

**Panasonic**  
ideas for life

## 10A MINIATURE POWER RELAY FOR ACTUAL LOADS

# DY RELAYS (ADY)



### FEATURES

- Latching types available
- Compliant with IEC EN61010-1.
- Reinforced insulation with 6 mm distance between input and output.
- Electrical life of Min.  $2 \times 10^5$  times (1 Form A type) realized with inductive load ( $\cos\phi=0.4$ , L/R=7ms, 5A 250V AC)
- Lead- and cadmium-free.
- Socket also available.

### TYPICAL APPLICATIONS

- Control for industrial machines (machine tools, robotics)
- Output relays for temperature controllers, PLCs, timers, sensors.
- Measuring equipment
- Security equipment

	Part No.
Single side stable type	DK2a-PS
2 coil latching type	DK2a-PSL2

## SPECIFICATIONS

### Contact

Arrangement		1 Form A	1 Form A 1 Form B	
Initial contact resistance, max. (By voltage drop 6 V DC 1A)		30 mΩ		
Contact material		Gold-flashed silver alloy		
Rating	Nominal switching capacity	Resistive load	10A 250V AC 10A 30V DC	8A 250V AC 8A 30V DC
		Inductive load ( $\cos\phi = 0.4$ , L/R = 7ms)	5A 250V AC	3.5A 250V AC
	Max. switching capacity (Reference)	Resistive load	2,500V A, 300W	2,000V A, 240W
		Inductive load ( $\cos\phi = 0.4$ , L/R = 7ms)	1,250V A	875V A
	Max. switching voltage		380V AC, 125V DC	
	Max. switching current		10 A	8 A
	Min. switching capacity <sup>#1</sup>		5V 10mA	
Expected life (min. operations)	Mechanical (at 300cpm)		$5 \times 10^7$	
	Electrical (at 20cpm)	1 Form A inductive load	$2 \times 10^5$	
		1 Form A resistive load		
		1 Form A 1 Form B inductive load	$10^5$	

### Coil

Nominal operating power	200 mW
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### Characteristics

		1 Form A	1 Form A 1 Form B
Max. operating speed		20 cpm (at rated load)	
Initial insulation resistance <sup>*1</sup>		Min. 1,000 MΩ (at 500 V DC)	
Initial breakdown voltage <sup>*2</sup>	Between open contacts	1,000 Vrms for 1 min.	
	Between contacts and coil	4,000 Vrms for 1 min.	
Surge voltage between coil and contact <sup>*3</sup>		Min. 10,000 V (initial)	
Operate time [Set time] <sup>*4</sup> (at nominal voltage) (at 20°C)		Max. 10ms (Approx. 5ms) [Max. 10ms (Approx. 5ms)]	
Release time [Reset time] (without diode) <sup>*4</sup> (at nominal voltage) (at 20°C)		Max. 8ms (Approx. 3ms) [Max. 10ms (Approx. 3ms)]	
Temperature rise (at 70°C) <sup>*5</sup>		Max. 40°C	
Shock resistance	Functional <sup>*6</sup>	Min. 98 m/s <sup>2</sup> {10 G}	
	Destructive <sup>*7</sup>	Min. 980 m/s <sup>2</sup> {100 G}	
Vibration resistance	Functional <sup>*8</sup>	10 to 55 Hz at double amplitude of 1.5 mm	
	Destructive	10 to 55 Hz at double amplitude of 3.0 mm	
Conditions for operation, transport and storage <sup>*9</sup> (Not freezing and condensing at low temperature)	Ambient temp.	-40°C to +70°C -40°F to +158°F	
	Humidity	5 to 85% R.H.	
Unit weight		Approx. 6g .21oz	

### Remarks

<sup>#1</sup> 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.

<sup>\*1</sup> Measurement at same location as "Initial breakdown voltage" section

<sup>\*2</sup> Detection current: 10 mA

<sup>\*3</sup> Wave is standard shock voltage of  $\pm 1.2 \times 50\mu\text{s}$  according to JEC-212-1981

<sup>\*4</sup> Excluding contact bounce time

<sup>\*5</sup> By resistive method, nominal voltage applied to the coil, max. switching current

<sup>\*6</sup> Half-wave pulse of sine wave: 11ms; detection time: 10μs

<sup>\*7</sup> Half-wave pulse of sine wave: 6ms

<sup>\*8</sup> Detection time: 10μs

<sup>\*9</sup> Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT

**TYPES AND COIL DATA (at 20°C 68°F)**

• Single side stable type

Contact arrangement	Part No.	Nominal voltage, V DC	Pick-up voltage, V DC (max.) (initial)	Drop-out voltage, V DC (min.) (initial)	Nominal operating current, mA ( $\pm 10\%$ )	Coil resistance, $\Omega$ ( $\pm 10\%$ )	Nominal operating power, mW	Max. allowable voltage, V DC
1 Form A	ADY10003	3	2.1	0.3	66.6	45	200	3.9
	ADY10005	5	3.5	0.5	40	125	200	6.5
	ADY10006	6	4.2	0.6	33.3	180	200	7.8
	ADY10012	12	8.4	1.2	16.6	720	200	15.6
	ADY10024	24	16.8	2.4	8.3	2,880	200	31.2
1 Form A 1 Form B	ADY30003	3	2.1	0.3	66.6	45	200	3.9
	ADY30005	5	3.5	0.5	40	125	200	6.5
	ADY30006	6	4.2	0.6	33.3	180	200	7.8
	ADY30012	12	8.4	1.2	16.6	720	200	15.6
	ADY30024	24	16.8	2.4	8.3	2,880	200	31.2

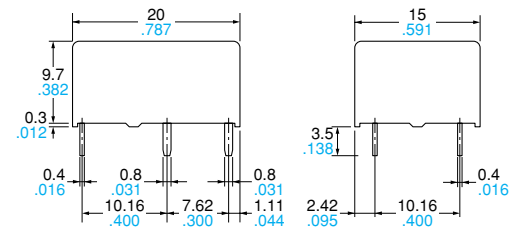
• 2 coil latching type

Contact arrangement	Part No.	Nominal voltage, V DC	Set voltage, V DC (max.) (initial)	Reset voltage, V DC (max.) (initial)	Nominal operating current, mA ( $\pm 10\%$ )		Coil resistance, $\Omega$ ( $\pm 10\%$ )		Nominal operating power, mW		Max. allowable voltage, V DC
					Set coil	Reset coil	Set coil	Reset coil	Set coil	Reset coil	
1 Form A	ADY12003	3	2.1	2.1	66.6	66.6	45	45	200	200	3.9
	ADY12005	5	3.5	3.5	40	40	125	125	200	200	6.5
	ADY12006	6	4.2	4.2	33.3	33.3	180	180	200	200	7.8
	ADY12012	12	8.4	8.4	16.6	16.6	720	720	200	200	15.6
	ADY12024	24	16.8	16.8	8.3	8.3	2,880	2,880	200	200	31.2
1 Form A 1 Form B	ADY32003	3	2.1	2.1	66.6	66.6	45	45	200	200	3.9
	ADY32005	5	3.5	3.5	40	40	125	125	200	200	6.5
	ADY32006	6	4.2	4.2	33.3	33.3	180	180	200	200	7.8
	ADY32012	12	8.4	8.4	16.6	16.6	720	720	200	200	15.6
	ADY32024	24	16.8	16.8	8.3	8.3	2,880	2,880	200	200	31.2

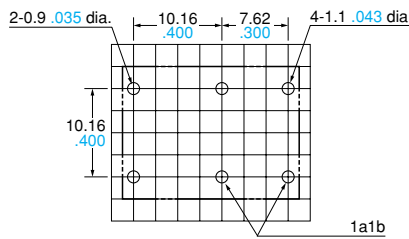
**DIMENSIONS**

mm inch

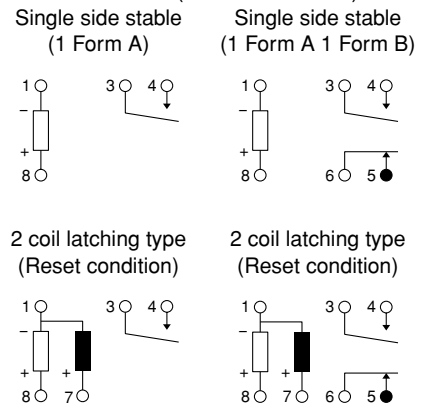
Single side stable type



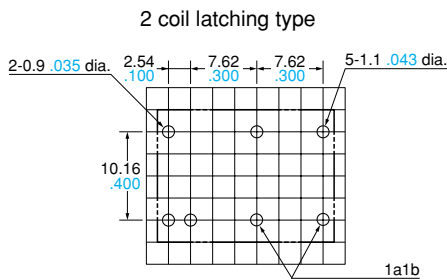
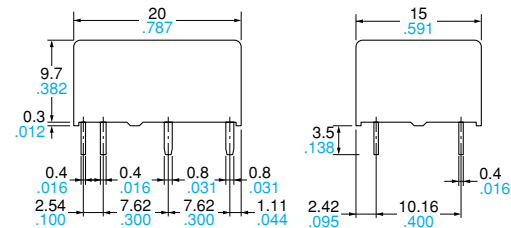
PC board pattern (BOTTOM VIEW)  
Single side stable type



Schematic (BOTTOM VIEW)



2 coil latching type



Tolerance:  $\pm 0.1 \pm 0.004$

General tolerance:  $\pm 0.3 \pm 0.012$

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