



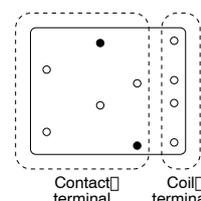
### FEATURES

- 1. Compact type for automotives**  
We successfully developed a power type that is the same size as our CT relay.
- 2. 30 A maximum switching capacity**  
Switching of 30 A motor loads is possible due to change of COM spring material and other improvements.
- 3. Still top-of-its-class for silent operation**  
Maintains equally silent operation as our CT relay (ACT).
- 4. Sealed type**  
Sealed type makes automatic cleaning possible.

### APPLICATIONS

Power windows, Powered seats, Auto door lock, Slide door closers, Power sunroof, etc.

#### 10-terminal layout



\*8-terminal type has no ● terminals.

### SPECIFICATIONS

#### Contact

Arrangement	1 Form C×2, 1 Form C		
Contact material	Ag alloy (cadmium free)		
Initial contact resistance (By voltage drop 6 V DC 1 A)	Max. 100mΩ		
Initial contact voltage drop	Max. 0.2 V (at 10 A)		
Rating	Nominal switching capacity	N.O.: 30 A 14 V DC N.C.: 10 A 14 V DC	
	Max. carrying current	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)	
	Min. switching capacity*1	1 A 12 V DC	
Expected life (min. operation)	Mechanical (at 120 cpm)	Min. 10 <sup>6</sup>	
		Electrical	Resistive load
	Motor load		Min. 10 <sup>5</sup> *2 (free) Min. 5×10 <sup>4</sup> *3 (lock)

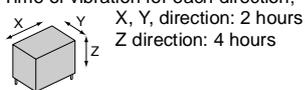
#### Coil

Nominal operating power	1,000 mW
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#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.

#### Remarks

- \*1 At nominal switching capacity, operating frequency: 1s ON, 9s OFF
- \*2 N.O.: at 7 A (steady), 30 A (inrush)/N.C.: at 15 A (brake) 14 V DC, operating frequency: 0.5s ON, 9.5s OFF
- \*3 At 30A 14 V DC (Motor lock), operating frequency: 0.5s ON, 9.5s OFF
- \*4 Measurement at same location as "Initial breakdown voltage" section
- \*5 Detection current: 10mA
- \*6 Excluding contact bounce time
- \*7 Half-wave pulse of sine wave: 11ms; detection: 10μs
- \*8 Half-wave pulse of sine wave: 6ms
- \*9 Detection time: 10μs
- \*10 Time of vibration for each direction;



\*11 Refer to 6. Conditions for operation, transport and storage mentioned in [AMBIENT ENVIRONMENT](#) (p. 19, Relay Technical Information).

#### Characteristics

Max. operating speed (at nominal switching capacity)	6 cpm	
Initial insulation resistance*4	Min. 100 MΩ (at 500 V DC)	
Initial breakdown voltage*5	Between open contacts	500 Vrms for 1 min.
	Between contacts and coil	500 Vrms for 1 min.
Operate time*6 (at nominal voltage) (at 20°C 68°F)	Max. 10ms (Initial)	
Release time*6 (at nominal voltage) (at 20°C 68°F)	Max. 10ms (Initial)	
Shock resistance	Functional*7	Min. 100 m/s <sup>2</sup> {10G}
	Destructive*8	Min. 1,000 m/s <sup>2</sup> {100G}
Vibration resistance	Functional*9	10 Hz to 100 Hz, Min. 44.1m/s <sup>2</sup> {4.5G}
	Destructive*10	10 Hz to 500 Hz, Min. 44.1m/s <sup>2</sup> {4.5G}
Conditions for operation, transport and storage*11 (Not freezing and condensing at low temperature)	Ambient temp	-40°C to +85°C -40°F to +185°F
	Humidity	5% R.H. to 85% R.H.
Size	1 Form C × 2 (Twin type): 17.4(L)×14.0(W)×13.5(H)mm .685(L)×.551(W)×.531(H)inch 1 Form C type: 17.4(L)×7.2(W)×13.5(H)mm .685(L)×.283(W)×.531(H)inch	
Mass	Twin type: approx. 8.0g .28oz 1 Form C type: approx. 4.0g .14oz	

# CT (ACTP)

## TYPES AND COIL DATA (at 20°C 68°F)

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

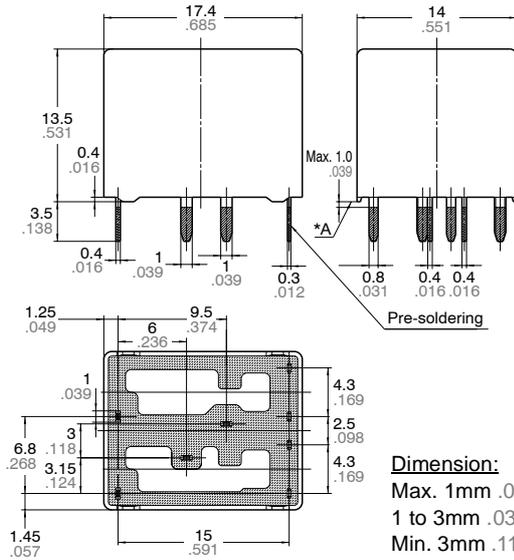
Contact arrangement	Part No.	Nominal voltage, V DC	Pick-up voltage, V DC (Initial)	Drop-out voltage, V DC (Initial)	Coil resistance, Ω	Nominal operating current, mA	Nominal operating power, mW	Usable voltage range, V DC
1 Form C	ACTP112	12	Max. 7.2	Min. 1.0	144±10%	83.3±10%	1,000	10 to 16
1 Form C × 2 (8 terminals type)	ACTP212	12	Max. 7.2	Min. 1.0	144±10%	83.3±10%	1,000	10 to 16
1 Form C × 2 (10 terminals type)	ACTP512	12	Max. 7.2	Min. 1.0	144±10%	83.3±10%	1,000	10 to 16

\* Other pick-up voltage types are also available. Please contact us for details.

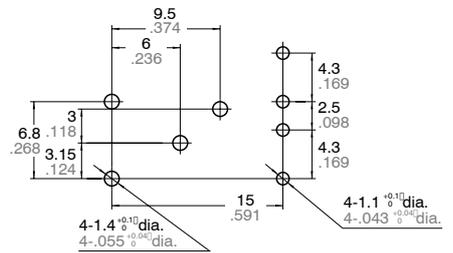
## DIMENSIONS

mm inch

### 1. Twin type (8 terminals)

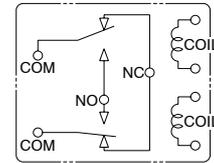


PC board pattern (Bottom view)



Tolerance: ±0.1±.004

Schematic (Bottom view)



**Dimension:**

Max. 1mm .039 inch:

1 to 3mm .039 to .118 inch: ±0.2 ±.008

Min. 3mm .118 inch:

**Tolerance**

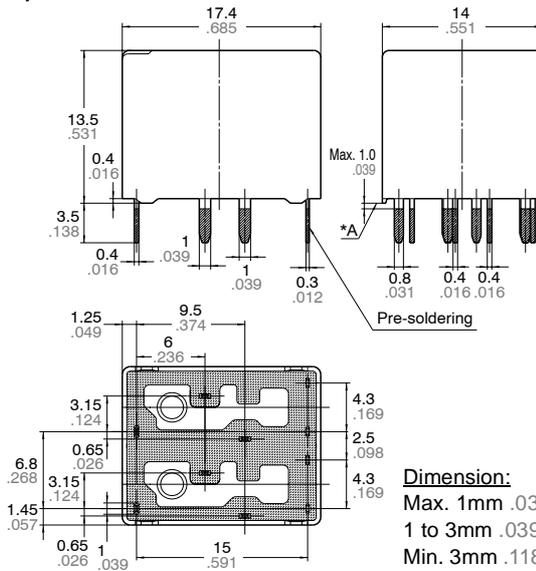
±0.1 ±.004

±0.2 ±.008

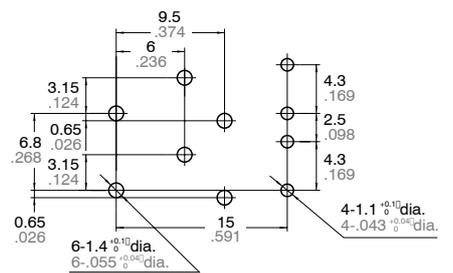
±0.3 ±.012

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

### 2. Twin type (10 terminals)

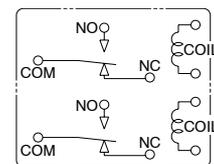


PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

Schematic (Bottom view)



**Dimension:**

Max. 1mm .039 inch:

1 to 3mm .039 to .118 inch: ±0.2 ±.008

Min. 3mm .118 inch:

**Tolerance**

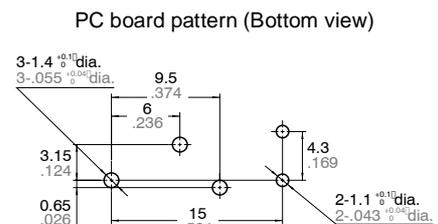
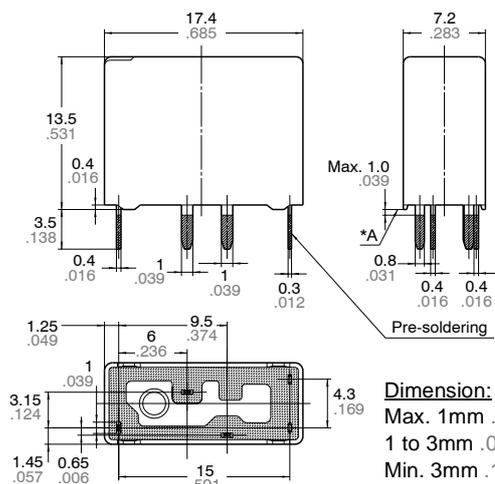
±0.1 ±.004

±0.2 ±.008

±0.3 ±.012

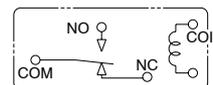
\* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering. Intervals between terminals is measured at A surface level.

## 3. Single type (1 Form C)



Tolerance:  $\pm 0.1 \pm .004$

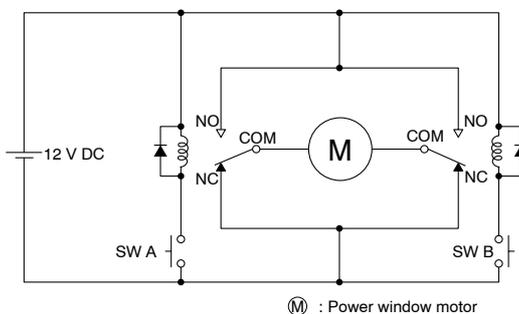
### Schematic (Bottom view)



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

## EXAMPLE OF CIRCUIT

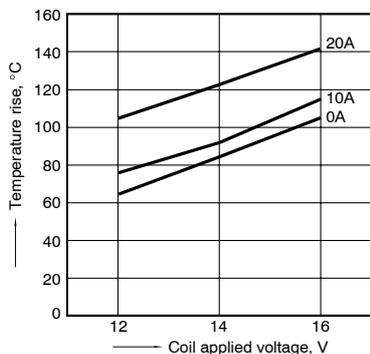
Forward/reverse control circuits of DC motor for power windows



## REFERENCE DATA

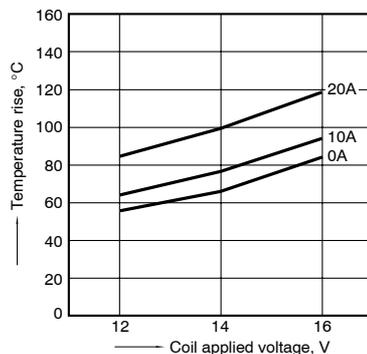
1-(1). Coil temperature rise (at room temperature)

Sample: ACTP212, 3pcs.  
 Contact carrying current: 0A, 10A, 20A

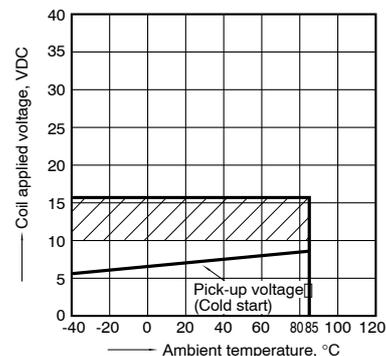


1-(2). Coil temperature rise (at 85°C 185°F)

Sample: ACTP212, 3pcs.  
 Contact carrying current: 0A, 10A, 20A

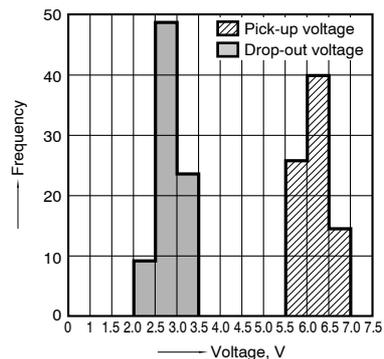


2. Ambient temperature and operating voltage range



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

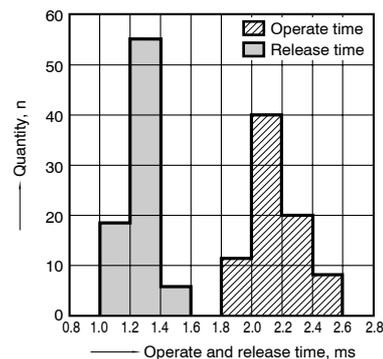
Sample: ACTP212, 40pcs.



4. Distribution of operate and release time

Sample: ACTP212, 40pcs.

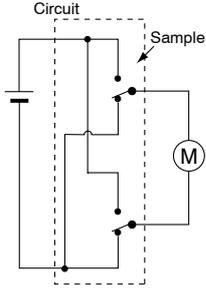
\* Without diode



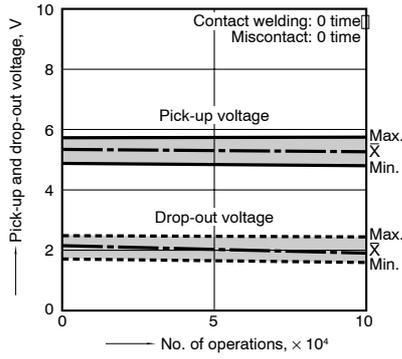
# CT (ACTP)

## 5. Electrical life test (Motor free)

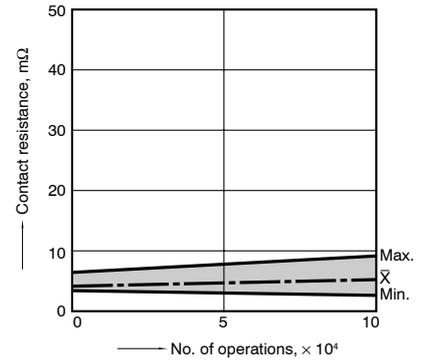
Sample: ACTP212, 3pcs.  
 Load: 7A steady, Inrush 30A  
 Brake current: 15A 14V DC,  
 Power window motor actual load (free condition)  
 Operating frequency: (ON : OFF = 0.5s : 9.5s)  
 Ambient temperature: Room temperature  
 Circuit:



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

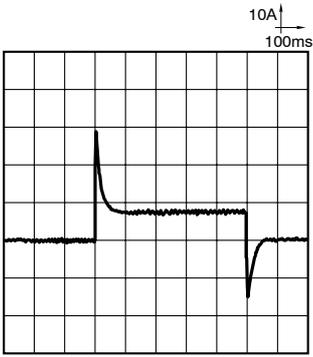


## Change of contact resistance



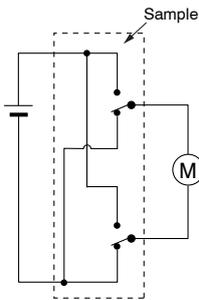
## Load current waveform

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

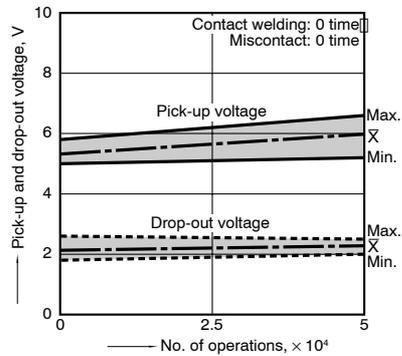


## 6. Electrical life test (Motor lock)

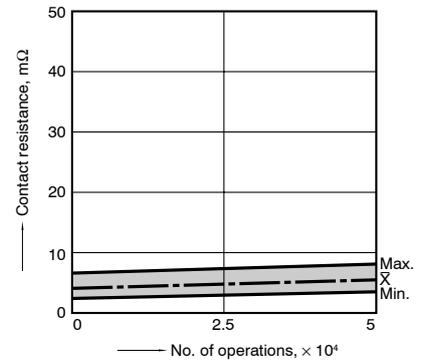
Sample: ACTP212, 3pcs.  
 Load: 30A 14V DC  
 Switching frequency: (ON : OFF = 0.5s : 9.5s)  
 Ambient temperature: Room temperature  
 Circuit:



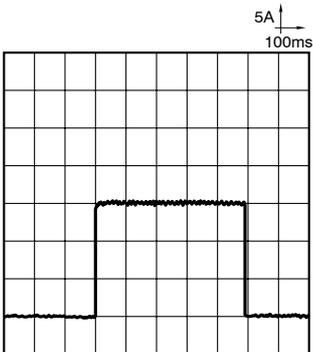
## Change of pick-up and drop-out voltage



## Change of contact resistance



## Load current waveform



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