Panasonic
INDUSTRY

To Be Discontinued
Last time buy: September 30, 2023

Automotive Relays

CW RELAYS

Product Catalog

IN Your Future

2022.9

RoHS

CW RELAYS

To Be Discontinued
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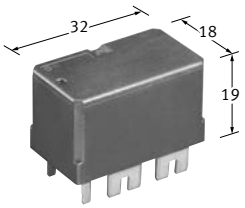
Automotive Relay for Failsafe Circuits in High Output Motors (EPS)

[Protective construction] Sealed



(Unit: mm)

FEATURES

- Ideal relay for high output 3-phase motors
- High current cutoff
- High carrying current and high heat resistance

TYPICAL APPLICATIONS

- 3-phase motor EPS unit, etc. (for failsafe circuit)

ORDERING INFORMATION (PART NO.)

ACW 2 ☐

- 2: Contact arrangement 2 Form A
- ☐: Rated coil voltage (DC) 12: 12 V

TYPES

Contact arrangement	Rated coil voltage	Part No.	Packing	
			Carton	Case
2 Form A	12 V DC	ACW212	40 pcs.	160 pcs.

RATING

■Coil data

Rated coil voltage	Operate voltage (at 20°C) (Initial)	Release voltage (at 20°C) (Initial)	Rated operating current [±10%] (at 20°C)	Coil resistance [±10%] (at 20°C)	Rated operating power (at 20°C)	Usable voltage range
12 V DC	Max. 6.2 V DC	Min. 0.5 V DC	117 mA	103 Ω	1.4 W	10 to 16 V DC

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■ Specifications

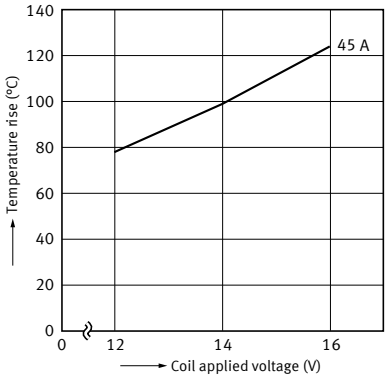
Item		Specifications
Contact data	Contact arrangement	2 Form A
	Contact resistance (initial)	Max. 50 mΩ (typ. 1.2 mΩ) (By voltage drop 1 A 6 V DC)
	Contact material	Ag alloy
	Max. carrying current*1	120 A/5 sec (Coil applied voltage 14 V DC, at 20°C) 70 A/1 min (Coil applied voltage 14 V DC, at 85°C)
	Min. switching load (resistive)*2	1 A 14 V DC (at 20°C)
Insulated resistance (initial)		Min. 100 MΩ (at 500 V DC, Measurement at same location as “Dielectric strength” section.)
Dielectric strength (initial)	Between open contacts	500 Vrms for 1 min (Detection current: 10 mA)
	Between contacts and coil	500 Vrms for 1 min (Detection current: 10 mA)
Time characteristics (initial)	Operate time (at rated voltage)	Max. 20 ms (at 20°C, without contact bounce time)
	Release time (at rated voltage)	Max. 20 ms (at 20°C) (without diode)
Shock resistance	Functional	Min. 200 m/s² (Half-wave pulse of sine wave: 11 ms, detection time: 10 μs) (12 V DC applied to the coil)
	Destructive	Min. 1,000 m/s² (Half-wave pulse of sine wave: 6 ms)
Vibration resistance	Functional	10 to 500 Hz, Min. 44.1 m/s² (Detection time: 10 μs) (12 V DC applied to the coil, at 20°C)
	Destructive	10 to 500 Hz, Min. 44.1 m/s² (Time of vibration for each direction; X, Y, Z direction: 4 hours)
Expected life	Mechanical	Min. 2 x 10^5 (at 60 times/min)
	Electrical (at cut off only)	200 A 14 V DC resistive load, Min. 3 times (without diode)
Conditions	Conditions for usage, transport and storage*3	Ambient temperature: -40 to +125°C, Humidity: 2 to 85% RH (Avoid icing and condensation)
Weight		Approx. 26 g

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).

REFERENCE DATA

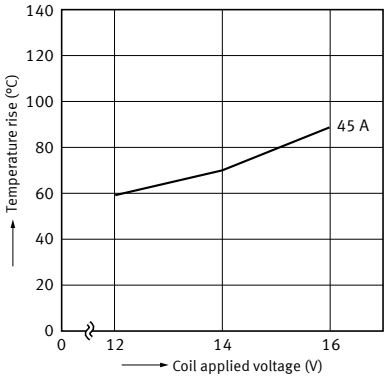
1-1. Coil temperature rise (at 25°C)

Sample: ACW212, 3 pcs
Point measured: Inside the coil
Carrying current: 45 A
Ambient temperature: 25°C



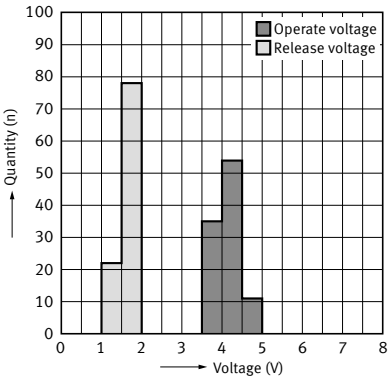
1-2. Coil temperature rise (at 85°C)

Sample: ACW212, 3 pcs
Point measured: Inside the coil
Carrying current: 45 A
Ambient temperature: 85°C



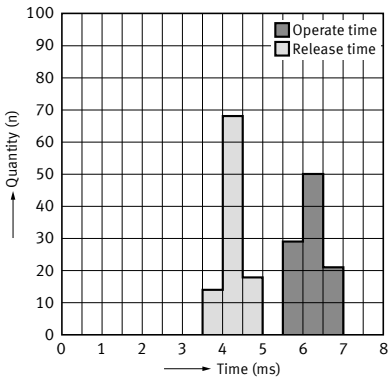
2.Distribution of operate and release voltage

Sample: ACW212, 100 pcs

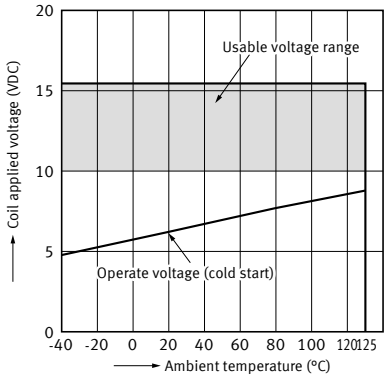


3.Distribution of operate and release time

Sample: ACW212, 100pcs.



4.Ambient temperature and usable voltage range



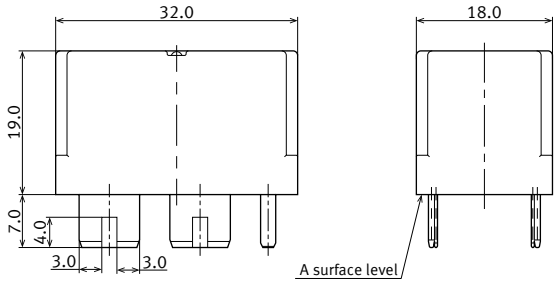
DIMENSIONS

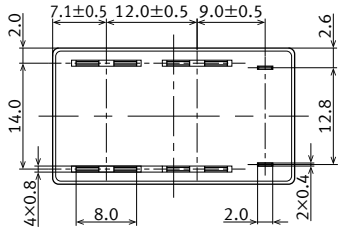
CAD The CAD data of the products with a "CAD" mark can be downloaded from our Website.

Unit: mm

CAD

External dimensions

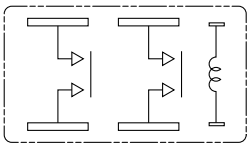




Tolerance
Max. 1mm : ±0.1
1 to 3 mm : ±0.2
Min. 3 mm : ±0.3

* Intervals between terminals is measured at A surface level.

Schematic
(BOTTOM VIEW)



GUIDELINES FOR USAGE

■For general cautions for use, please refer to the "Automotive Relay Users Guide".

■Precautions when using CW relays

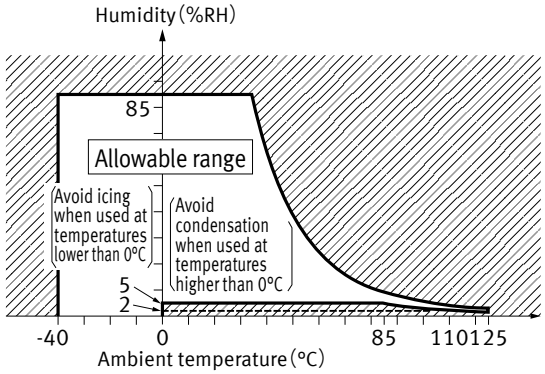
●Mounting method

These relays are designed for mounting by welding. Soldering cannot be used for mounting.

●Usage, transport and storage conditions

1) Ambient temperature,humidity, and air pressure during usage,transport of the relay
   (1) Temperature: -40 to +125°C
   (2) Humidity: 2 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.

[Temperature and humidity range for usage, transport, and storage]



Please refer to **"the latest product specifications"** when designing your product.
•Requests to customers:
https://industrial.panasonic.com/ac/e/salespolicies/

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INDUSTRY

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Specifications are subject to change without notice.
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