2: 2 Form C
- 3: 3 Form C
- 4: 4 Form C
- 4D: Bifurcated contact (twin)

Terminal arrangement

- H: Plug-in type
HL: Plug-in with LED indication
HP: PC board type
HPL: PC board with LED indication
HTM: TM type

Coil voltage

AC 6, 12, 24, 48, 100 (100/110), 120 (110/120), 200 (200/220), 240 (220/240) V
DC 6, 12, 24, 48, 100 (100/110) V

Contact material

Contact arrangement	Contact material	Ag alloy (cadmium-free)	AgNi type
1 Form C		F	
2 Form C		F	
3 Form C		F	
4 Form C			Nil
Bifurcated contact (twin)			Nil

HC - - -

Notes: UL/CSA approved type is standard.

Please inquire about VDE (1 Form C, 2 Form C, and 4 Form C only) and TV-3 (1 Form C and 2 Form C only) approved products.

HC

TYPES

1) Plug-in type

Coil voltage	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Part No.	Part No.	Part No.	Part No.	Part No.
6V AC	HC1-H-AC6V-F	HC2-H-AC6V-F	HC3-H-AC6V-F	HC4-H-AC6V	HC4D-H-AC6V
12V AC	HC1-H-AC12V-F	HC2-H-AC12V-F	HC3-H-AC12V-F	HC4-H-AC12V	HC4D-H-AC12V
24V AC	HC1-H-AC24V-F	HC2-H-AC24V-F	HC3-H-AC24V-F	HC4-H-AC24V	HC4D-H-AC24V
48V AC	HC1-H-AC48V-F	HC2-H-AC48V-F	HC3-H-AC48V-F	HC4-H-AC48V	HC4D-H-AC48V
100/110V AC	HC1-H-AC100V-F	HC2-H-AC100V-F	HC3-H-AC100V-F	HC4-H-AC100V	HC4D-H-AC100V
110/120V AC	HC1-H-AC120V-F	HC2-H-AC120V-F	HC3-H-AC120V-F	HC4-H-AC120V	HC4D-H-AC120V
200/220V AC	HC1-H-AC200V-F	HC2-H-AC200V-F	HC3-H-AC200V-F	HC4-H-AC200V	HC4D-H-AC200V
220/240V AC	HC1-H-AC240V-F	HC2-H-AC240V-F	HC3-H-AC240V-F	HC4-H-AC240V	HC4D-H-AC240V
6V DC	HC1-H-DC6V-F	HC2-H-DC6V-F	HC3-H-DC6V-F	HC4-H-DC6V	HC4D-H-DC6V
12V DC	HC1-H-DC12V-F	HC2-H-DC12V-F	HC3-H-DC12V-F	HC4-H-DC12V	HC4D-H-DC12V
24V DC	HC1-H-DC24V-F	HC2-H-DC24V-F	HC3-H-DC24V-F	HC4-H-DC24V	HC4D-H-DC24V
48V DC	HC1-H-DC48V-F	HC2-H-DC48V-F	HC3-H-DC48V-F	HC4-H-DC48V	HC4D-H-DC48V
100/110V DC	HC1-H-DC100V-F	HC2-H-DC100V-F	HC3-H-DC100V-F	HC4-H-DC100V	HC4D-H-DC100V

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

2) Plug-in type (with LED indication)

Coil voltage	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Part No.	Part No.	Part No.	Part No.	Part No.
6V AC	HC1-HL-AC6V-F	HC2-HL-AC6V-F	HC3-HL-AC6V-F	HC4-HL-AC6V	HC4D-HL-AC6V
12V AC	HC1-HL-AC12V-F	HC2-HL-AC12V-F	HC3-HL-AC12V-F	HC4-HL-AC12V	HC4D-HL-AC12V
24V AC	HC1-HL-AC24V-F	HC2-HL-AC24V-F	HC3-HL-AC24V-F	HC4-HL-AC24V	HC4D-HL-AC24V
100/110V AC	HC1-HL-AC100V-F	HC2-HL-AC100V-F	HC3-HL-AC100V-F	HC4-HL-AC100V	HC4D-HL-AC100V
110/120V AC	HC1-HL-AC120V-F	HC2-HL-AC120V-F	HC3-HL-AC120V-F	HC4-HL-AC120V	HC4D-HL-AC120V
200/220V AC	HC1-HL-AC200V-F	HC2-HL-AC200V-F	HC3-HL-AC200V-F	HC4-HL-AC200V	HC4D-HL-AC200V
220/240V AC	HC1-HL-AC240V-F	HC2-HL-AC240V-F	HC3-HL-AC240V-F	HC4-HL-AC240V	HC4D-HL-AC240V
6V DC	HC1-HL-DC6V-F	HC2-HL-DC6V-F	HC3-HL-DC6V-F	HC4-HL-DC6V	HC4D-HL-DC6V
12V DC	HC1-HL-DC12V-F	HC2-HL-DC12V-F	HC3-HL-DC12V-F	HC4-HL-DC12V	HC4D-HL-DC12V
24V DC	HC1-HL-DC24V-F	HC2-HL-DC24V-F	HC3-HL-DC24V-F	HC4-HL-DC24V	HC4D-HL-DC24V
48V DC	HC1-HL-DC48V-F	HC2-HL-DC48V-F	HC3-HL-DC48V-F	HC4-HL-DC48V	HC4D-HL-DC48V
100/110V DC	HC1-HL-DC100V-F	HC2-HL-DC100V-F	HC3-HL-DC100V-F	HC4-HL-DC100V	HC4D-HL-DC100V

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

3) PC board type

Coil voltage	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Part No.	Part No.	Part No.	Part No.	Part No.
6V AC	HC1-HP-AC6V-F	HC2-HP-AC6V-F	HC3-HP-AC6V-F	HC4-HP-AC6V	HC4D-HP-AC6V
12V AC	HC1-HP-AC12V-F	HC2-HP-AC12V-F	HC3-HP-AC12V-F	HC4-HP-AC12V	HC4D-HP-AC12V
24V AC	HC1-HP-AC24V-F	HC2-HP-AC24V-F	HC3-HP-AC24V-F	HC4-HP-AC24V	HC4D-HP-AC24V
48V AC	HC1-HP-AC48V-F	HC2-HP-AC48V-F	HC3-HP-AC48V-F	HC4-HP-AC48V	HC4D-HP-AC48V
100/110V AC	HC1-HP-AC100V-F	HC2-HP-AC100V-F	HC3-HP-AC100V-F	HC4-HP-AC100V	HC4D-HP-AC100V
110/120V AC	HC1-HP-AC120V-F	HC2-HP-AC120V-F	HC3-HP-AC120V-F	HC4-HP-AC120V	HC4D-HP-AC120V
200/220V AC	HC1-HP-AC200V-F	HC2-HP-AC200V-F	HC3-HP-AC200V-F	HC4-HP-AC200V	HC4D-HP-AC200V
220/240V AC	HC1-HP-AC240V-F	HC2-HP-AC240V-F	HC3-HP-AC240V-F	HC4-HP-AC240V	HC4D-HP-AC240V
6V DC	HC1-HP-DC6V-F	HC2-HP-DC6V-F	HC3-HP-DC6V-F	HC4-HP-DC6V	HC4D-HP-DC6V
12V DC	HC1-HP-DC12V-F	HC2-HP-DC12V-F	HC3-HP-DC12V-F	HC4-HP-DC12V	HC4D-HP-DC12V
24V DC	HC1-HP-DC24V-F	HC2-HP-DC24V-F	HC3-HP-DC24V-F	HC4-HP-DC24V	HC4D-HP-DC24V
48V DC	HC1-HP-DC48V-F	HC2-HP-DC48V-F	HC3-HP-DC48V-F	HC4-HP-DC48V	HC4D-HP-DC48V
100/110V DC	HC1-HP-DC100V-F	HC2-HP-DC100V-F	HC3-HP-DC100V-F	HC4-HP-DC100V	HC4D-HP-DC100V

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

Note: Please add "-31" before "-F" in the part number when ordering the PC board type 0.9 mm width terminal (ex) HC1-HP-AC6V-31-F.

4) PC board type (with LED indication)

Coil voltage	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Part No.	Part No.	Part No.	Part No.	Part No.
6V AC	HC1-HPL-AC6V-F	HC2-HPL-AC6V-F	HC3-HPL-AC6V-F	HC4-HPL-AC6V	HC4D-HPL-AC6V
12V AC	HC1-HPL-AC12V-F	HC2-HPL-AC12V-F	HC3-HPL-AC12V-F	HC4-HPL-AC12V	HC4D-HPL-AC12V
24V AC	HC1-HPL-AC24V-F	HC2-HPL-AC24V-F	HC3-HPL-AC24V-F	HC4-HPL-AC24V	HC4D-HPL-AC24V
100/110V AC	HC1-HPL-AC100V-F	HC2-HPL-AC100V-F	HC3-HPL-AC100V-F	HC4-HPL-AC100V	HC4D-HPL-AC100V
110/120V AC	HC1-HPL-AC120V-F	HC2-HPL-AC120V-F	HC3-HPL-AC120V-F	HC4-HPL-AC120V	HC4D-HPL-AC120V
200/220V AC	HC1-HPL-AC200V-F	HC2-HPL-AC200V-F	HC3-HPL-AC200V-F	HC4-HPL-AC200V	HC4D-HPL-AC200V
6V DC	HC1-HPL-DC6V-F	HC2-HPL-DC6V-F	HC3-HPL-DC6V-F	HC4-HPL-DC6V	HC4D-HPL-DC6V
12V DC	HC1-HPL-DC12V-F	HC2-HPL-DC12V-F	HC3-HPL-DC12V-F	HC4-HPL-DC12V	HC4D-HPL-DC12V
24V DC	HC1-HPL-DC24V-F	HC2-HPL-DC24V-F	HC3-HPL-DC24V-F	HC4-HPL-DC24V	HC4D-HPL-DC24V
48V DC	HC1-HPL-DC48V-F	HC2-HPL-DC48V-F	HC3-HPL-DC48V-F	HC4-HPL-DC48V	HC4D-HPL-DC48V
100/110V DC	HC1-HPL-DC100V-F	HC2-HPL-DC100V-F	HC3-HPL-DC100V-F	HC4-HPL-DC100V	HC4D-HPL-DC100V

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

Note: Please add "31" before "F" in the part number when ordering the PC board type 0.9 mm width terminal (ex) HC1-HPL-AC6V-31-F.

5) TM type

Coil voltage	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Part No.	Part No.	Part No.	Part No.	Part No.
6V AC	HC1-HTM-AC6V-F	HC2-HTM-AC6V-F	HC3-HTM-AC6V-F	HC4-HTM-AC6V	HC4D-HTM-AC6V
12V AC	HC1-HTM-AC12V-F	HC2-HTM-AC12V-F	HC3-HTM-AC12V-F	HC4-HTM-AC12V	HC4D-HTM-AC12V
24V AC	HC1-HTM-AC24V-F	HC2-HTM-AC24V-F	HC3-HTM-AC24V-F	HC4-HTM-AC24V	HC4D-HTM-AC24V
48V AC	HC1-HTM-AC48V-F	HC2-HTM-AC48V-F	HC3-HTM-AC48V-F	HC4-HTM-AC48V	HC4D-HTM-AC48V
100/110V AC	HC1-HTM-AC100V-F	HC2-HTM-AC100V-F	HC3-HTM-AC100V-F	HC4-HTM-AC100V	HC4D-HTM-AC100V
110/120V AC	HC1-HTM-AC120V-F	HC2-HTM-AC120V-F	HC3-HTM-AC120V-F	HC4-HTM-AC120V	HC4D-HTM-AC120V
200/220V AC	HC1-HTM-AC200V-F	HC2-HTM-AC200V-F	HC3-HTM-AC200V-F	HC4-HTM-AC200V	HC4D-HTM-AC200V
6V DC	HC1-HTM-DC6V-F	HC2-HTM-DC6V-F	HC3-HTM-DC6V-F	HC4-HTM-DC6V	HC4D-HTM-DC6V
12V DC	HC1-HTM-DC12V-F	HC2-HTM-DC12V-F	HC3-HTM-DC12V-F	HC4-HTM-DC12V	HC4D-HTM-DC12V
24V DC	HC1-HTM-DC24V-F	HC2-HTM-DC24V-F	HC3-HTM-DC24V-F	HC4-HTM-DC24V	HC4D-HTM-DC24V
48V DC	HC1-HTM-DC48V-F	HC2-HTM-DC48V-F	HC3-HTM-DC48V-F	HC4-HTM-DC48V	HC4D-HTM-DC48V
100/110V DC	HC1-HTM-DC100V-F	HC2-HTM-DC100V-F	HC3-HTM-DC100V-F	HC4-HTM-DC100V	HC4D-HTM-DC100V

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

RATING**1. Coil data****1) AC coils (50/60Hz)**

Type	Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal coil current [±20%] (at 20°C 68°F)		Coil inductance		Nominal operating power		Max. allowable voltage (at 70°C 158°F)
				50Hz	60Hz	N.C. condition	N.O. condition	50Hz	60Hz	
Standard	6V AC	80%V or less of nominal voltage (Initial)	30%V or more of nominal voltage (Initial)	224mA	200mA	0.078H	0.074H	1.3VA	1.2VA	110%V of nominal voltage
	12V AC			111mA	100mA	0.312H	0.295H	1.3VA	1.2VA	
	24V AC			56mA	50mA	1.243H	1.181H	1.3VA	1.2VA	
	48V AC			28mA	25mA	4.974H	4.145H	1.3VA	1.2VA	
	100/110V AC			13.4/14.7mA	12/13.2mA	23.75H	20.63H	1.3VA	1.2VA	
	110/120V AC			12.2/13.5mA	10.9/11.9mA	27.19H	25.57H	1.3VA	1.2VA	
	200/220V AC			6.7/7.4mA	6/6.6mA	85.98H	81.76H	1.3VA	1.2VA	

Notes: 1. The relay operates in a range of 80% to 110% V of the voltage rating, but ideally, in consideration of temporary voltage fluctuations, it should be operated at the rated voltage. In particular, for AC operation, if the applied voltage drops to 80% V or more below the rated voltage, humming will occur and a large current will flow leading possibly to coil burnout.

2. The maximum allowable voltage is the maximum voltage fluctuation value for the coil power supply. This value is not a permissible value for continuous operation. (This value differs depending on the ambient temperature. Please contact us for details.)

2) DC coils

Type	Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal coil current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. allowable voltage (at 70°C 158°F)
Standard	6V DC	80%V or less of nominal voltage (Initial)	10%V or more of nominal voltage (Initial)	150mA	40Ω	0.9W	110%V of nominal voltage
	12V DC			75mA	160Ω	0.9W	
	24V DC			37mA	650Ω	0.9W	
	48V DC			18.5mA	2,600Ω	0.9W	
	100/110V DC			10/11mA	10,000Ω	1.0W	

Notes: 1. The coil resistance for DC operation is the value measured when the coil temperature is 20°C 68°F. Compensate ±0.4% for every ±1°C change in temperature.

2. The relay operates in a range of 80% to 110% V of the voltage rating, but ideally, in consideration of temporary voltage fluctuations, it should be operated at the rated voltage.

3. For use with 200 V DC, connect a 10 KΩ (5W) resistor, in series, to the 100 V DC relay.

4. The maximum allowable impress voltage is the maximum voltage fluctuation value for the coil power supply. This value is not a permissible value for continuous operation. (This value differs depending on the ambient temperature. Please contact us for details.)

2. Specifications

Characteristics		Item		Specifications		
Contact	Arrangement	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Contact pressure	Approx. 0.294N{30gf}	Approx. 0.147N{15gf}	Approx. 0.147N{15gf}	Approx. 0.098N{10gf}	Approx. 0.127N{13gf}
	Initial contact resistance, max	Max. 30 mΩ (By voltage drop 6 V DC 1A)				
	Contact material	Ag alloy (cd free) + Au flash			AgNi type + Au clad	
Rating	Nominal switching capacity (resistive load)	10A 250V AC	7A 250V AC	7A 250V AC	5A 250V AC	3A 250V AC
	Max. switching power (resistive load)	2,500VA	1,750VA	1,750VA	1,250VA	750VA
	Max. switching voltage	250VAC				
	Max. switching current	10A	7A	7A	5A	3A
	Nominal operating power	AC (50Hz): 1.3VA, AC (60Hz): 1.2VA, DC: 0.9 to 1.1W				
	Min. switching capacity (Reference value)*1	1mA 1V DC				100μA 1V DC
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as "Initial breakdown voltage" section.			
	Breakdown voltage (Initial)	Between open contacts	700 Vrms for 1min. (Detection current: 10mA.)			
		Between contact sets	700 Vrms for 1min. (Detection current: 10mA.)			
		Between contact and coil	2,000 Vrms for 1min. (Detection current: 10mA.)			
	Temperature rise (at 70°C 158°F)		Max. 80°C (By resistive method, nominal voltage)			
	Operate time (at 20°C 68°F)*2		Max. 20ms (Nominal voltage applied to the coil, excluding contact bounce time.)			
	Release time (at 20°C 68°F)*2		Max. 20ms (Nominal voltage applied to the coil, excluding contact bounce time.) (without diode)			
Mechanical characteristics	Shock resistance	Functional	Min. 196 m/s ² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)			
		Destructive	Min. 980 m/s ² (Half-wave pulse of sine wave: 6 ms.)			
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1 mm (Detection time: 10μs.)			
		Destructive	10 to 55 Hz at double amplitude of 2 mm			
Expected life	Mechanical		Min. 5×10 ⁷ : AC coil type (at 180 cpm); Min. 10 ⁸ : DC coil type (at 180 cpm)			
	Electrical (resistive load)		Min. 2×10 ⁵ (at 20 cpm)	Min. 2×10 ⁵ (at 20 cpm)	Min. 10 ⁵ (at 20 cpm)	Min. 2×10 ⁵ (at 20 cpm)
Conditions	Conditions for operation, transport and storage*3		Ambient temperature: -50°C to +70°C -58°F to +158°F (without LED); -50°C to +60°C -58°F to +140°F (with LED) Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)			
	Max. Operating speed		20 cpm (at max. rating)			
Unit weight			Approx. 30g 1.06 oz			

Notes: In accordance with the Electrical Appliance and Material Safety Law, you cannot exceed a voltage of 150V AC when using the 4 Form C type. For more information, please inquire.

*1 This value can change due to the switching frequency, environmental conditions and desired reliability level, therefore it is recommended to check this with the actual load.

*2 For the AC coil types, the operate/release time will differ depending on the phase.

*3 The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value.
Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.

3. Switching capacity and expected life

1) Electrical (at 20 cpm)

Load	AC				DC		Expected life
	Resistive (cos φ = 1)		Inductive (cos φ ≒ 0.4)		Resistive	Inductive	
Voltage	125V AC	250V AC	125V AC	250V AC	30V DC	30V DC	
1 Form C	10A	10A	5A	3A	—	—	Min. 2×10 ⁵
	7A	7A	3A	2.5A	3A	1A	Min. 5×10 ⁵
	5A	5A	2A	1.5A	—	—	Min. 10 ⁶
2 Form C	7A	7A	3.5A	2A	—	—	Min. 2×10 ⁵
	5A	5A	2.5A	1.5A	3A	0.6A	Min. 5×10 ⁵
	3A	3A	1.5A	1A	—	—	Min. 10 ⁶
3 Form C	7A	7A	—	—	—	—	Min. 10 ⁵
	—	—	3.5A	2A	—	—	Min. 2×10 ⁵
	5A	5A	—	—	3A	0.4A	Min. 5×10 ⁵
4 Form C	5A	5A	2A	1A	—	—	Min. 2×10 ⁵
	3A	3A	1A	0.8A	3A	0.4A	Min. 5×10 ⁵
	2A	2A	0.5A	0.4A	—	—	Min. 10 ⁶
4 Form C (twin)	3A	3A	1A	0.8A	3A	—	Min. 2×10 ⁵

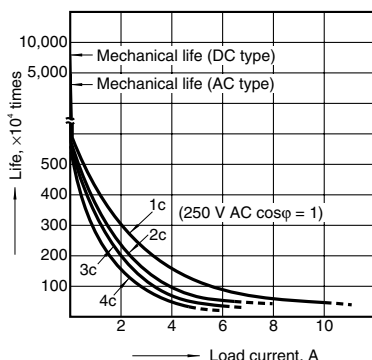
2) Mechanical (at 180 cpm)

Min. 5×10⁷ (AC coil type); Min. 10⁸ (DC coil type)

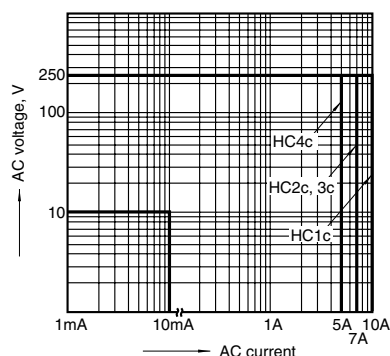
REFERENCE DATA

1. Life curve

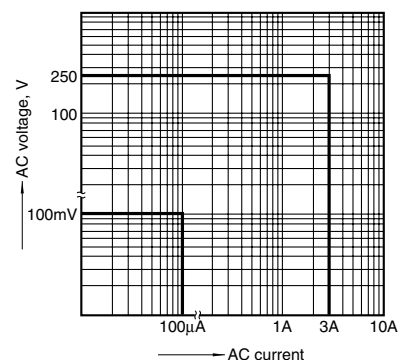
Load: 250 V AC resistive load



2.-(1) Switching capacity range (single contact type)



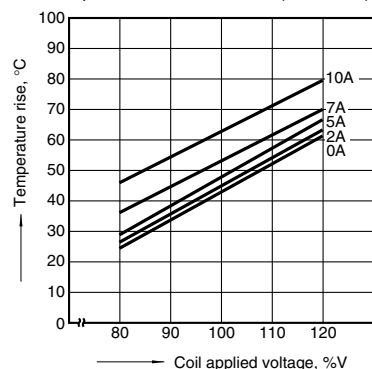
2.-(2) Switching capacity range (4-pole bifurcated (twin))



3.-(1) Coil temperature rise (1 Form C, AC type)

Measured portion: Inside the coil

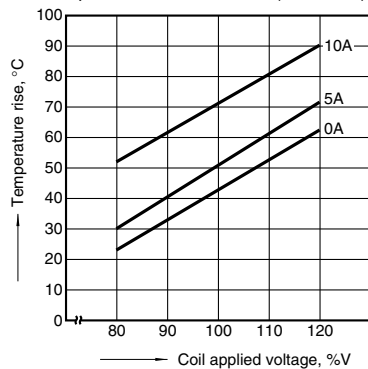
Ambient temperature: 25°C 77°F (See note.)



3.-(2) Coil temperature rise (2 Form C, AC type)

Measured portion: Inside the coil

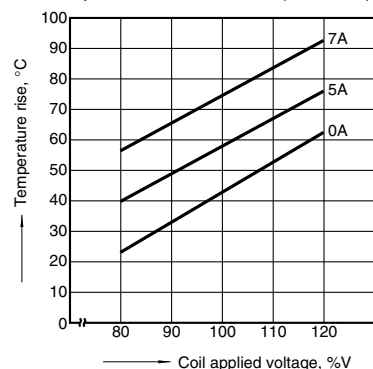
Ambient temperature: 30°C 86°F (See note.)



3.-(3) Coil temperature rise (3 Form C, AC type)

Measured portion: Inside the coil

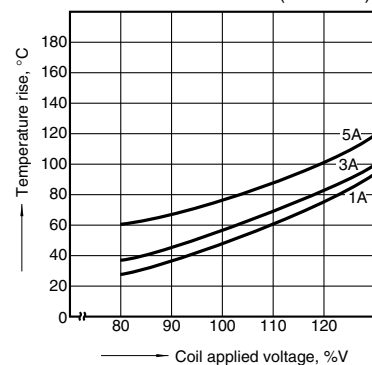
Ambient temperature: 18°C 64°F (See note.)



3.-(4) Coil temperature rise (4 Form C, AC type)

Measured portion: Inside the coil

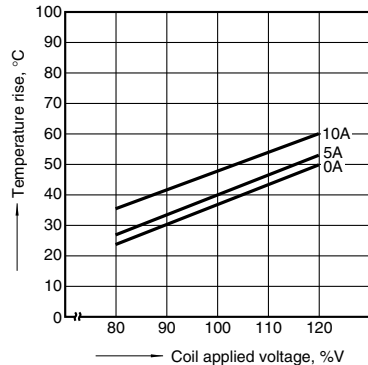
Ambient temperature: 15 to 21°C 59 to 70°F (See note.)



3.-(5) Coil temperature rise (1 Form C, DC type)

Measured portion: Inside the coil

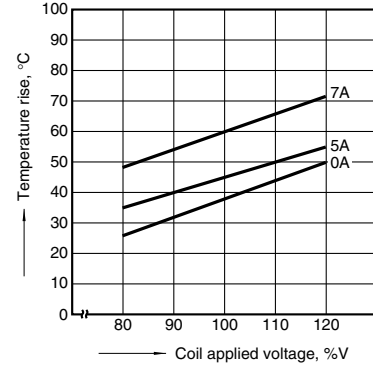
Ambient temperature: 29°C 84°F



3.-(6) Coil temperature rise (2 Form C, DC type)

Measured portion: Inside the coil

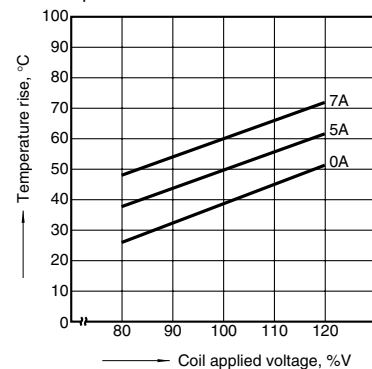
Ambient temperature: 29°C 84°F



3.-(7) Coil temperature rise (3 Form C, DC type)

Measured portion: Inside the coil

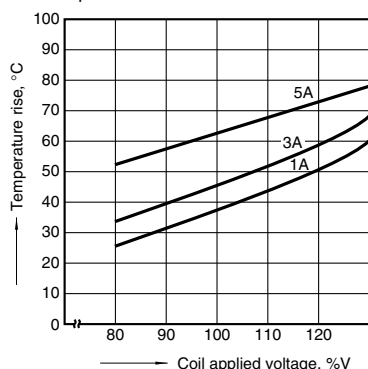
Ambient temperature: 29°C 84°F



3.-(8) Coil temperature rise (4 Form C, DC type)

Measured portion: Inside the coil

Ambient temperature: 17 to 18°C 62 to 64°F



Note: Coil temperature rise

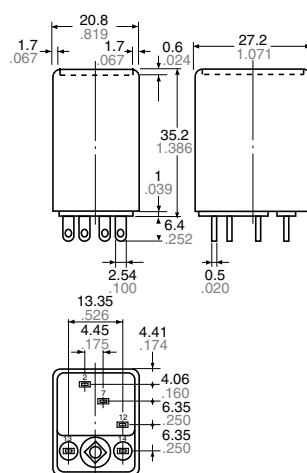
When the nominal voltage is applied to AC 120 or 240 V coil types respectively, the figures of coil temperature rise increase by approx. 10 degrees to the ones shown on each graph.

DIMENSIONS (Unit: mm inch)

1. Plug-in type



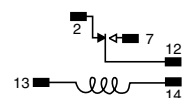
1 Form C type External dimensions



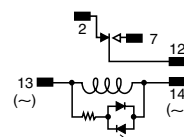
General tolerance: $\pm 0.3 \pm .012$

Schematic (Bottom view)

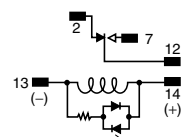
Standard type



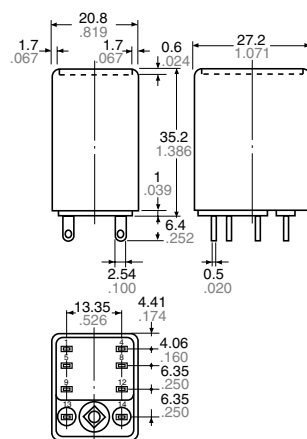
LED AC type



LED DC type



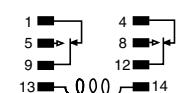
2 Form C type External dimensions



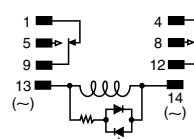
General tolerance: $\pm 0.3 \pm .012$

Schematic (Bottom view)

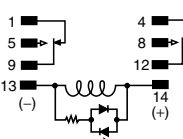
Standard type



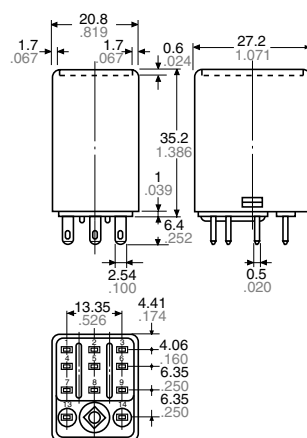
LED AC type



LED DC type



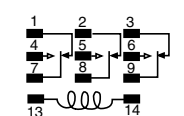
3 Form C type External dimensions



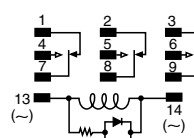
General tolerance: $\pm 0.3 \pm .012$

Schematic (Bottom view)

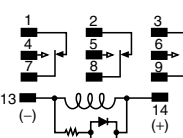
Standard type



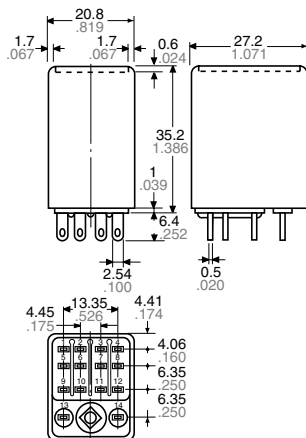
LED AC type



LED DC type

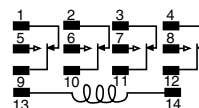


4 Form C and 4-pole bifurcated (twin) types
External dimensions

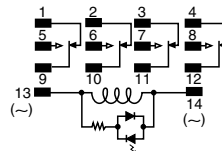


General tolerance: $\pm 0.3 \pm .012$

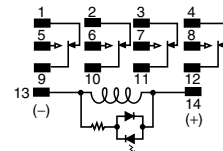
Schematic (Bottom view)
Standard type



LED AC type

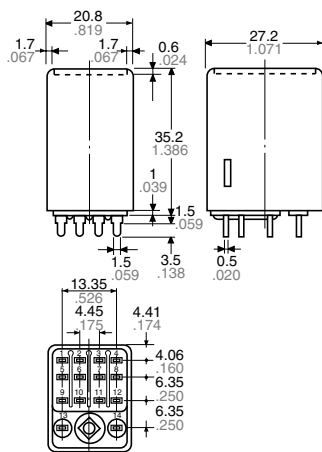


LED DC type



2. PC board type

4 Form C type External dimensions

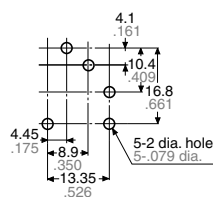


General tolerance: $\pm 0.3 \pm .012$

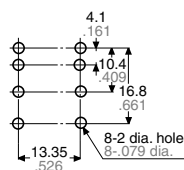
The diagrams show the external dimensions of the 4 Form C and 4-pole bifurcated (twin) types. For 1 Form C, 2 Form C, and 3 Form C, see diagrams at plug-in types (only the terminals are different). Types with 0.9 mm terminal width are also available.

PC board pattern

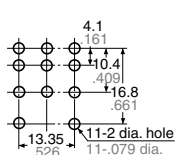
1 Form C



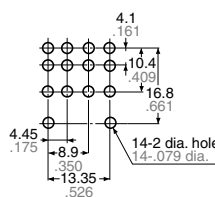
2 Form C



3 Form C



4 Form C

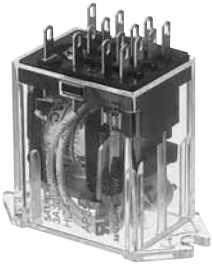


Tolerance: $\pm 0.1 \pm .004$

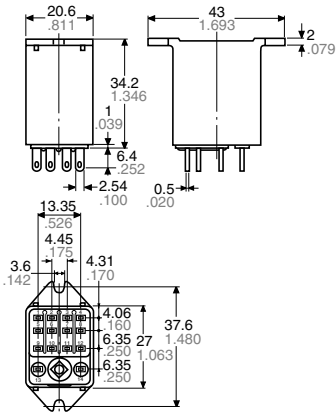
Schematic

Same schematic as plug-in type HC relay

3. TM type



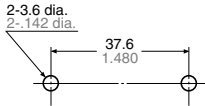
4 Form C type External dimensions



The diagrams show the external dimensions of the 4 Form C and 4-pole bifurcated (twin) types. For 1 Form C, 2 Form C, and 3 Form C, see diagrams at plug-in types (only the terminals are different).

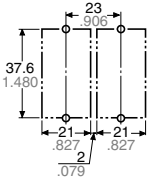
General tolerance: $\pm 0.3 \pm .012$

Chassis (Panel) cutout



Tolerance: $\pm 0.1 \pm .004$

Chassis (Panel) cutout in tandem mounting



Schematic

Same schematic as plug-in type HC relay
Be aware that there is no LED indicator with CR circuit and built-in diode types.

- Notes: 1. In mounting, use M3 screws and M3 washers.
2. When mounting TM types, use washers to prevent damage or distortion to the polycarbonate cover.
3. When tightening fixing screws, the optimum torque range should be 0.294 to 0.49 N-m, (3 to 5 kgf-cm).
Moreover, use washers to prevent loosening.

For Cautions for Use, see Relay Technical Information.

HC RELAY SOCKETS

1. Plug-in type sockets, PC board type sockets, and wrapping type sockets are available for HC relays.
2. In the table below, the socket suitable for each type of HC relay is indicated by a black dot.
3. UL/CSA approval is standard.
4. A hold-down clip is included in the package.

5. Not adaptive to HJ relays. Use dedicated HJ socket for use.



The fixing method is the same as for HC sockets, ordinary HC terminal sockets and HL sockets.

HC/HL-LEAF-SPRING-MK

Compliance with RoHS Directive

SOCKET SELECTOR CHART

Type	No. of pole	Item	Part No.	Applicable HC relay (Plug-in type)									
				Standard/Bifurcated contact (DC)					Amber				Keep relay
				1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)	1 Form C	2 Form C	4 Form C	4 Form C (twin)	
Plug-in	1-pole	HC1-socket	HC1-SS-K	●					●				
	2-pole	HC2-socket	HC2-SS-K		●					●			
	3-pole	HC3-socket	HC3-SS-K		●	●				●			
	1/2/4-pole (common)	HC4-socket	HC4-SS-K	●	●		●	●	●	●	●	●	●
PC board	1-pole	HC1-socket for PC board	HC1-PS-K	●					●				
	2-pole	HC2-socket for PC board	HC2-PS-K		●					●			
	3-pole	HC3-socket for PC board	HC3-PS-K		●	●				●			
	1/2/4-pole (common)	HC4-socket for PC board	HC4-PS-K	●	●		●	●	●	●	●	●	●
Wrapping	1/2/4-pole (common)	HC4-wrapping socket	HC4-WS-K	●	●		●	●	●	●	●	●	●
		HC4-wrapping socket (spring)	HC4-WS	●	●		●	●	●	●	●	●	●

Notes: 1. Use the retainer that is shipped with the terminal socket.
2. UL/CSA approved type is standard (except for wrapping socket).

HC RELAY TERMINAL SOCKETS

1. Ordinary terminal sockets and terminal sockets for DIN rail assembly are available.
2. In the table below, the terminal socket suitable for each type of HC relay is indicated by a black dot.
3. UL/CSA approval is standard.
4. A hold-down clip is included in the package.
5. Not adaptive to HJ relays. Use dedicated HJ terminal socket for use.



Ordinary terminal socket

The fixing method is the same as for sockets.

HC/HL-LEAF-SPRING-MK



Terminal sockets for DIN rail assembly

The fixing method is the same as for the HC DIN rail terminal sockets and the HL DIN terminal sockets.

HC/HL-LEAF-SPRING-K

TERMINAL SOCKET SELECTOR CHART

Type	No. of pole	Item	Part No.	Packing quantity		Applicable HC relay (Plug-in type)									
						Standard/Bifurcated contact (DC)					Amber				Keep relay
				Carton	Case	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)	1 Form C	2 Form C	4 Form C	4 Form C (twin)	
For DIN rail	2-pole	HC2-slim type DIN terminal socket	HC2-SFD-S	20 pcs.	100 pcs.		●					●			
	2-pole	HC2-DIN	HC2-SFD-K	10 pcs.	100 pcs.		●					●			
	3-pole	HC3-DIN	HC3-SFD-K	5 pcs.	50 pcs.		●	●				●			
	1/2/4-pole (common)	HC4-DIN high terminal socket	HC4-SFD-K	10 pcs.	100 pcs.	●	●		●	●	●	●	●	●	●
	1/2/4-pole (common)	HC3 vertical terminal socket	HC4-TSF-K	20 pcs.	200 pcs.	●	●		●	●	●	●	●	●	●
For general	2-pole	HC2-terminal socket	HC2-SF-K	10 pcs.	100 pcs.		●					●			
	3-pole	HC3-high terminal socket	HC3-HSF-K	5 pcs.	50 pcs.		●	●				●			
	1/2/4-pole (common)	HC4-high terminal socket	HC4-HSF-K	5 pcs.	50 pcs.	●	●		●	●	●	●	●	●	●

- Notes: 1. Use the retainer that is shipped with the terminal socket.
 2. UL/CSA approved type is standard (except for HC4-TSF-K).
 3. In order to prevent breakage and disfiguring, the screw tightening torque for the terminal socket should be within the range of 0.49 to 0.69 N·m {5 to 7kgf·cm}.

HC RELAY ACCESSORIES

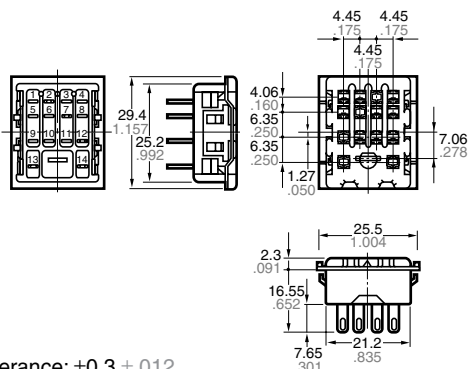
DIMENSIONS (Unit: mm inch)

1. Plug-in type sockets

HC1-Socket (HC1-SS-K)

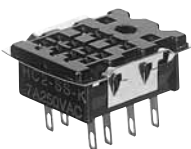


External dimensions

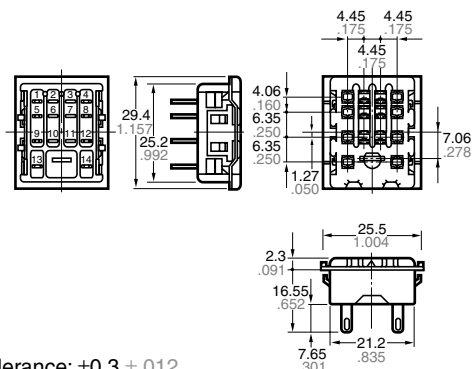


General tolerance: $\pm 0.3 \pm 0.12$

HC2-Socket (HC2-SS-K)



External dimensions

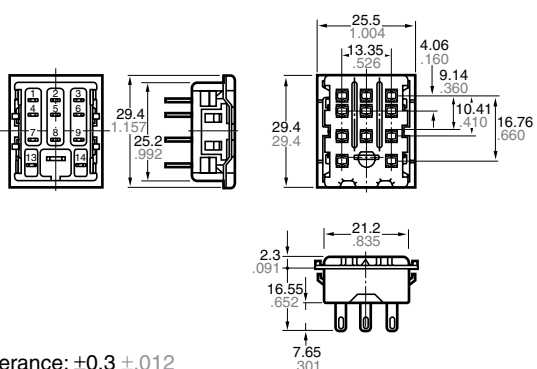


General tolerance: $\pm 0.3 \pm 0.12$

HC3-Socket (HC3-SS-K)



External dimensions

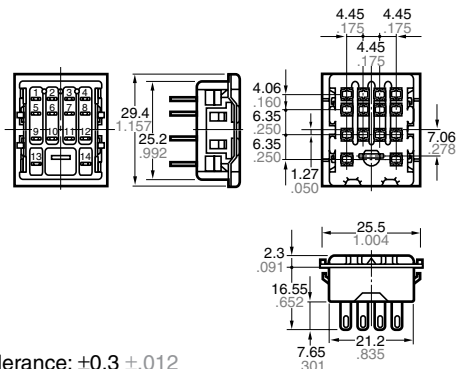


General tolerance: $\pm 0.3 \pm 0.12$

HC4-Socket (HC4-SS-K)

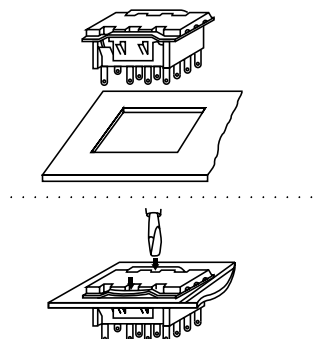


External dimensions

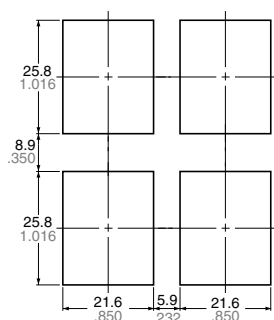


General tolerance: $\pm 0.3 \pm 0.12$

Mounting hole diagram



Side-by-side installation



General tolerance: $\pm 0.2 \pm 0.008$

- Notes: 1. Applicable chassis board thickness is 1.0 to 2.0 mm.
2. Installation is easy by inserting the socket from the top into the holes and by depressing the two down arrows on the retention fitting from the front.

With a relay mounted (HC2-SS-K)



Hold-down clip is packaged with the socket.

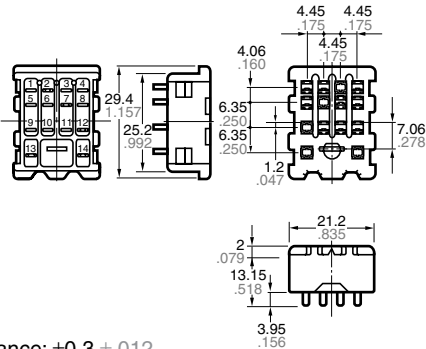
HC RELAY ACCESSORIES

2. PC board type sockets

HC1- PC board type socket (HC1-PS-K)



External dimensions

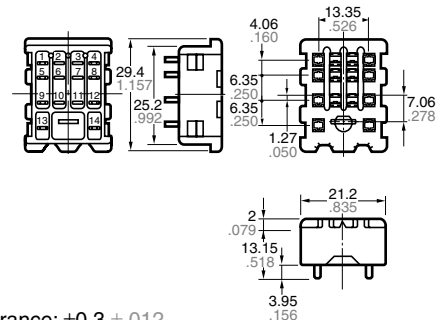


General tolerance: $\pm 0.3 \pm 0.012$

HC2- PC board type socket (HC2-PS-K)



External dimensions

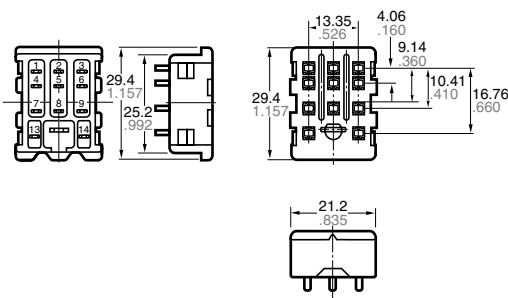


General tolerance: $\pm 0.3 \pm 0.012$

HC3- PC board type socket (HC3-PS-K)



External dimensions

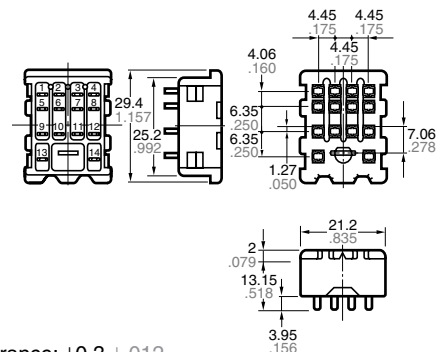


General tolerance: $\pm 0.3 \pm 0.012$

HC4- PC board type socket (HC4-PS-K)

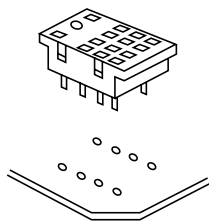


External dimensions



General tolerance: $\pm 0.3 \pm 0.012$

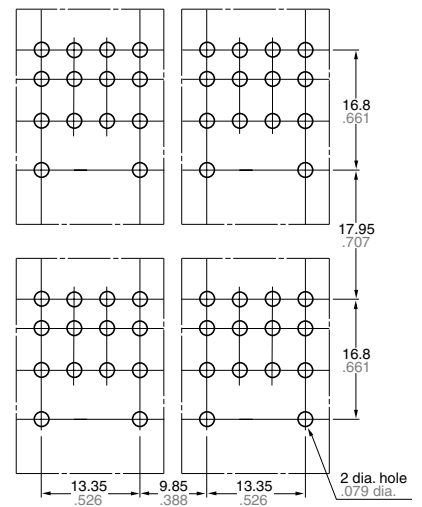
PC board pattern (Bottom view)



With a relay mounted

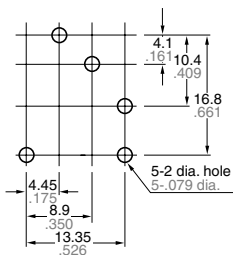


Side-by-side installation

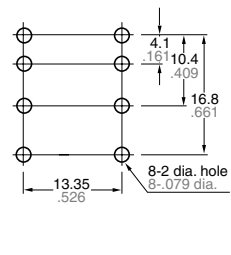


Hold-down clip is packaged with the socket.

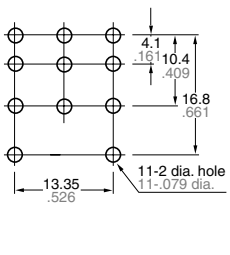
1 Form C



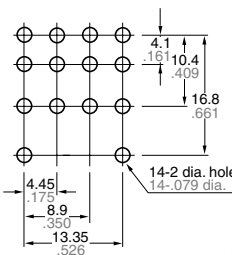
2 Form C



3 Form C



4 Form C

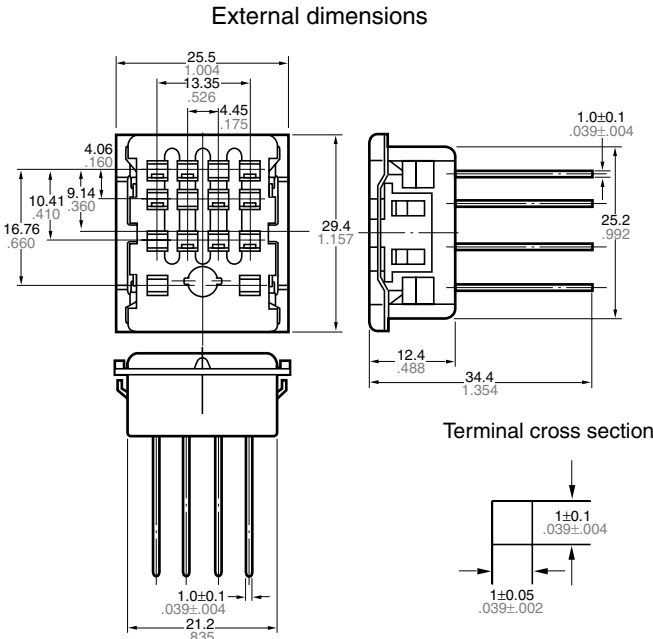


General tolerance: $\pm 0.2 \pm 0.008$

HC RELAY ACCESSORIES

3. Wrapping type sockets

Standard wrapping type sockets
(HC4-WS-K)



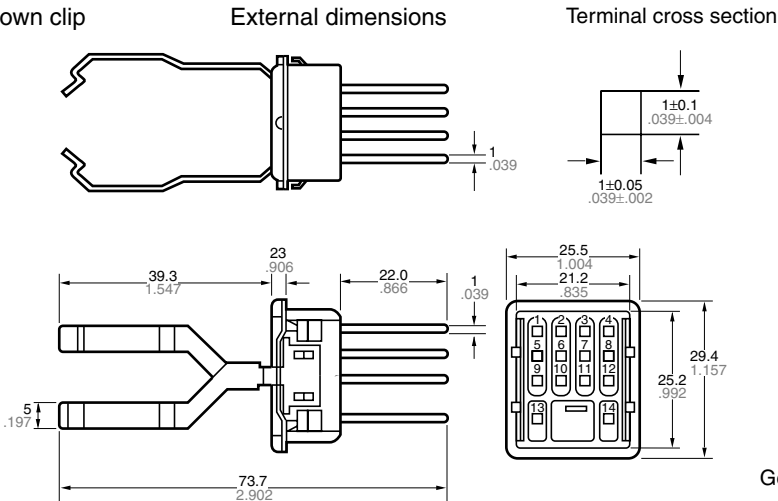
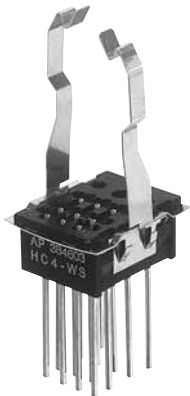
Hold-down clip
(Hold-down clip is packaged with the socket)



General tolerance: $\pm 0.3 \pm 0.012$

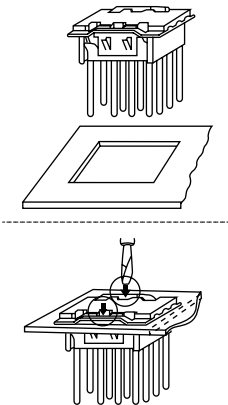
Note: The external and mounting dimensions are the same for 1-pole (HC1-WS-K), 2-pole (HC2-WS-K), and 3-pole (HC3-WS-K) types.
Only the number of terminals varies.

Wrapping type sockets with hold-down clip
(HC4-WS)

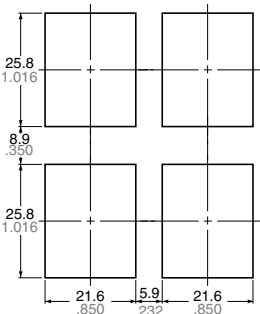


General tolerance: $\pm 0.7 \pm 0.028$

Mounting hole diagram



Side-by-side installation

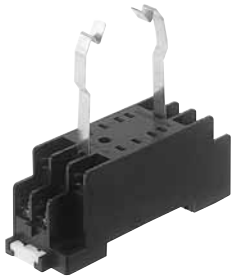


General tolerance: $\pm 0.2 \pm 0.008$

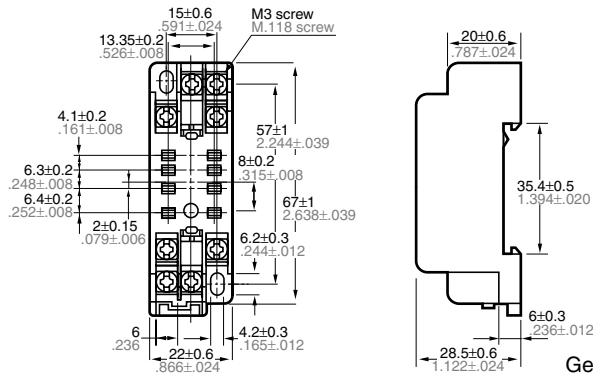
- Notes:
1. Applicable chassis board thickness is 1.0 to 2.0 mm.
 2. Installation is easy by inserting the socket from the top into the holes and by depressing the two down arrows on the retention fitting from the front.

4. Terminal sockets for DIN rail assembly

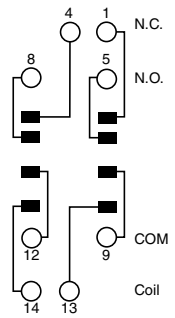
HC2-Slim type terminal sockets for DIN rail assembly (HC2-SFD-S)



External dimensions

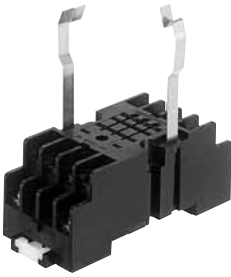


Schematic

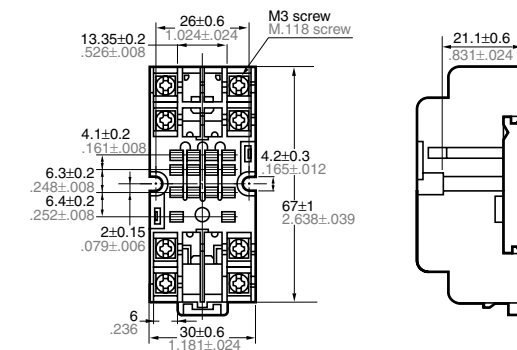


General tolerance: $\pm 0.5 \pm .020$

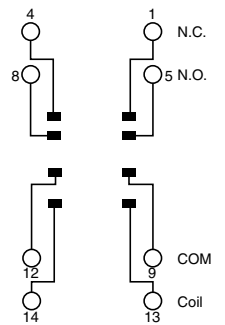
HC2-high terminal socket for DIN rail assembly (HC2-SFD-K)



External dimensions

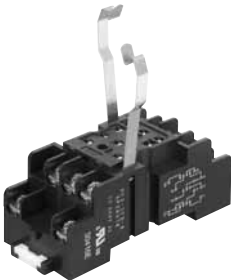


Schematic

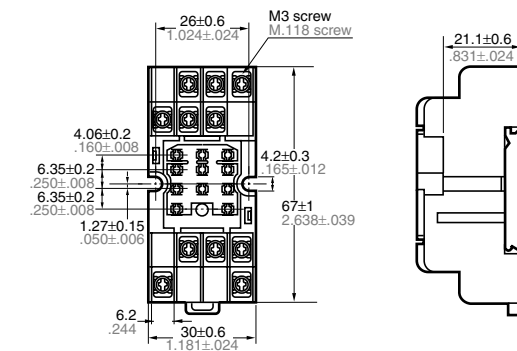


General tolerance: $\pm 0.5 \pm .020$

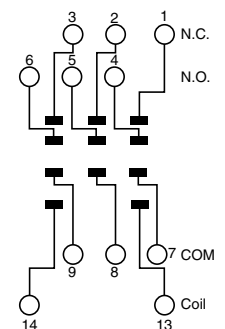
HC3-high terminal socket for DIN rail assembly (HC3-SFD-K)



External dimensions

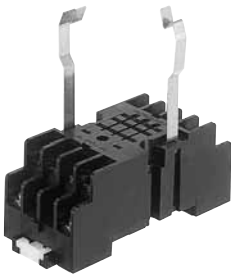


Schematic

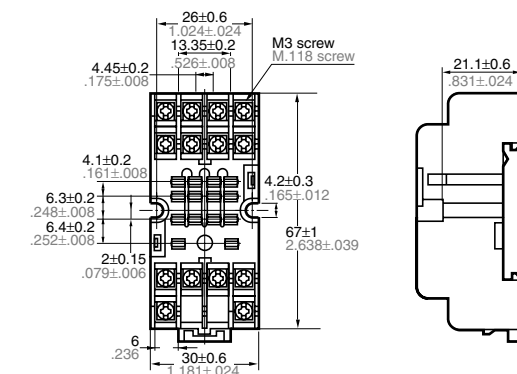


General tolerance: $\pm 0.5 \pm .020$

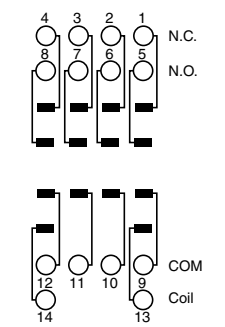
HC4-high terminal socket for DIN rail assembly (HC4-SFD-K)



External dimensions



Schematic



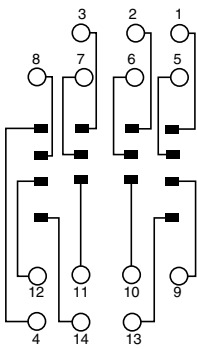
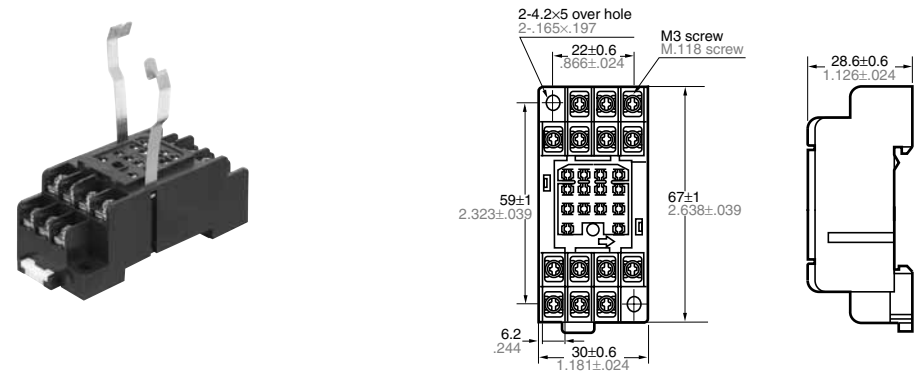
General tolerance: $\pm 0.5 \pm .020$

HC RELAY ACCESSORIES

HC vertical type terminal socket (HC4-TSF-K)

External dimensions

Schematic



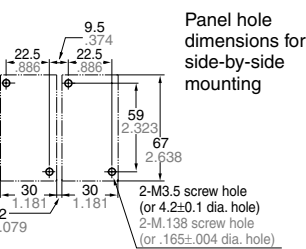
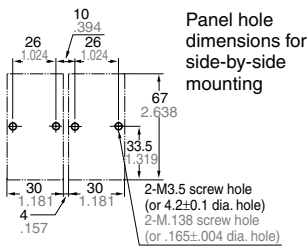
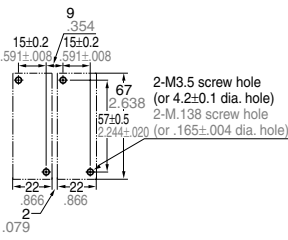
General tolerance: $\pm 0.5 \pm .020$

Mounting hole diagram HC2-Slim type

HC2, HC3 and HC4

HC vertical type

With a relay mounted (HC4-SFD-K)



General tolerance: $\pm 0.1 \pm .004$

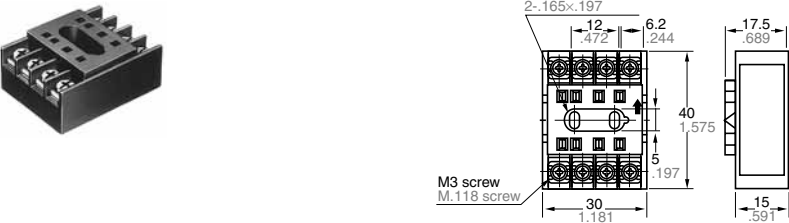
Hold-down clip is packaged with the terminal socket.

5. Ordinary terminal sockets

HC2-terminal socket (HC2-SF-K for HC2)

External dimensions

Schematic

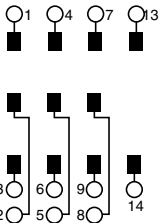
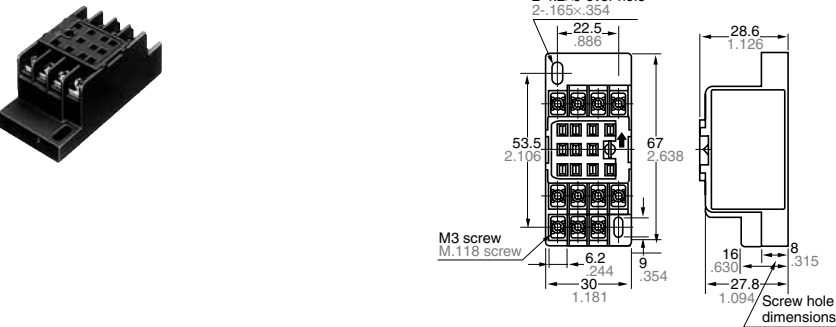


General tolerance: $\pm 0.5 \pm .020$

HC3-high terminal socket (HC3-HSF-K) suitable for both HC2 and HC3

External dimensions

Schematic



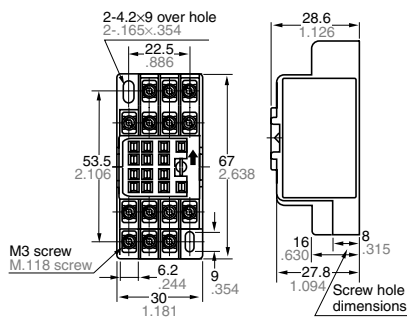
General tolerance: $\pm 0.5 \pm .020$

HC RELAY ACCESSORIES

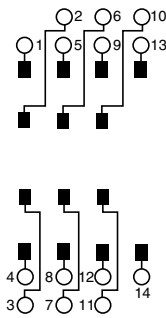
HC4-high terminal socket (HC4-HSF-K) suitable for HC 1, 2 and 4



External dimensions

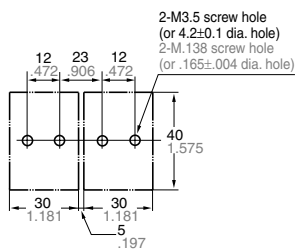


Schematic



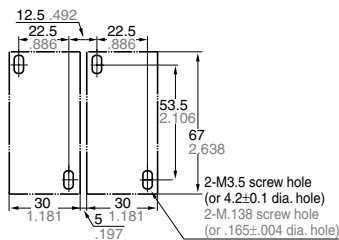
General tolerance: $\pm 0.5 \pm .020$

Mounting hole diagram
HC2-SF-K



Panel hole dimensions for
side-by-side mounting

HC3-HSF-K and HC4-HSF-K



Panel hole dimensions for
side-by-side mounting

General tolerance: $\pm 0.1 \pm .004$

With a relay mounted (HC2-SF-K)



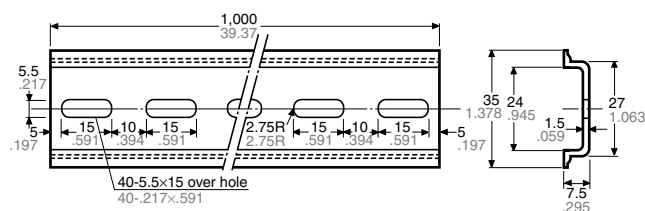
Hold-down clip is packaged with the terminal socket.

DIMENSIONS (Unit: mm inch)

Mounting rail



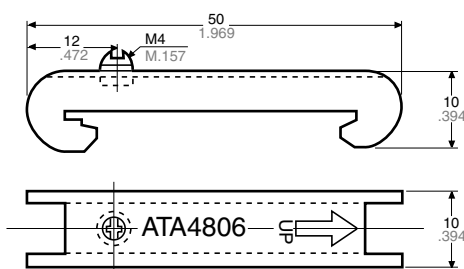
ATA48011



Fastening plate



ATA4806



Compliance with RoHS Directive

MOUNTING METHOD

1. DIN terminal socket mounting

1. Enables 'one-touch' attachment to, and easy removal from, mounting rail (35 mm DIN46277 standard rail) on device.

2. By doing away with installation tasks, large cost savings are possible.

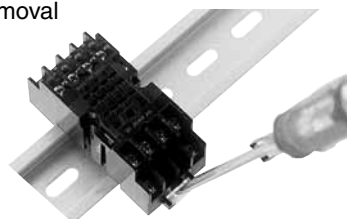
3. As well as HC relays, PDX timers, and CDX and CDF time relays can be attached.

Attachment

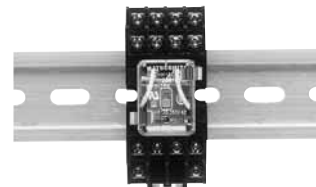


By applying pressure into the rail, secure attachment is possible.

Removal



Extraction is easy when a slot head screwdriver or similar tool is used to pull outward the protrusion used for removal.



2. Wire-pressed terminals

When using wire-pressed terminals, please use the parts listed below or parts made with similar specifications.

• Applicable wire-pressed terminals

Company name	Type	Part number	
		Fork type	Round type
NICHIFU Co., Ltd.		1.25Y-3N, 1.25Y-3S	1.25-3, 1.25-3S
Nippon Tanshi Co., Ltd.		VR1.25-3, VD1.25-3	1.25-3, 1.25-3TA
J.S.T. Mfg Co., Ltd.		1.25-3X, 1.25-3.7X	R1.25-3, R1.25-M3
Tyco Electronics AMP K.K.		42413-1, 41071-A	42065-1, 60735-1