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 × 10⁵ times (1 Form A type) realized with inductive load (cosϕ=0.4, L/R=7ms, 5A 250V AC)**
- **Lead- and cadmium-free.**
- **Socket also available.**

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

TYPICAL APPLICATIONS

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

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 (cosϕ = 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 (cosϕ = 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#1		5V 10mA	
Expected life (min. operations)	Mechanical (at 300cpm)		5×10⁷	
	Electrical (at 20cpm)	1 Form A inductive load	2×10⁵	
		1 Form A resistive load 1 Form A 1 Form B resistive load 1 Form A 1 Form B inductive load	10⁵	

Coil

Nominal operating power	200 mW

Characteristics

		1 Form A	1 Form A 1 Form B
Max. operating speed		20 cpm (at rated load)	
Initial insulation resistance*1		Min. 1,000 MΩ (at 500 V DC)	
Initial breakdown voltage*2	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*3		Min. 10,000 V (initial)	
Operate time [Set time]*4 (at nominal voltage) (at 20°C)		Max. 10ms (Approx. 5ms) [Max. 10ms (Approx. 5ms)]	
Release time [Reset time] (without diode)*4 (at nominal voltage) (at 20°C)		Max. 8ms (Approx. 3ms) [Max. 10ms (Approx. 3ms)]	
Temperature rise (at 70°C)*5		Max. 40°C	
Shock resistance	Functional*6	Min. 98 m/s² {10 G}	
	Destructive*7	Min. 980 m/s² {100 G}	
Vibration resistance	Functional*8	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*9 (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

#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.
*1 Measurement at same location as "Initial breakdown voltage" section
*2 Detection current: 10 mA
*3 Wave is standard shock voltage of ±1.2 × 50μs according to JEC-212-1981
*4 Excluding contact bounce time
*5 By resistive method, nominal voltage applied to the coil, max. switching current
*6 Half-wave pulse of sine wave: 11ms; detection time: 10μs
*7 Half-wave pulse of sine wave: 6ms
*8 Detection time: 10μs
*9 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 (±10%)	Coil resistance, Ω (±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

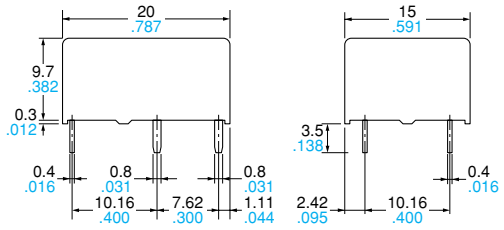
• 2 coil latching type

Contact arrangement	Part No.	Nominal voltage, V DC	Set voltage, V DC (max.) (initial)	Reset voltage, V DC (max.) (initial)	Nominal operating current, mA (±10%)		Coil resistance, Ω (±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

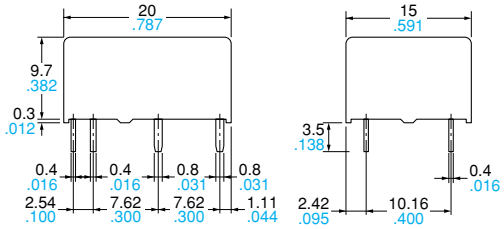
DIMENSIONS

mm inch

Single side stable type

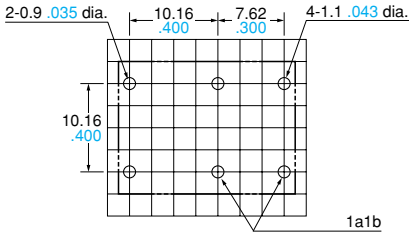


2 coil latching type

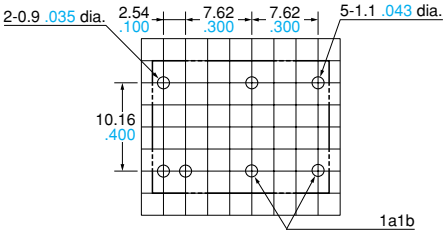


PC board pattern (BOTTOM VIEW)

Single side stable type



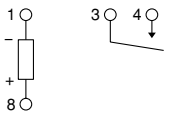
2 coil latching type



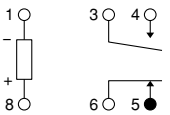
Tolerance: ±0.1 ±.004

Schematic (BOTTOM VIEW)

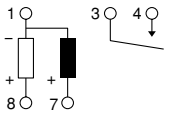
Single side stable (1 Form A)



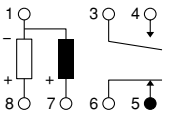
Single side stable (1 Form A 1 Form B)



2 coil latching type (Reset condition)



2 coil latching type (Reset condition)



General tolerance: ±0.3 ±.012

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