

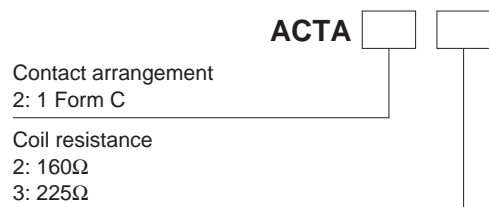
FEATURES

- Designed for silence when mounted on PC board
- Flat type
- Sealed type

TYPICAL APPLICATIONS

Intermittent wiper, Cruise control, Power windows, Auto door lock, Power supply of car stereo and car air-conditioner, Electrically powered seats, Electrically powered sunroof, etc.

ORDERING INFORMATION



TYPES

Contact arrangement	Nominal coil voltage	Coil resistance	Part No.
1 Form C	12V DC	160Ω	ACTA22
		225Ω	ACTA23

Standard packing; Carton (tube): 25 pcs.; Case: 1,000 pcs.

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. 6.5V DC (Initial)	Min. 0.8V DC (Initial)	75 mA	160Ω	900 mW	10 to 16V DC
	Max. 7.7V DC (Initial)	Min. 0.8V DC (Initial)	53.3 mA	225Ω	640 mW	

TA (ACTA)

2. Specifications

Characteristics	Item	Specifications	
Contact	Arrangement	1 Form C	
	Contact resistance (Initial)	N.O.: Typ5mΩ, N.C.: Typ6mΩ (By voltage drop 6V DC 1A)	
	Contact material	Ag alloy (Cadmium free)	
Rating	Nominal switching capacity (resistive load)	N.O.: 20A 14V DC, N.C.: 10A 14V DC	
	Max. carrying current (12V DC initial)*3	25A for 3 minutes (at 20°C 68°F)	
	Nominal operating power	900 mW (Pick-up voltage 6.5V DC type)	
		640 mW (Pick-up voltage 7.7V DC type)	
Min. switching capacity (resistive load)*1	1A 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) (without protective element)	
Mechanical characteristics	Shock resistance	Functional	Min. 100 m/s ² {10G} (Half-wave pulse of sine wave: 11ms; detection time: 10μs)
		Destructive	Min. 1,000 m/s ² {100G} (Half-wave pulse of sine wave: 6ms)
	Vibration resistance	Functional	10 Hz to 100 Hz, Min. 44.1 m/s ² {4.5G} (Detection time: 10μs)
		Destructive	10 Hz to 500 Hz, Min. 44.1 m/s ² {4.5G}, Time of vibration for each direction; X, Y direction: 2 hours, Z direction: 4 hours
Expected life	Mechanical	Min. 10 ⁷ (at 120 cpm)	
	Electrical*4	<Resistive load> Min. 10 ⁵ (at nominal switching capacity, operating frequency: 1s ON, 9s OFF)	
<Motor load> Min. 10 ⁵ (25 A 14V DC at motor lock condition), 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, Humidity: 5% R.H. to 85% R.H. (Not freezing and condensing at low temperature)	
Mass		Approx. 8 g .28 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.

*4. Do not use for lamp loads, electric discharge lamp loads, any other lamp loads and capacitor loads. Please contact us for details.

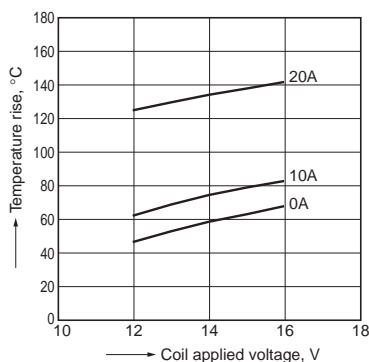
REFERENCE DATA

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

Sample: ACTA23, 3pcs.

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

Ambient temperature: Room temperature

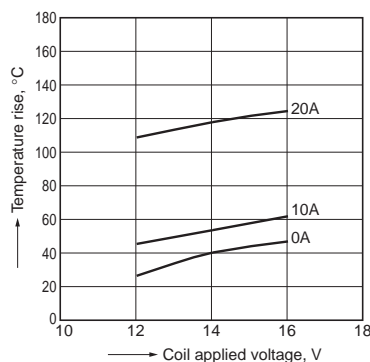


1.-(2) Coil temperature rise (at 85°C 185°F)

Sample: ACTA23, 3pcs.

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

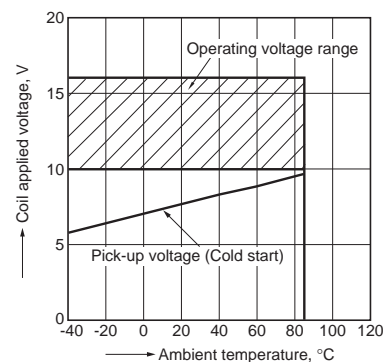
Ambient temperature: 85°C 185°F



2. Ambient temperature and operating voltage range

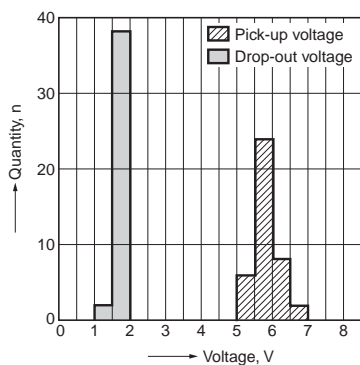
range

Sample: ACTA23



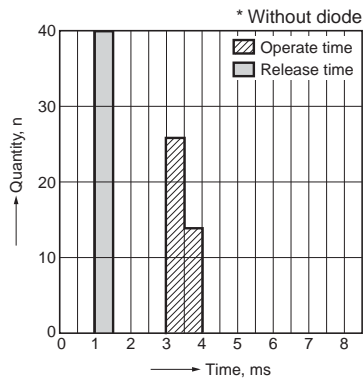
3. Distribution of pick-up and drop-out voltage

Sample: ACTA23, 40pcs.



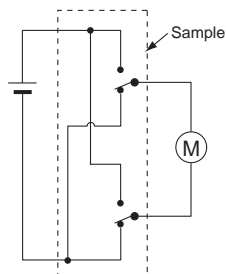
4. Distribution of operate and release time

Sample: ACTA23, 40pcs.

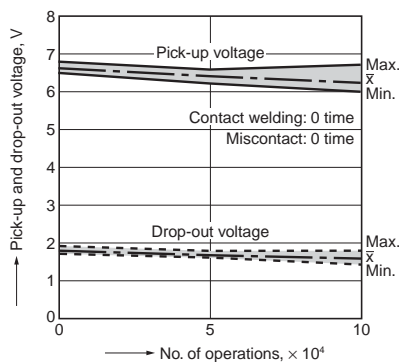


5.-(1) Electrical life test (Motor lock)

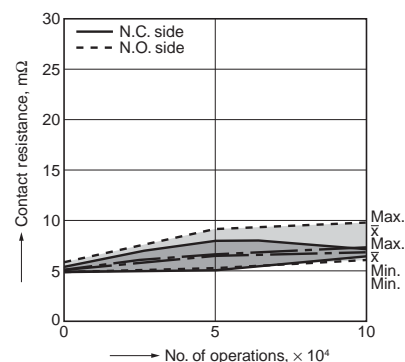
Sample: ACTA23, 3pcs.
 Load: 25A 14V DC
 Power window motor actual load (lock condition)
 Operating frequency: ON 0.5s, OFF 9.5s
 Ambient temperature: Room temperature
 Circuit:



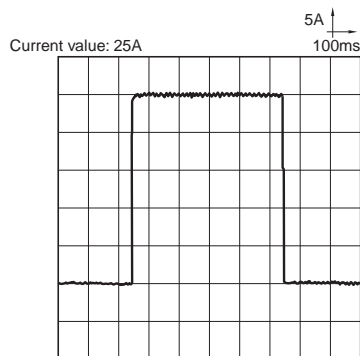
Change of pick-up and drop-out voltage



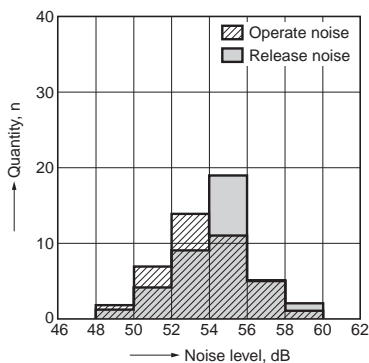
Change of contact resistance



Load current waveform

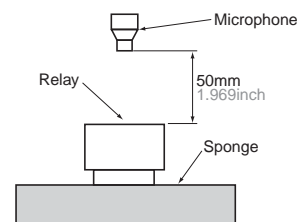


6. Noise pressure characteristics



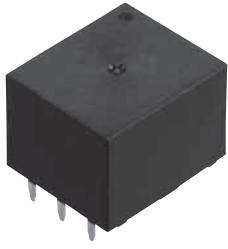
Measuring conditions

Sample: ACTA23, 40 pcs.
 Equipment setting: "A" weighted, Impulse holding
 Coil voltage: 12V DC
 Coil connection device: Diode
 Background noise: approx. 35dB

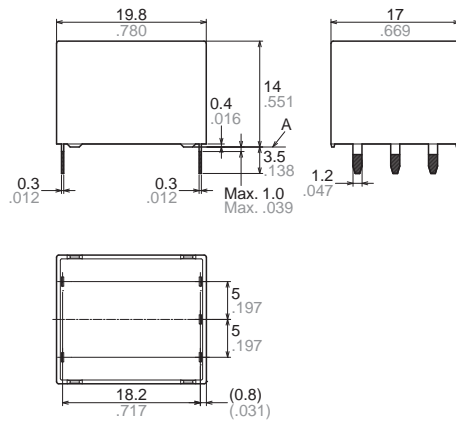


TA (ACTA)

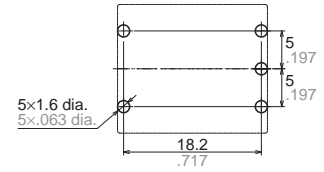
DIMENSIONS (mm inch)



External dimensions

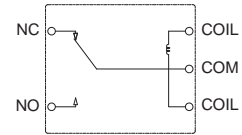


PC board pattern (Bottom view)



Tolerance: $\pm 0.1 \pm 0.004$

Schematic (Bottom view)



Dimension:	Tolerance
Less than 1mm .039inch:	$\pm 0.1 \pm 0.004$
Min. 1mm .039inch less than 3mm .118 inch:	$\pm 0.2 \pm 0.008$
Min. 3mm .118 inch:	$\pm 0.3 \pm 0.012$

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

NOTES

Usage, transport and storage conditions

1) Ambient temperature, humidity, and atmospheric pressure during usage, transport, and storage of the relay:

(1) Temperature: -40 to $+85^{\circ}\text{C}$ -40 to $+185^{\circ}\text{F}$

(2) Humidity: 5 to 85% RH (Avoid freezing and condensation.)

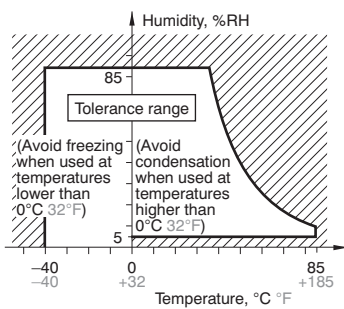
(3) Atmospheric pressure: 86 to 106 kPa

The humidity range varies with the temperature. Use within the range indicated in the graph below.

(Temperature and humidity range for usage, transport, and storage)

2) Condensation

Condensation forms when there is a sudden change in temperature under high temperature and high humidity conditions. Condensation will cause deterioration of the relay insulation.



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