

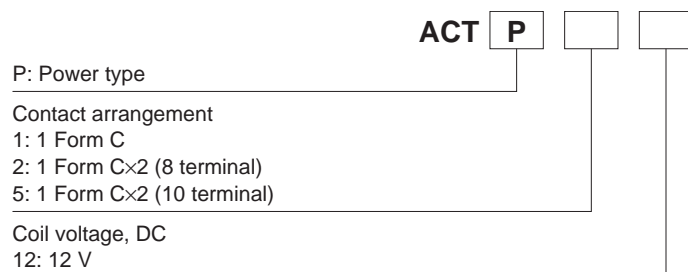
### FEATURES

- Maximum carrying current of 35A made possible through using the same size as the company's CT relays
- Plastic sealed type

### TYPICAL APPLICATIONS

- Power windows
- Auto door lock
- Power sunroof
- Powered seats
- Slide door closers, etc. (for DC motor forward/reverse control circuits)

### ORDERING INFORMATION



### TYPES

| Contact arrangement              | Coil voltage | Part No. |
|----------------------------------|--------------|----------|
| 1 Form C                         | 12 V DC      | ACTP112  |
| 1 Form C × 2 (8 terminals type)  |              | ACTP212  |
| 1 Form C × 2 (10 terminals type) |              | ACTP512  |

Standard packing; 1 Form C: Carton (tube) 30pcs. Case 1,500pcs.; 1 Form C × 2: Carton (tube) 30pcs. Case 900pcs.

### RATING

#### 1. Coil data

| Nominal coil voltage | Pick-up voltage (at 20°C 68°F) | Drop-out voltage (at 20°C 68°F) | Nominal operating current [±10%] (at 20°C 68°F) | Coil resistance [±10%] (at 20°C 68°F) | Nominal operating power (at 20°C 68°F) | Usable voltage range |
|----------------------|--------------------------------|---------------------------------|---|---------------------------------------|--|----------------------|
| 12V DC               | Max. 7.2 V DC (Initial)        | Min. 1.0 V DC (Initial)         | 83.3 mA   | 144Ω                                  | 1,000 mW                               | 10 to 16V DC         |

Note: Other pick-up voltage types are also available. Please contact us for details.

# CT (ACTP)

## 2. Specifications

| Characteristics                   | Item  | Specifications   |  |
|-----------------------------------|---|--|--|
| Contact                           | Arrangement   | 1 Form C × 2, 1 Form C   |  |
|                                   | Contact resistance (Initial)                                      | N.O.: Typ 7mΩ, N.C.: Typ 10mΩ (By voltage drop 6V DC 1A)   |  |
|                                   | Contact material  | Ag alloy (Cadmium free)  |  |
| Rating                            | Nominal switching capacity (resistive load)                       | N.O.: 30 A 14V DC, N.C.: 10 A 14V DC   |  |
|                                   | Max. carrying current (14V DC)*3                                  | N.O.: 40 A for 2 minutes, 25 A for 1 hour at 20°C 68°F, 35 A for 2 minutes, 20 A for 1 hour at 85°C 185°F  |  |
|                                   | Nominal operating power   | 1,000 mW   |  |
|                                   | Min. switching capacity (resistive load)*1                        | 1 A 14V DC   |  |
| Electrical characteristics        | Insulation resistance (Initial)                                   | Min. 100 MΩ (at 500V DC, Measurement at same location as "Breakdown voltage" section.)   |  |
|                                   | Breakdown voltage (Initial)                                       | Between open contacts  | 500 Vrms for 1 min. (Detection current: 10mA)  |
|                                   |   | Between contacts and coil  | 500 Vrms for 1 min. (Detection current: 10mA)  |
|                                   | Operate time (at nominal voltage)                                 | Max. 10ms (at 20°C 68°F, excluding contact bounce time) (Initial)  |  |
| Release time (at nominal voltage) | Max. 10ms (at 20°C 68°F, excluding contact bounce time) (Initial) |  |  |
| Mechanical characteristics        | Shock resistance  | Functional   | Min. 100 m/s <sup>2</sup> {10G} (Half-wave pulse of sine wave: 11ms; detection time: 10μs)   |
|                                   |   | Destructive  | Min. 1,000 m/s <sup>2</sup> {100G} (Half-wave pulse of sine wave: 6ms)   |
|                                   | Vibration resistance  | Functional   | 10 Hz to 100 Hz, Min. 44.1 m/s <sup>2</sup> {4.5G} (Detection time: 10μs)  |
|                                   |   | Destructive  | 10 Hz to 500 Hz, Min. 44.1 m/s <sup>2</sup> {4.5G},<br>Time of vibration for each direction; X, Y direction: 2 hours, Z direction: 4 hours |
| Expected life                     | Mechanical  | Min. 10 <sup>7</sup> (at 120 cpm)  |  |
|                                   | Electrical  | <Resistive load><br>Min. 5 × 10 <sup>4</sup> (at nominal switching capacity, operating frequency: 1s ON, 9s OFF)<br><Motor load><br>N.O. side: Min. 10 <sup>5</sup> (at Inrush 30A, Steady 7A 14 V DC),<br>Min. 5 × 10 <sup>4</sup> (at 30A 14 V DC motor lock condition)<br>N.C. side: Min. 10 <sup>5</sup> (at brake current 15A 14 V DC) (operating frequency: 0.5s ON, 9.5s OFF) |  |
| Conditions                        | Conditions for operation, transport and storage*2                 | Ambient temperature: -40°C to +85°C -40°F to +185°F,<br>Humidity: 5% R.H. to 85% R.H. (Not freezing and condensing at low temperature)   |  |
|                                   | Max. operating speed  | 6 cpm (at nominal switching capacity)  |  |
| Mass                              |   | Twin type: approx. 8 g .28 oz, 1 Form C type: approx. 4 g .14 oz   |  |

### Notes:

\*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. The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value. Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT section in Relay Technical Information](#).

Please inquire if you will be using the relay in a high temperature atmosphere (110°C 230°F).

\*3. Depends on connection conditions. Also, this does not guarantee repeated switching. We recommend that you confirm operation under actual conditions.

\* If the relay is used continuously for long periods of time with coils on both sides in an energized condition, breakdown might occur due to abnormal heating depending on the carrying condition. Therefore, please inquire when using with a circuit that causes an energized condition on both sides simultaneously.

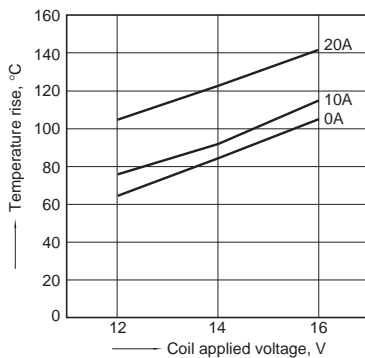
## REFERENCE DATA

### 1-(1). Coil temperature rise (at room temperature)

Sample: ACTP212, 3pcs.

Contact carrying current: 0A, 10A, 20A

Ambient temperature: Room temperature

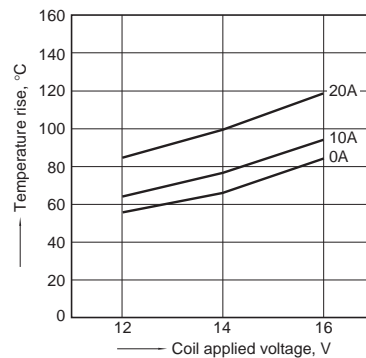


### 1-(2). Coil temperature rise (at 85°C 185°F)

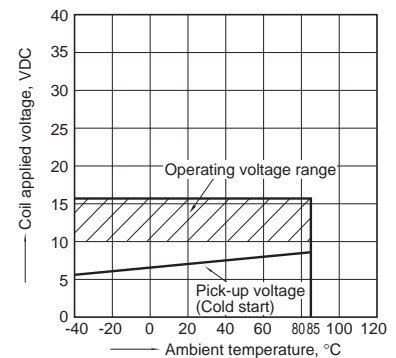
Sample: ACTP212, 3pcs.

Contact carrying current: 0A, 10A, 20A

Ambient temperature: 85°C 185°F

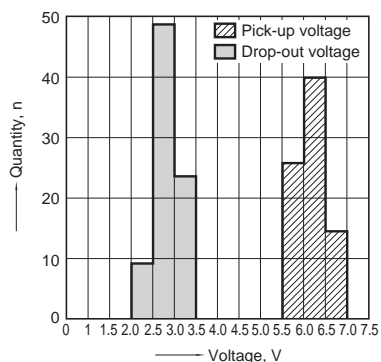


### 2. Ambient temperature and operating voltage range



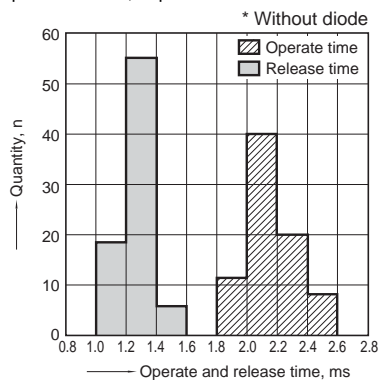
### 3. Distribution of pick-up and drop-out voltage

Sample: ACTP212, 80pcs.



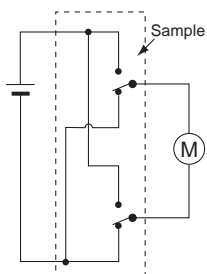
### 4. Distribution of operate and release time

Sample: ACTP212, 80pcs.

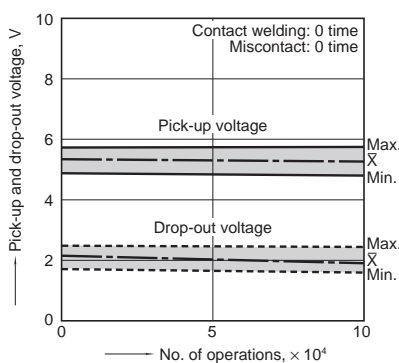


### 5. Electrical life test (Motor free)

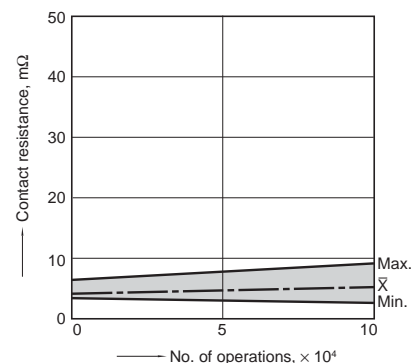
Sample: ACTP212, 3pcs.  
 Load: Inrush 30A, Steady 7A  
 Brake current: 15A 14V DC,  
 Power window motor actual load  
 Operating frequency: ON 0.5s, OFF 9.5s  
 Ambient temperature: Room temperature  
 Circuit:



### Change of pick-up and drop-out voltage

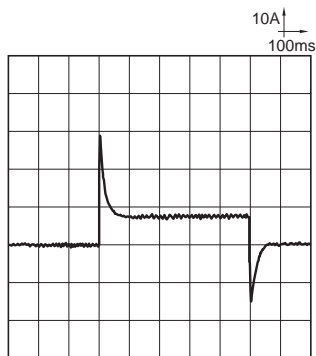


### Change of contact resistance



### Load current waveform

Inrush current: 30A, Steady current: 7A  
 Brake current: 15A

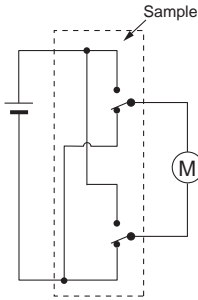


# CT (ACTP)

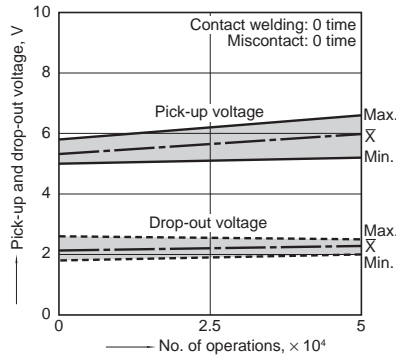
## 6. Electrical life test (Motor lock)

Sample: ACTP212, 3pcs.  
 Load: 30A 14V DC  
 Operating frequency: ON 0.5s, OFF 9.5s  
 Ambient temperature: Room temperature

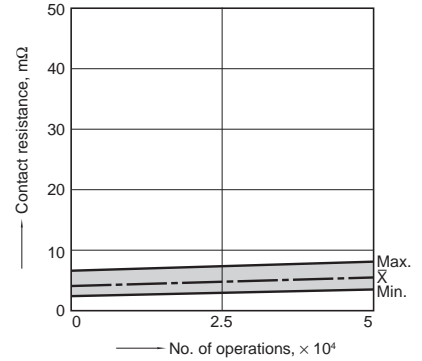
Circuit:



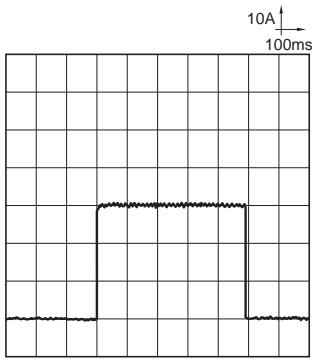
## Change of pick-up and drop-out voltage



## Change of contact resistance



## Load current waveform



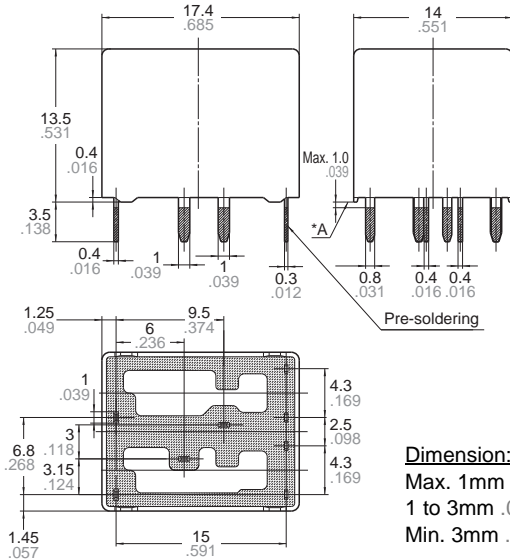
# DIMENSIONS (mm inch)

## 1. Twin type (8 terminals)

[CAD Data](#)



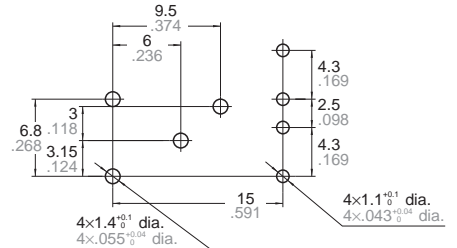
## External dimensions



**Dimension:**  
 Max. 1mm .039 inch:  
 1 to 3mm .039 to .118 inch:  $\pm 0.2 \pm 0.08$   
 Min. 3mm .118 inch:  $\pm 0.3 \pm 0.12$

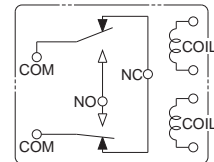
Download [CAD Data](#) from our Web site.

## PC board pattern (Bottom view)



Tolerance:  $\pm 0.1 \pm 0.04$

## Schematic (Bottom view)



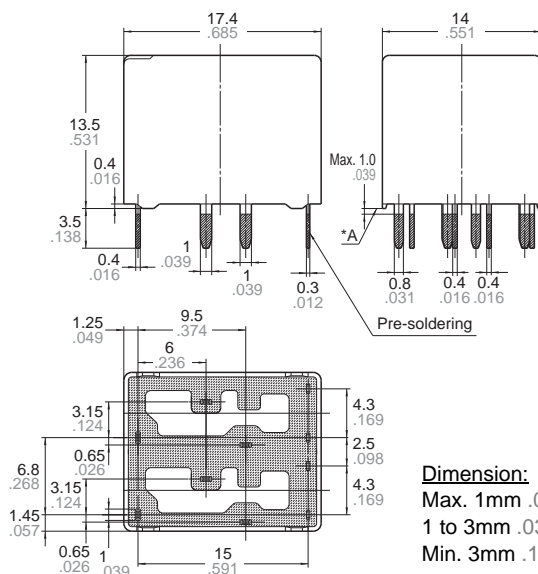
\* Dimensions (thickness and width) of terminal is measured before pre-soldering. Intervals between terminals is measured at A surface level.

## 2. Twin type (10 terminals)

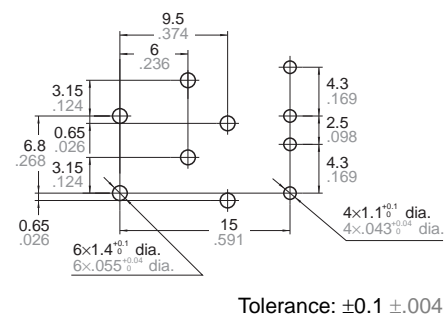
[CAD Data](#)



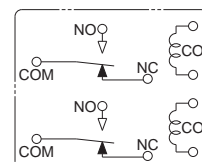
### External dimensions



### PC board pattern (Bottom view)



### Schematic (Bottom view)



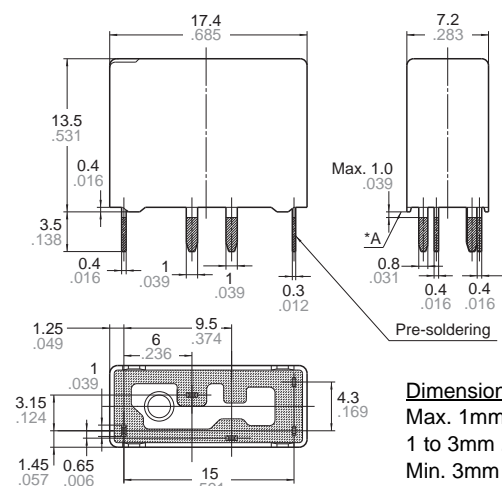
\* Dimensions (thickness and width) of terminal is measured before pre-soldering.  
Intervals between terminals is measured at A surface level.

## 3. Single type (1 Form C)

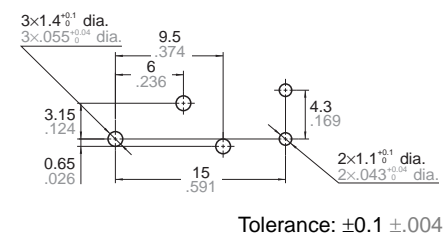
[CAD Data](#)



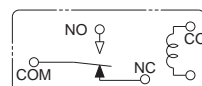
### External dimensions



### PC board pattern (Bottom view)



### Schematic (Bottom view)



\* Dimensions (thickness and width) of is measured before pre-soldering.  
Intervals between terminals is measured at A surface level.

For Cautions for Use, see [Relay Technical Information](#).

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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