Panasonic
ideas for life

10A MINIATURE POWER RELAY FOR ACTUAL LOADS

DY RELAYS (ADY)

FEATURES

- **Compact size: 1 Form A (10A 250V AC), 1 Form A 1 Form B (8A 250V AC)**
- **Latching types available**
- **Compliant with IEC EN61010-1. Reinforced insulation with 6 mm distance between input and output.**
- **Electrical life of Min. 2 × 10^5 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.**

Product name		Part No.
1 Form A	Single side stable type	AW3810
	2 coil latching type	AW3812
1 Form A 1 Form B	Single side stable type	AW3820
	2 coil latching type	AW3822

Please see "DK relay socket" for details.

TYPICAL APPLICATIONS

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

RoHS Directive compatibility information
http://www.nais-e.com/

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			Au-flashed $AgSnO_2$ type	
Rating (resistive)	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	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		250V AC, 30V DC	
	Max. switching current		10 A	8 A
	Min. switching capacity (Reference value)*1		5V 10mA	
Expected life (min. operations)	Mechanical (at 300cpm)		5×10^7	
	Electrical (at 20cpm)	1 Form A inductive load	2×10^5	
		1 Form A resistive load 1 Form A 1 Form B resistive load 1 Form A 1 Form B inductive load	10^5	

Coil

Nominal operating power	200 mW

Characteristics

			1 Form A	1 Form A 1 Form B
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)			Max. 10ms [Max. 10ms]	
Release time [Reset time] (without diode)*4 (at nominal voltage)			Max. 8ms [Max. 10ms]	
Temperature rise (at 70 °C)*5			Max. 40°C	
Shock resistance	Functional*6		Min. 98 m/s² {10 G}	
	Destructive*6		Min. 980 m/s² {100 G}	
Vibration resistance	Functional*7		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 storange*8 (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 Measurement at same location as "Initial breakdown voltage" section
*2 Detection current: 10 mA
*3 Wave is standard shock voltage of ±1.2 × 50ms according to JEC-212-1981
*4 Excluding contact bounce time
*5 Half-wave pulse of sine wave: 11ms; detection time: 10μs
*6 Half-wave pulse of sine wave: 6ms
*7 Detection time: 10μs
*8 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT

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DY (ADY1, 3)

ORDERING INFORMATION

Ex. ADY □ □ □ □□

Contact arrangement	Operating function	Auxiliary function	Coil voltage (V DC)
1: 1 Form A 3: 1 Form A 1 Form B	0: Single side stable 2: 2 coil latching type	0: Plastic sealed (standard contact)	03: 3, 05: 5, 06: 6, 09: 9, 12: 12, 24: 24

Note: UL/CSA, TÜV approved type is standard.

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

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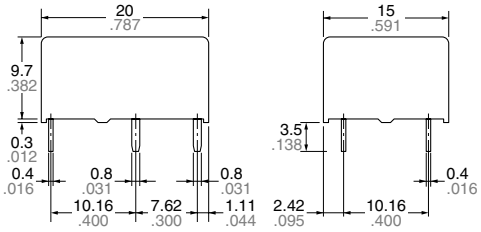
DIMENSIONS

mm inch

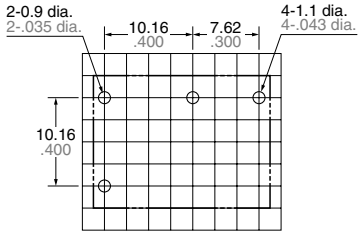
1. 1 Form A

Single side stable type



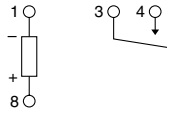
PC board pattern (BOTTOM VIEW)

Single side stable type



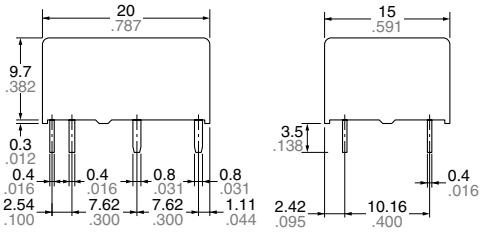
Schematic (BOTTOM VIEW)

Single side stable

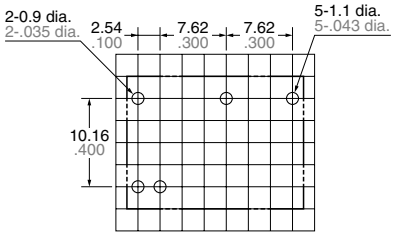


(Deenergized condition)

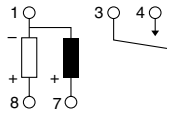
2 coil latching type



2 coil latching type



2 coil latching type



(Reset condition)

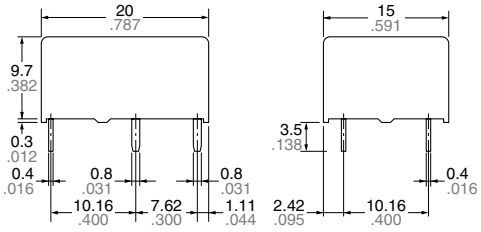
Since this is a polarized relay, the connection to the coil should be done according to the above schematic.

General tolerance: ±0.3 ±.012

Tolerance: ±0.1 ±.004

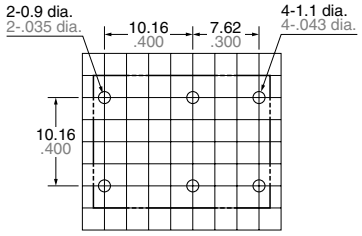
2. 1 Form A 1 Form B

Single side stable type



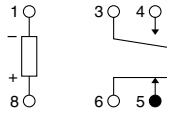
PC board pattern (BOTTOM VIEW)

Single side stable type



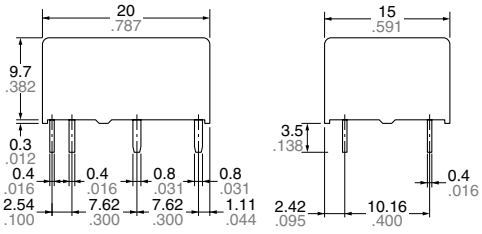
Schematic (BOTTOM VIEW)

Single side stable

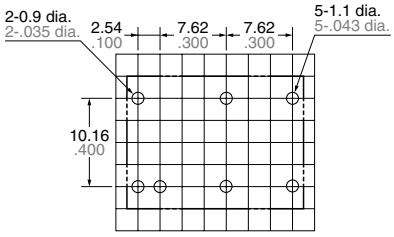


(Deenergized condition)

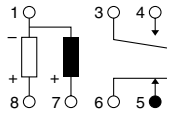
2 coil latching type



2 coil latching type



2 coil latching type



(Reset condition)

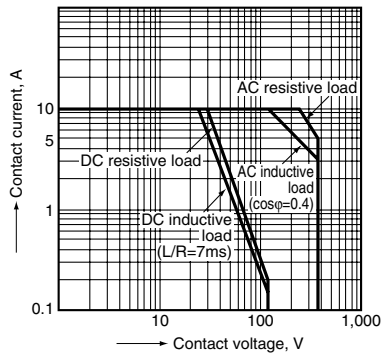
Since this is a polarized relay, the connection to the coil should be done according to the above schematic.

General tolerance: ±0.3 ±.012

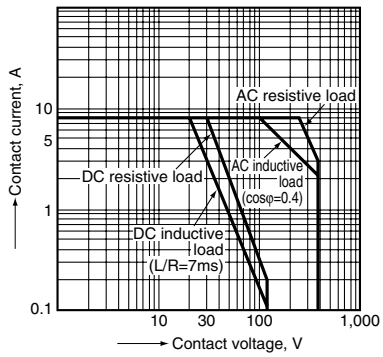
Tolerance: ±0.1 ±.004

REFERENCE DATA

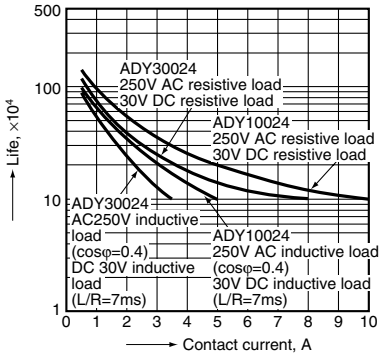
1-(1). Maximum switching capacity
(1 Form A)
Tested sample: ADY10024



1-(2). Maximum switching capacity
(1 Form A 1 Form B)
Tested sample: ADY30024



2. Life curve (1 Form A, 1 Form A 1 Form B)
Tested sample: ADY10024 (1 Form A), ADY30024 (1 Form A 1 Form B)



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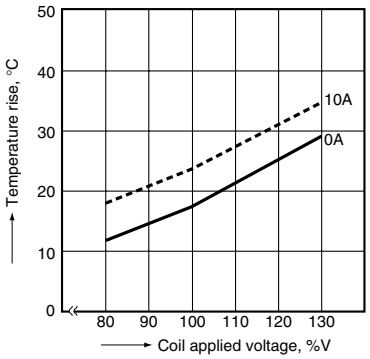
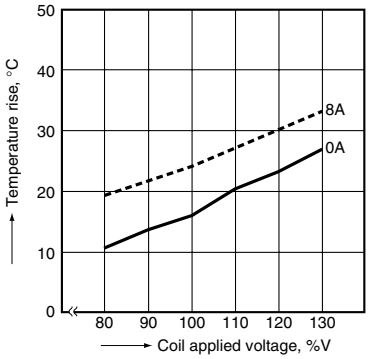
DY (ADY1, 3)

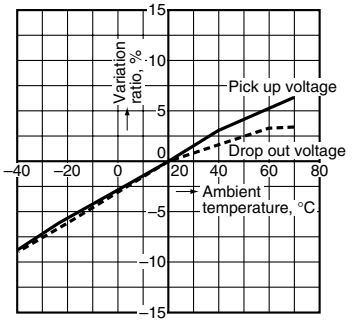
3-(1). Coil temperature rise
(1 Form A)
Tested sample: ADY10024
Ambient temperature: 20°C, 68°F, 6pcs



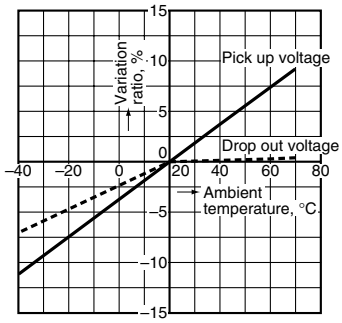
3-(2). Coil temperature rise
(1 Form A 1 Form B)
Tested sample: ADY30024
Ambient temperature: 20°C, 68°F, 6pcs



4-(1). Ambient temperature characteristics
(1 Form A)
Tested sample: ADY10024
Ambient temperature: –40°C to 70°C –40°F to 158°F, 6pcs



4-(2). Ambient temperature characteristics
(1 Form A 1 Form B)
Tested sample: ADY30024
Ambient temperature: –40°C to 70°C –40°F to 158°F, 6pcs



NOTES

1. Soldering should be done under the following conditions:
250°C 482°Fwithin 10s
300°C 572°Fwithin 5s
350°C 662°Fwithin 3s

2. External magnetic field
Since DY relays are highly sensitive polarized relays, their characteristics will be affected by a strong external magnetic field. Avoid using the relay under that condition.

3. When using, please be aware that the a contact and b contact sides of 1 Form A and 1 Form B types may go on simultaneously at operate time and release time.

For Cautions for Use, see Relay Technical Information .

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