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.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Contact</th>
<th>1 Form C-2, 1 Form C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrangement</td>
<td>Ag alloy (Cadmium free)</td>
</tr>
<tr>
<td>Initial contact resistance (Initial) (By voltage drop 6 V DC 1 A)</td>
<td>Typ. 7 mΩ (N.O.), Typ. 10 mΩ (N.C.)</td>
</tr>
<tr>
<td>Nominal switching capacity</td>
<td>N.O.: 30 A 14 V DC, N.C.: 10 A 14 V DC</td>
</tr>
<tr>
<td>Max. carrying current (N.O.)</td>
<td>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)</td>
</tr>
<tr>
<td>Min. switching capacity</td>
<td>1 A 12 V DC</td>
</tr>
<tr>
<td>Coil</td>
<td>Mechanical (at 120 cpm) Min. 10⁶</td>
</tr>
<tr>
<td>Expected life (min. operation)</td>
<td>Resistive load Min. 5×10⁵⁺⁺, Electrical Min. 10⁵⁺⁺, Motor load Min. 10⁵⁺⁺ (free)</td>
</tr>
<tr>
<td>Nominal operating power</td>
<td>1,000 mW</td>
</tr>
</tbody>
</table>

Characteristics
- Max. operating speed (at nominal switching capacity) 10 cpm
- Initial insulation resistance 100 MΩ (at 500 V DC)
- Initial breakdown voltage 500 Vrms
- Operate time (at nominal voltage) at 20°C 68°F Max. 10 ms (Initial)
- Release time (at nominal voltage) at 20°C 68°F Max. 10 ms (Initial)
- Shock resistance Functional Min. 100 m/s² (100G), Destructive Min. 1,000 m/s² (1000G)
- Vibration resistance Functional 10 Hz to 100 Hz, Min. 44.1 m/s² (4.5G), Destructive 10 Hz to 500 Hz, Min. 44.1 m/s² (4.5G)
- Conditions for operation, transport and storage (Not freezing and condensing at low temperature) Ambient temp -40°C to +85°C, Humidity 5% R.H. to 85% R.H.
- Mass Twin type: approx. 8.0g, 28oz, 1 Form C type: approx. 4.0g, 14oz

Remarks
- At nominal switching capacity, operating frequency: 1s ON, 9s OFF
- 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
- At 30 A 14 V DC (Motor lock), operating frequency: 0.5s ON, 9.5s OFF
- Measurement at same location as "Initial breakdown voltage" section
- Detection current: 10mA
- Excluding contact bounce time
- Half-wave pulse of sine wave: 11ms; detection: 10μs
- Half-wave pulse of sine wave: 6ms
- Detection time: 10μs
- Time of vibration for each direction; X, Y, Z direction: 2 hours
- *1 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).
- * 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.
### 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

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

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

#### DIMENSIONS (mm / inch)

**1. Twin type (8 terminals)**

* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering.

Intervals between terminals is measured at A surface level.

**Download CAD Data from our Web site.**

**PC board pattern (Bottom view)**

**Schematic (Bottom view)**

**2. Twin type (10 terminals)**

* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering.

Intervals between terminals is measured at A surface level.

**Download CAD Data from our Web site.**

**PC board pattern (Bottom view)**

**Schematic (Bottom view)**
3. Single type (1 Form C)

**CAD Data**

- Dimension:
  - Max. 1mm: 0.039 inch: ±0.1 ±.004
  - 1 to 3mm: 0.039 to .118 inch: ±0.2 ±.008
  - Min. 3mm: .118 inch: ±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.

**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

**EXAMPLE OF CIRCUIT**

Forward/reverse control circuits of DC motor for power windows

* : Power window motor
3. Distribution of pick-up and drop-out voltage
Sample: ACTP212, 40pcs.

4. Distribution of operate and release time
Sample: ACTP212, 40pcs.
* Without diode

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

<table>
<thead>
<tr>
<th>No. of operations, × 10⁴</th>
<th>Pick-up voltage, V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max.</td>
</tr>
<tr>
<td></td>
<td>Min.</td>
</tr>
<tr>
<td></td>
<td>Pick-up voltage</td>
</tr>
<tr>
<td></td>
<td>Drop-out voltage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact welding: 0 time</th>
<th>Miscontact: 0 time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.</td>
<td>Min.</td>
</tr>
</tbody>
</table>

Contact resistance, mΩ

Load current waveform

For Cautions for Use, see Relay Technical Information.