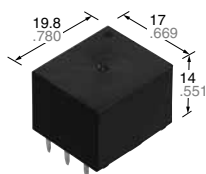


1 Form C Automotive Quiet Relay

TA RELAYS

<Protective construction>
Sealed



(Unit: mm inch)

RoHS compliant

FEATURES

- Designed for low operation noise when mounted on PC board
- Flat type

TYPICAL APPLICATIONS

- Intermittent wiper, Cruise control, Powered windows, Automatic door locks, Power supply of car stereo and car air-conditioner, Powered seats, Powered sunroof, etc.

ORDERING INFORMATION

ACTA

Contact arrangement

2: 1 Form C

Contact type

Nil: Standard type

Coil resistance

2: 160Ω

3: 225Ω

TYPES

Contact arrangement	Contact type	Rated coil voltage	Coil resistance	Part No.	Packing	
					Carton (tube)	Case
1 Form C	Standard type	12V DC	160Ω	ACTA22	25 pcs.	1,000 pcs.
			225Ω	ACTA23		

RATING

1. Coil data

Rated coil voltage	Operate (Set) voltage (at 20°C 68°F) (Initial)	Release (Reset) voltage (at 20°C 68°F) (Initial)	Rated operating current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Rated operating power (at 20°C 68°F)	Usable voltage range
12V DC	Max. 6.5V DC	Min. 0.8V DC	75 mA	160Ω	900 mW	10 to 16V DC
	Max. 7.7V DC		53.3 mA	225Ω	640 mW	

2. Specifications

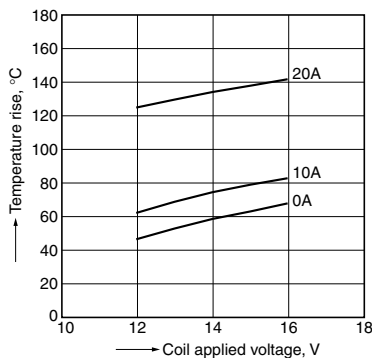
Item		Specifications
Contact data	Contact arrangement	1 Form C
	Contact resistance (initial)	Max. 100mΩ (N.O. side: typ. 5mΩ, N.C. side: typ. 6mΩ) (By voltage drop 1A 6V DC)
	Contact material	Ag alloy
	Rated switching capacity (resistive)	N.O. side: 20A 14V DC, N.C. side: 10A 14V DC
	Max. carrying current (initial)*1	25A for 3 minutes (Coil applied voltage 12V DC, at 20°C 68°F)
	Min. switching load (resistive)*2	1A 14V DC (at 20°C 68°F)
Insulated resistance (initial)		Min. 100 MΩ (at 500V DC, Measurement at same location as "Dielectric strength" section.)
Dielectric strength (initial)	Between open contacts	500 Vrms for 1 min. (Detection current: 10mA)
	Between contacts and coil	500 Vrms for 1 min. (Detection current: 10mA)
Time characteristics (initial)	Operate (Set) time (at rated voltage)	Max. 10ms (at 20°C 68°F, without contact bounce time)
	Release (Reset) time (at rated voltage)	Max. 10ms (at 20°C 68°F, without contact bounce time) (without diode)
Shock resistance	Functional	Min. 100 m/s ² {approx. 10G} (Half-wave pulse of sine wave: 11ms; detection time: 10μs)
	Destructive	Min. 1,000 m/s ² {approx. 100G} (Half-wave pulse of sine wave: 6ms)
Vibration resistance	Functional	10 to 100 Hz, Min. 44.1 m/s ² {approx. 4.5G} (Detection time: 10μs)
	Destructive	10 to 100 Hz, Min. 44.1 m/s ² {approx. 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 rated 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 usage, transport and storage*3	Ambient temperature: -40 to +85°C -40 to +185°F, Humidity: 5 to 85% R.H. (Please avoid icing or condensation)
Weight		Approx. 8 g .28 oz

- Notes: *1. Depends on connection conditions. Also, this does not guarantee repeated switching. We recommend that you confirm operation under actual conditions.
 *2. 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.
 *3. The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value. For details, please refer to the "Automotive Relay Users Guide".
 Please inquire our sales representative if you will be using the relay in a high temperature atmosphere (110°C 230°F).
 *4. Do not use for lamp loads, electric discharge lamp loads, any other lamp loads and capacitor loads. Please inquire our sales representative for details.

REFERENCE DATA

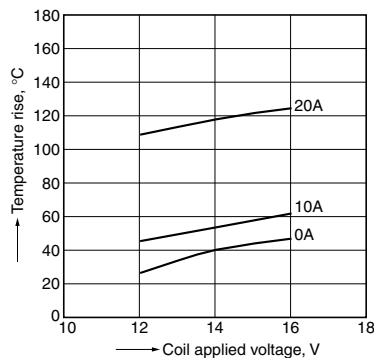
1.-(1) Coil temperature rise (at room temperature)

Sample: ACTA23, 3pcs.
 Carrying current: 0A, 10A, 20A
 Ambient temperature: Room temperature



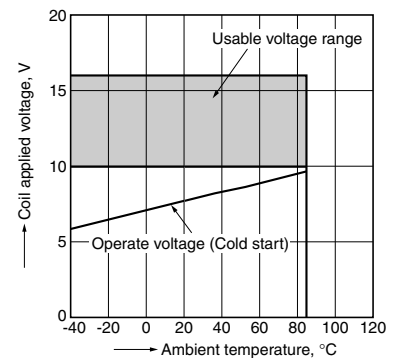
1.-(2) Coil temperature rise (at 85°C 185°F)

Sample: ACTA23, 3pcs.
 Carrying current: 0A, 10A, 20A
 Ambient temperature: 85°C 185°F



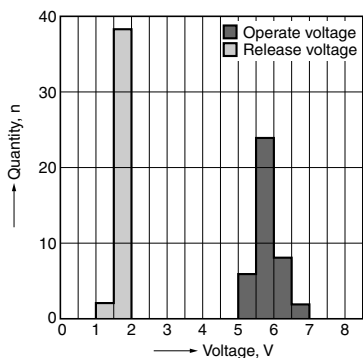
2. Ambient temperature and usable voltage range

Sample: ACTA23



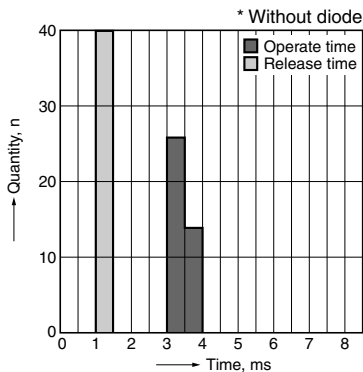
3. Distribution of operate (set) and release (reset) voltage

Sample: ACTA23, 40pcs.



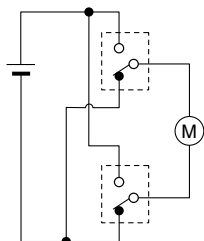
4. Distribution of operate (set) and release (reset) time

Sample: ACTA23, 40pcs.

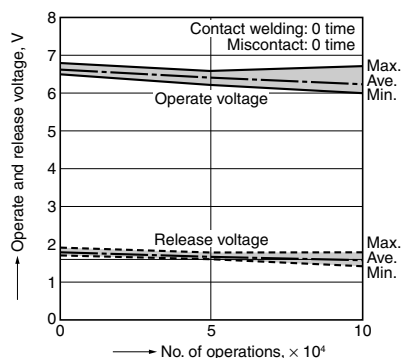


5.-(1) Electrical life test (Motor lock)

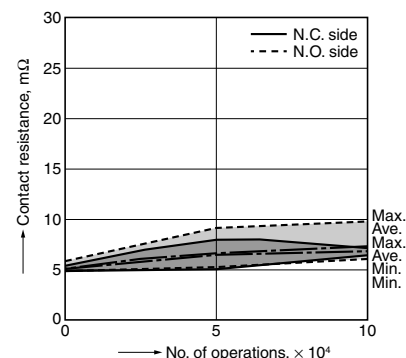
Sample: ACTA23, 3pcs.
 Load: 25A 14V DC
 Power window motor actual load (lock condition)
 Operating frequency: ON 0.5s, OFF 9.5s
 Ambient temperature: Room temperature
 Circuit:



Change of operate (set) and release (reset) voltage

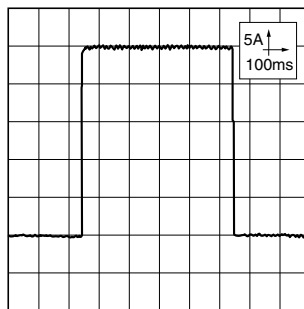


Change of contact resistance



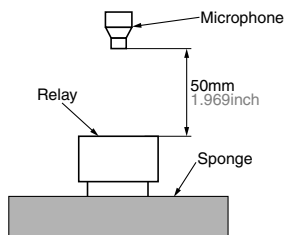
Load current waveform

Current value: 25A

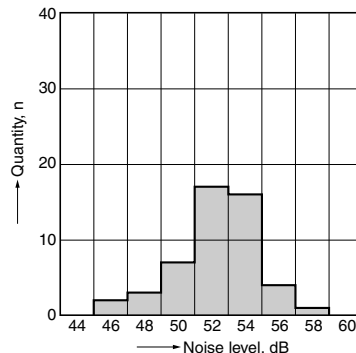


6. Noise pressure characteristics

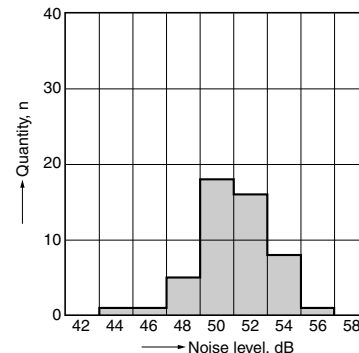
Measuring conditions
 Sample: ACTA23, 50 pcs.
 Equipment setting: "A" weighted, Fast, Max. hold
 Coil voltage: 12V DC
 Coil connection device: Diode
 Background noise: approx. 35dB



Operate (set) noise



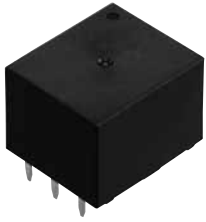
Release (reset) noise



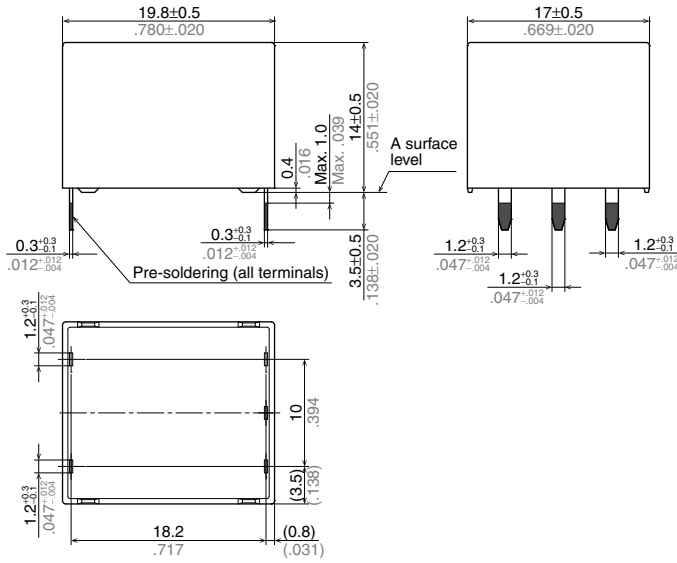
DIMENSIONS (mm inch)

The CAD data of the products with a **CAD** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

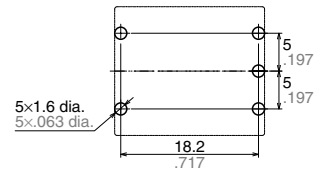
CAD



External dimensions

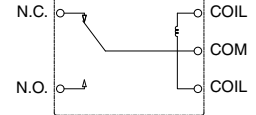


PC board pattern (Bottom view)



Tolerance: $\pm 0.1 \pm .004$

Schematic (Bottom view)



Dimension:	Tolerance
Less than 1mm .039inch:	$\pm 0.1 \pm .004$
Min. 1mm .039inch less than 3mm .118 inch:	$\pm 0.2 \pm .008$
Min. 3mm .118 inch:	$\pm 0.3 \pm .012$

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

NOTES

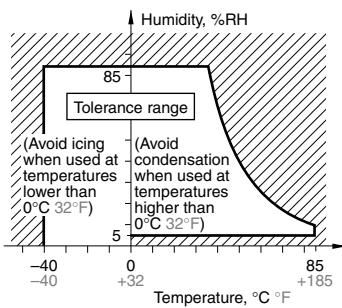
Usage, transport and storage conditions

1) Ambient temperature, humidity, and air 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 icing and condensation.)
- (3) Air 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]



For general cautions for use, please refer to the “Automotive Relay Users Guide”.

Please contact

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Panasonic[®]

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