



Compliance with RoHS Directive

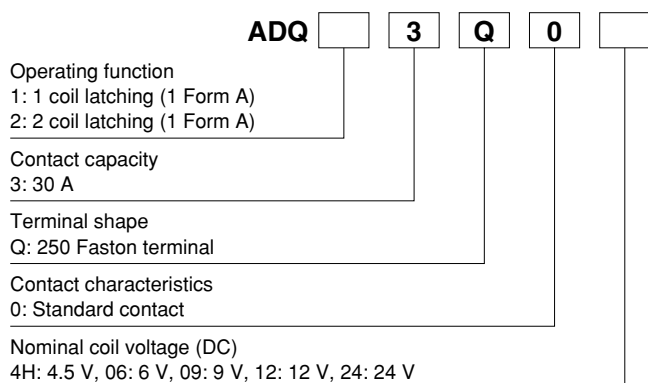
### FEATURES

- 30A capacity in small size
- Contributes to device energy savings with latching type.
- High insulation  
4,000V AC (between contacts and coil)  
Surge 10,000V (between contacts and coil)
- Cd-free, Pb-free
- Sealed construction
- UL/C-UL approved

### TYPICAL APPLICATIONS

- Time switches
- Electric water heaters
- Remote control of electric power meters

### ORDERING INFORMATION



### TYPES

Contact arrangement	Nominal coil voltage	Part No.	
		1 coil latching	2 coil latching
1 Form A	4.5V DC	ADQ13Q04H	ADQ23Q04H
	6V DC	ADQ13Q006	ADQ23Q006
	9V DC	ADQ13Q009	ADQ23Q009
	12V DC	ADQ13Q012	ADQ23Q012
	24V DC	ADQ13Q024	ADQ23Q024

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

### RATING

#### 1. Coil data

##### 1) 1 coil latching

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)
4.5V DC	70%V or less of nominal voltage (Initial)	70%V or less of nominal voltage (Initial)	111.1mA	40.5Ω	500mW	130%V of nominal voltage
6V DC			83.3mA	72Ω		
9V DC			55.6mA	162Ω		
12V DC			41.7mA	288Ω		
24V DC			20.8mA	1,152Ω		

\* Pulse, direction of measurement: Terminal is downward.

# DQ (ADQ)

## 2) 2 coil latching

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	
4.5V DC	70%V or less of nominal voltage (Initial)	70%V or less of nominal voltage (Initial)	221.7mA	221.7mA	20.3Ω	20.3Ω	1,000mW	1,000mW	130%V of nominal voltage
6V DC			166.7mA	166.7mA	36Ω	36Ω			
9V DC			111.1mA	111.1mA	81Ω	81Ω			
12V DC			83.3mA	83.3mA	144Ω	144Ω			
24V DC			41.7mA	41.7mA	576Ω	576Ω			

\* Pulse, direction of measurement: Terminal is downward.

## 2. Specifications

Characteristics	Item	Specifications	
Contact	Arrangement	1 Form A	
	Contact resistance (Initial)	Max. 30 mΩ (By voltage drop 6 V DC 1A)	
	Contact material	AgSnO <sub>2</sub> type	
Rating	Nominal switching capacity (resistive load)	30 A 250V AC	
	Max. switching power (resistive load)	7,500 V A	
	Max. switching voltage	250V AC	
	Max. switching current	30 A	
	Nominal operating power	500mW (1 coil latching), 1,000mW (2 coil latching)	
	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	1,500 Vrms for 1min. (Detection current: 10mA.)
		Between contact and coil	4,000 Vrms for 1min. (Detection current: 10mA.)
	Surge breakdown voltage*2 (Initial)	Between contact and coil	Min. 10,000 V
	Temperature rise (at 65°C 149°F) (coil)		Max. 50°C (By resistive method, max. switching current) (Coil; de-energized)
	Set time (at 20°C 68°F)		Max. 20 ms (Nominal coil voltage applied to the coil, excluding contact bounce time.)
	Reset time (at 20°C 68°F)	Max. 20 ms (Nominal coil voltage applied to the coil, excluding contact bounce time.)	
Mechanical characteristics	Shock resistance	Functional	Min. 200 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)
		Destructive	Min. 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 1.5 mm (Detection time: 10μs.)
		Destructive	10 to 55 Hz at double amplitude of 2 mm
Expected life	Mechanical	Min. 10 <sup>6</sup> (at 180 times/min.)	
	Electrical	Min. 10 <sup>4</sup> (At nominal switching capacity, operating frequency: 3s ON, 3s OFF)	
Conditions	Conditions for operation, transport and storage*3	Ambient temperature: -40°C to +65°C -40°F to +149°F Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
	Max. operating speed	10 times/min. (at rated load)	
Unit weight		Approx. 35 g 1.23 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 ±1.2×50μs 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.

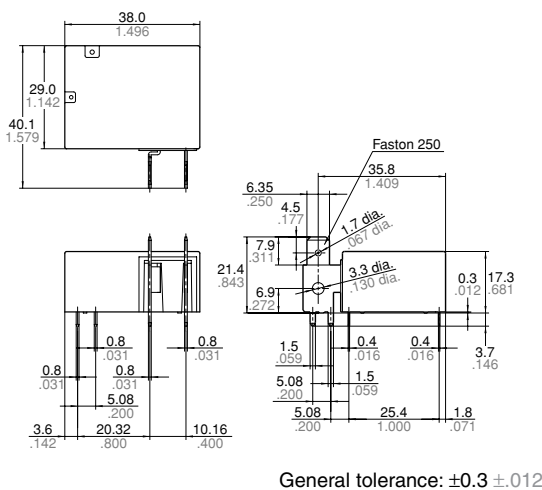
**DIMENSIONS** (mm inch)

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

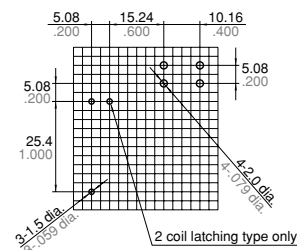
**CAD Data**

External dimensions

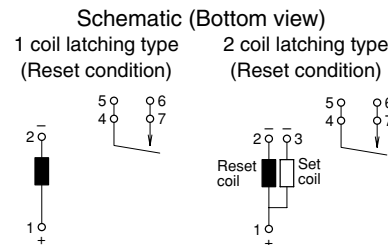
PC board pattern (Bottom view)



General tolerance:  $\pm 0.3 \pm .012$



Tolerance:  $\pm 0.1 \pm .004$



**SAFETY STANDARDS**

UL/C-UL (Recognized)

File No.	Contact rating
E43149	30A 277V AC

\* CSA standard: Certified by C-UL

**NOTES**

**1. Coil connection**

When connecting coils, refer to the wiring diagram to prevent mis-operation or malfunction.

**2. Others**

If more than 20 A is delivered via the plug-in terminal connection, to prevent loosening of contacts loss long periods of operation, ensure that the plug-in terminal is soldered to the receptacle terminal.

**For Cautions for Use.**