



FEATURES

- **Smallest in its class, it is extremely compact at approximately 2/3 the size of previous products.**

It takes up only about two thirds the space and volume of our previous twin type CT compact relay. It is perfect for making compact relay units.

- **Compact and high-capacity 25 A load switching.**

High capacity control is possible while being compact and capable of motor lock load switching at 25 A, 14 V DC.

Sealed type

Sealed type makes automatic cleaning possible.

TYPICAL APPLICATIONS

- Powered windows
 - Automatic door locks
 - Electrically powered mirrors
 - Powered sun roofs
 - Powered seats
 - Lift gates
 - Slide door closers, etc.
- (for DC motor forward/reverse control circuits)

SPECIFICATIONS

Contact

Arrangement			1 Form C×2
Contact material			Silver alloy
Initial contact resistance (By voltage drop 6 V DC 1 A)			Max. 100mΩ
Rating	Nominal switching capacity		N.O.: 20 A 14 V DC N.C.: 10 A 14 V DC
	Max. carrying current		30 A for 2 minutes, 20 A for 1 hour (14 V, at 20°C 68°F)
	Min. switching capacity**1		1A 12V DC
Expected life (min. operation)	Mechanical (at 120 cpm)		Min. 10 ⁷
	Electrical	Resistive load*1	Min. 10 ⁵
		Motor load*2	N.O.; 5A 14V DC, Inrush 25A (motor load): Min. 2×10 ⁵
			N.O.; 25A 14V DC (motor lock): Min. 10 ⁵ N.C.; 20A (brake) 14V DC: Min. 2×10 ⁵

Coil

Nominal operating power	640mW (ACJ2212) 800mW (ACJ2112)
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Remarks

**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.

*1 At nominal switching capacity, operating frequency: 1s ON, 9s OFF

*2 At operating frequency: 0.5s ON, 9.5s OFF

*3 Measurement at same location as "Initial breakdown voltage" section

*4 Detection current: 10mA

*5 Excluding contact bounce time

*6 Half-wave pulse of sine wave: 11ms; detection time: 10μs

*7 Half-wave pulse of sine wave: 6ms

*8 Detection time: 10μs

*9 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 *3		Min. 100 MΩ (at 500 V DC)
Initial breakdown voltage *4	Between open contacts	500 Vrms for 1 min.
	Between contacts and coil	500 Vrms for 1 min.
Operate time *5 (at nominal voltage) (at 20°C 68° F)		Max. 10ms (Initial)
Release time (without diode)*5 (at nominal voltage) (at 20°C 68° F)		Max. 10ms (Initial)
Shock resistance	Functional *6	Min. 100 m/s ² {10G}
	Destructive *7	Min. 1,000 m/s ² {100G}
Vibration resistance	Functional *8	10 Hz to 100 Hz, Min. 44.1m/s ² {4.5G}
	Destructive	10 Hz to 500 Hz, Min. 44.1m/s ² {4.5G}
Conditions for operation, transport and storage *9 (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.
Mass		Approx. 6.5g .23oz

CJ (ACJ)

ORDERING INFORMATION

ACJ	2		12
Contact arrangement	Nominal operating power		Coil voltage (V DC)
2: 1 Form C × 2	2: 640 mW 1: 800 mW		12: 12

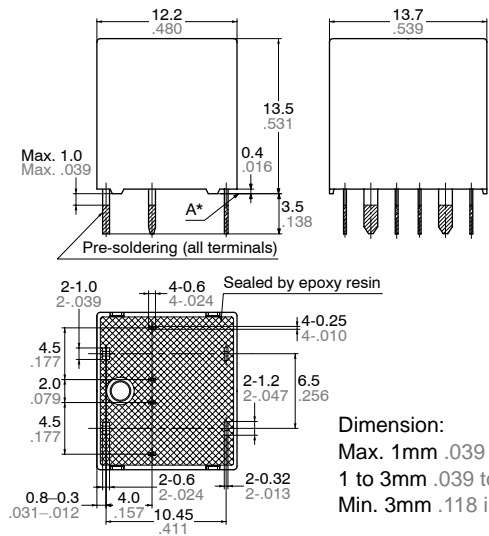
Standard packing: Carton(tube package) 40 pcs; Case 1,000 pcs.

TYPES AND COIL DATA (at 20°C 68°F).

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 × 2	ACJ2212	12	Max. 7.2	Min. 1.0	225±10%	53.3±10%	640	10 to 16
	ACJ2112	12	Max. 6.5	Min. 0.8	180±10%	66.7±10%	800	10 to 16

DIMENSIONS

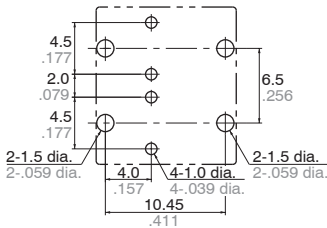
mm inch



Dimension:
Max. 1mm .039 inch:
1 to 3mm .039 to .118 inch:
Min. 3mm .118 inch:

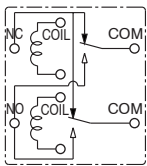
Tolerance
±0.1 ±.004
±0.2 ±.008
±0.3 ±.012

PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

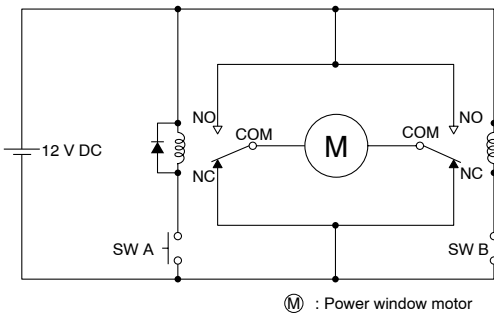
Schematic (Bottom view)



* 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



Ⓜ : Power window motor

REFERENCE DATA

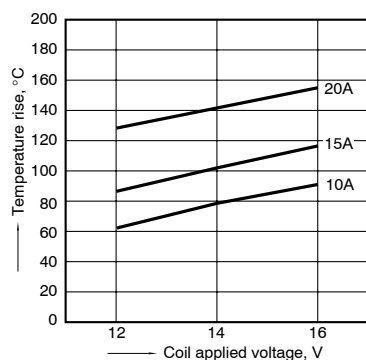
1-(1). Coil temperature rise (at room temperature)

Sample: ACJ2212, 3pcs

Measured portion: Inside the coil

Contact carrying current: 10A, 15A, 20A

Ambient temperature: 25°C 77°F



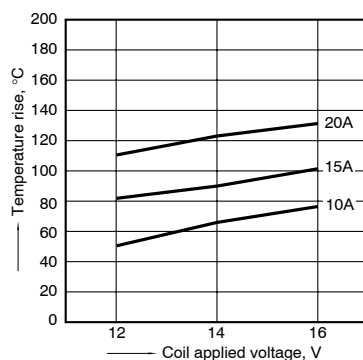
1-(2). Coil temperature rise (at 85°C 185°F)

Sample: ACJ2212, 3pcs

Measured portion: Inside the coil

Contact carrying current: 10A, 15A, 20A

Ambient temperature: 85°C 185°F



2-(1). Electrical life test (Motor free)

Sample: ACJ2212, 3pcs; Load: Inrush current: 25A/

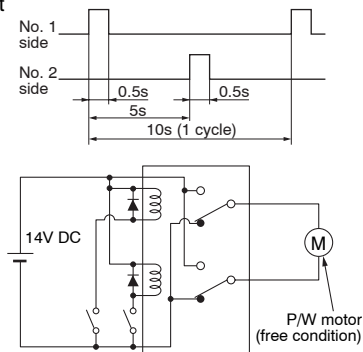
Steady current: 5A, Power window motor actual load

(free condition); Tested voltage: 14V DC; Switching

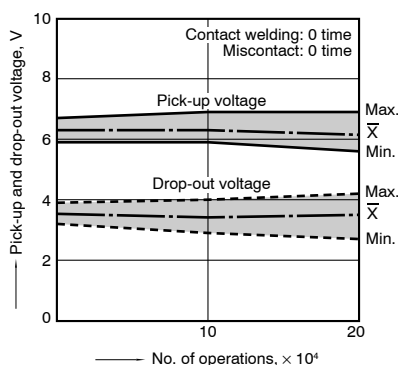
frequency: (ON:OFF = 0.5s:9.5s); Switching cycle:

2×10⁵; Ambient temperature: Room temperature

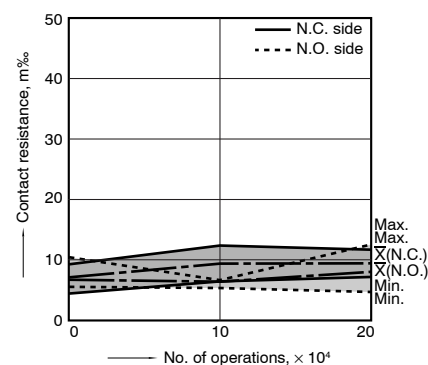
Circuit



Change of pick-up and drop-out voltage



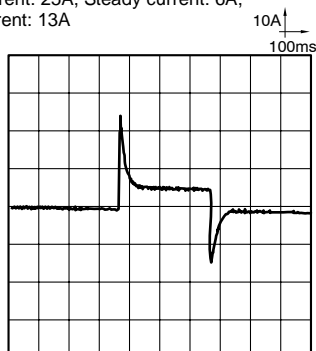
Change of contact resistance



Load current waveform

Inrush current: 25A, Steady current: 6A,

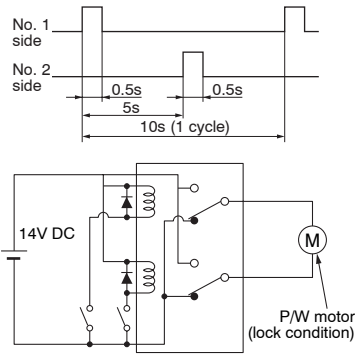
Brake current: 13A



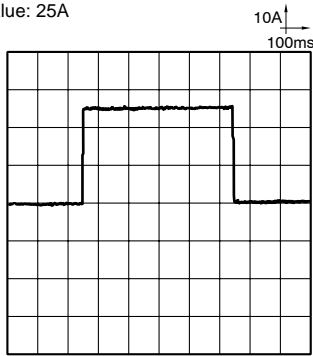
CJ (ACJ)

2-(2). Electrical life test (Motor lock)
Sample: ACJ2212, 3pcs; Load: Steady current: 25A,
Power window motor actual load (lock condition);
Tested voltage: 14V DC; Switching frequency:
(ON:OFF = 0.5s:9.5s); Switching cycle: 10⁵;
Ambient temperature: Room temperature

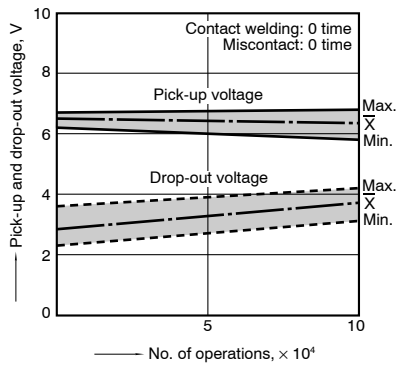
Circuit



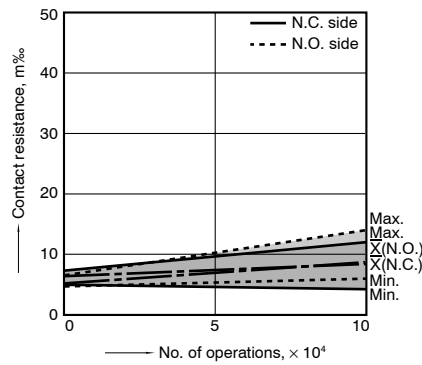
Load current waveform
Current value: 25A



Change of pick-up and drop-out voltage



Change of contact resistance



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