

## New Product Introduction

August 10, 2011

### **DW (ADW1) Series Polarized Power Relays: 8A Latching Relay for Energy Saving Devices**

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RoHS  
compliant

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#### 1. Features:

- **8A switching capacity with 1- and 2-coil latching for energy savings**
  - **1 Form A contact arrangement**
  - **High breakdown voltage**
    - Surge breakdown voltage (between contact and coil): 12,000 V
    - Breakdown voltage (between contact and coil): 5,000 V
  - **Pin-in-paste design compatible with reflow process**
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#### 2. Applications:

- **Smart meters**
  - **Home appliances**
  - **Power supplies**
  - **Industrial equipment**
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#### 3. Release Schedule: August 2011

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## 4. Ordering Information:

ADW 1 [ ] [ ] W

Contact arrangement  
1: 1 Form A

Operating function  
1: 1 coil latching type  
2: 2 coil latching type

Nominal coil voltage (DC)  
03: 3V, 05: 5V, 06: 6V, 09: 9V, 12: 12V, 24: 24V

Note: The suffix "W" on the part number is only displayed on the inner and outer packaging.  
It is not displayed on the relay.

## TYPES

Contact arrangement	Nominal coil voltage	Part No.	
		1 coil latching type	2 coil latching type
1 Form A	3V DC	ADW1103W	ADW1203W
	5V DC	ADW1105W	ADW1205W
	6V DC	ADW1106W	ADW1206W
	9V DC	ADW1109W	ADW1209W
	12V DC	ADW1112W	ADW1212W
	24V DC	ADW1124W	ADW1224W

Standard packing: Carton: 100 pcs.; Case: 500 pcs.

## 5. Technical Information: Please refer to attached datasheet for details.

### RATING

#### 1. Coil data

##### 1) 1 coil latching type

Nominal coil voltage	Set voltage (at 20°C 68°F)	Reset 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	Max. applied voltage (at 20°C 68°F)
3V DC	*80%V or less of nominal voltage (Initial)	*80%V or less of nominal voltage (Initial)	66.7mA		45Ω	200mW	110%V of nominal voltage
5V DC			40.0mA		125Ω		
6V DC			33.3mA		180Ω		
9V DC			22.2mA		405Ω		
12V DC			16.7mA		720Ω		
24V DC			8.3mA		2,880Ω		

##### 2) 2 coil latching type

Nominal coil voltage	Set voltage (at 20°C 68°F)	Reset 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		Max. applied voltage (at 20°C 68°F)
			Set coil	Reset coil	Set coil	Reset coil	Set coil	Reset coil	
3V DC	*80%V or less of nominal voltage (Initial)	*80%V or less of nominal voltage (Initial)	133.3mA	133.3mA	22.5Ω	22.5Ω	400mW	400mW	110%V of nominal voltage
5V DC			80.0mA	80.0mA	62.5Ω	62.5Ω			
6V DC			66.7mA	66.7mA	90 Ω	90 Ω			
9V DC			44.4mA	44.4mA	202.5Ω	202.5Ω			
12V DC			33.3mA	33.3mA	360 Ω	360 Ω			
24V DC			16.7mA	16.7mA	1,440 Ω	1,440 Ω			

\*Pulse drive (JIS C 5442-1996)

## 2. Specifications

Characteristics	Item	Specifications	
Contact	Arrangement	1 Form A	
	Contact resistance (Initial)	Max. 100 mΩ (By voltage drop 6 V DC 1A)	
	Contact material	AgSnO <sub>2</sub> type	
Rating	Nominal switching capacity (resistive load)	8 A 250V AC	
	Max. switching power (resistive load)	2,000 V A	
	Max. switching voltage	250V AC	
	Max. switching current	8A AC	
	Nominal operating power	200mW (1 coil latching type), 400mW (2 coil latching type)	
	Min. switching capacity (Reference value)*1	100mA 5 V DC	
	Electrical characteristics	Insulation resistance (Initial)	Min. 1,000MΩ (at 500V DC, Measurement at same location as "Breakdown voltage" section)
Breakdown voltage (Initial)		Between open contacts	1,000 Vrms for 1min. (Detection current: 10mA)
		Between contact and coil	5,000 Vrms for 1min. (Detection current: 10mA)
Temperature rise (coil) (at 85°C 185°F)		Max. 35°C 95°F (By resistive method, contact carrying current: 8A, Coil: de-energized)	
Surge breakdown voltage*2 (Between contact and coil)		12,000 V (Initial)	
Set time (at 20°C 68°F)		Max. 15 ms (Nominal voltage applied to the coil, excluding contact bounce time)	
Reset time (at 20°C 68°F)		Max. 15 ms (Nominal voltage applied to the coil, excluding contact bounce time)	
Mechanical characteristics	Shock resistance	Functional	100 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10μs)
		Destructive	1,000 m/s <sup>2</sup> (Half-wave pulse of sine wave: 6 ms)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 2 mm (Detection time: 10μs)
Destructive		10 to 55 Hz at double amplitude of 3 mm	
Expected life	Mechanical	Min. 10 <sup>6</sup> (at 180 times/min.)	
	Electrical	Min. 5 × 10 <sup>4</sup> (at 8 A 250V AC, resistive load) (at 20 times/min.)	
Conditions	Conditions for operation, transport and storage*3 *4	Temperature: -40°C to +85°C -40°F to +185°F, Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
	Max. operating speed (at nominal switching capacity)	20 times/min.	
Unit weight		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. Wave is standard shock voltage of  $\pm 1.2 \times 50\mu\text{s}$  according to JEC-212-1981

\*3. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.

\*4. Allowable range when in original packaging is -40°C to +70°C -40°F to +158°F.

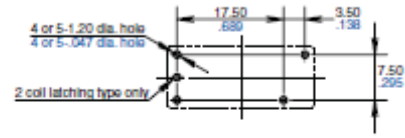
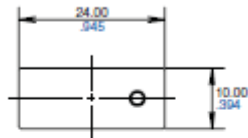
## DIMENSIONS (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://panasonic-electric-works.net/ac>

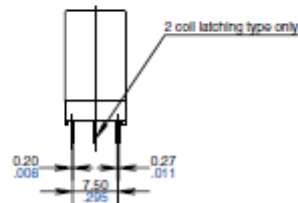
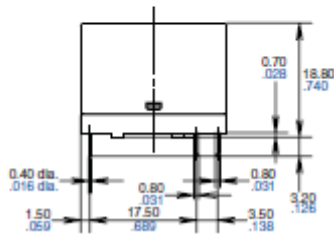
**CAD Data**

External dimensions

PC board pattern (Bottom view)

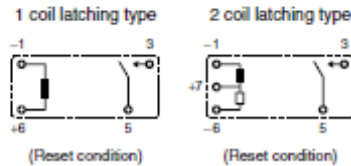


Tolerance:  $\pm 0.1 \pm 0.004$



General tolerance:  $\pm 0.3 \pm 0.12$

Schematic (Bottom view)



## SAFETY STANDARDS

Product name	UL/C-UL (Recognized)		VDE (Certified)	
	File No.	Contact rating	File No.	Contact rating
1 Form A	E43149	8A 250V AC R 85°C 185°F 5A 30V DC R 85°C 185°F	40032254	8A 250V AC (cosφ=1.0) 85°C 185°F 5A 30V DC (0ms) 85°C 185°F

Note: CSA standard; Certified by C-UL.

Any questions, please contact your local Panasonic Electric Works Sales representatives.

Ref#: M-403