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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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**1 Form A 5A
slim power relay
complies with IEC61010
reinforced insulation**

PA-N RELAYS

New



RoHS compliant

Protective construction: Sealed type (RTIII)

FEATURES

- High density mounting**
5mm(W) × 20mm(L) × 12.5mm(H)
.197inch(W) × .787inch(L) × .492inch(H)
- Low operating power**
Nominal operating power: 110mW
- Complies with IEC61010 reinforced insulation standards**
- Long Insulation distance**
 - Clearance: 5.29mm .208inch
 - Creepage distance: 5.35mm .211inch (Between contact and coil)
 - 3,000 V breakdown voltage and 6,000V surge breakdown voltage
- Complies with Standard for Hazardous Location (ANSI/ISA 12.12.01)**

TYPICAL APPLICATIONS

- Output relays for programmable controllers and temperature controllers
- Industrial equipment, office equipment
- Measuring devices and test equipment

ORDERING INFORMATION

APAN 3 1

Contact arrangement

3: 1 Form A (Bifurcated)

Terminals and Nominal operating power

1: PC board terminal (110 mW)

Nominal coil voltage (DC)

03: 3V, 4H: 4.5V, 05: 5V, 06: 6V, 09: 9V, 12: 12V, 18: 18V, 24: 24V

Note: Certified by UL/C-UL and TÜV

TYPES

Contact arrangement	Nominal coil voltage	Part No.
1 Form A	3 V DC	APAN3103
	4.5 V DC	APAN314H
	5 V DC	APAN3105
	6 V DC	APAN3106
	9 V DC	APAN3109
	12 V DC	APAN3112
	18 V DC	APAN3118
	24 V DC	APAN3124

Standard packing: Tube: 25 pcs.; Case: 1,000 pcs.

* Terminal sockets available.

RATING

1. Coil data

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out 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)
3 V DC	70%V or less of nominal voltage* (Initial)	5%V or more of nominal voltage* (Initial)	36.7 mA	82 Ω	110mW	120%V of nominal voltage
4.5 V DC			24.4 mA	184 Ω		
5 V DC			22.0 mA	227 Ω		
6 V DC			18.3 mA	327 Ω		
9 V DC			12.2 mA	736 Ω		
12 V DC			9.2 mA	1,309 Ω		
18 V DC			6.1 mA	2,945 Ω		
24 V DC			4.6 mA	5,236 Ω		

Note: *Pulse drive (JIS C 5442)

2. Specifications

Characteristics	Item	Specifications	
Contact	Arrangement	1 Form A (Bifurcated)	
	Contact resistance (Initial)	Max. 30 mΩ (By voltage drop 6 V DC 1A)	
	Contact material	AgNi type + Au	
Rating	Nominal switching capacity (resistive load)	5 A 250 V AC, 5 A 30 V DC	
	Max. switching power (resistive load)	1,250 VA, 150 W	
	Max. switching voltage	250 V (AC), 110 V (DC) (0.4 A)	
	Max. switching current	5 A (AC, DC)	
	Nominal operating power	110 mW	
	Min. switching capacity (Reference value)*1	1 mA 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	3,000 Vrms for 1min. (Detection current: 10mA.)
	Surge breakdown voltage (Initial) (Between contacts and coil)*2	6,000 V	
	Operate time (at nominal voltage) (at 20°C 68°F) (Initial)	Max. 10 ms (excluding contact bounce time)	
Release time (at nominal voltage) (at 20°C 68°F) (Initial)	Max. 5 ms (excluding contact bounce time and without diode)		
Mechanical characteristics	Shock resistance	Functional	Min. 147 m/s ² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)
		Destructive	Min. 980 m/s ² (Half-wave pulse of sine wave: 6 ms.)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 2.5 mm (Detection time: 10μs.)
		Destructive	10 to 55 Hz at double amplitude of 3.5 mm
Expected life	Mechanical	Min. 2×10 ⁷ (at 180 times/min.)	
	Electrical	Min. 10 ⁵ (3 A 250 V AC, 30 V DC, resistive load) Min. 5×10 ⁴ (5 A 250 V AC, 30 V DC, resistive load) (at 20 times/min.)*4	
Conditions	Conditions for operation, transport and storage*3	Ambient temperature: -40°C to 90°C -40°F to 194°F ; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
	Max. operating speed	20 times/min. (at nominal switching capacity)*4	
Unit weight		Approx. 3 g .15 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.

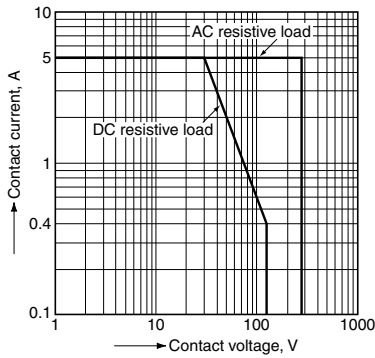
*2. Wave is standard shock voltage of ±1.2×50μs according to JEC-212-1981

*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.

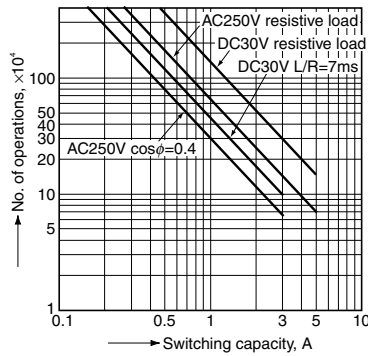
*4. Operating frequency of 5 A 250 V AC is 6 times/min. (ON : OFF = 1 s : 9 s)

REFERENCE DATA

1. Max. switching capacity

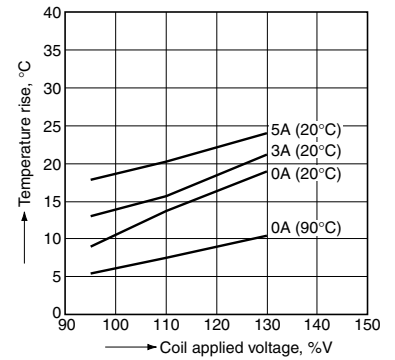


2. Life curve



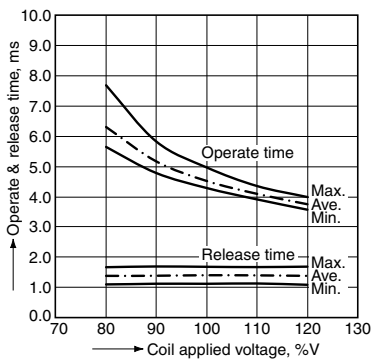
3. Coil temperature rise

Tested sample: APAN3124, 6 pcs.
 Measured portion: Inside the coil
 Ambient temperature: 20°C 68°F, 90°C 194°F (No contact current)



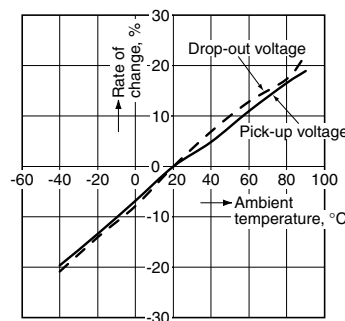
4. Operate & release time

Tested sample: APAN3124, 20 pcs.
 Measured direction: Upright



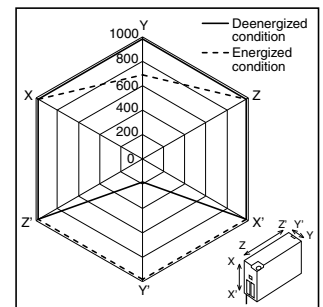
5. Ambient temperature characteristics

Tested sample: APAN3124, 6 pcs.



6. Malfunctional shock

Tested sample: APAN3124, 6 pcs.

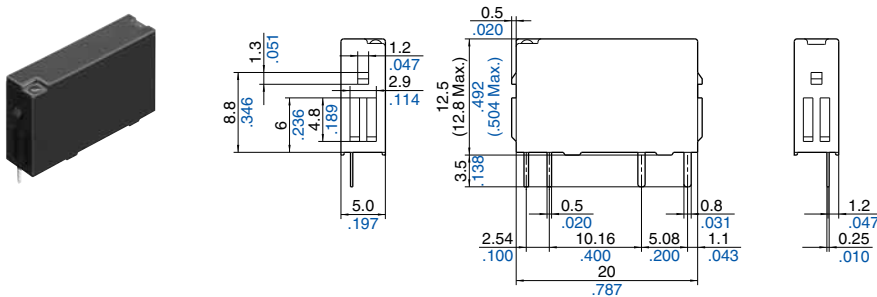


DIMENSIONS (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

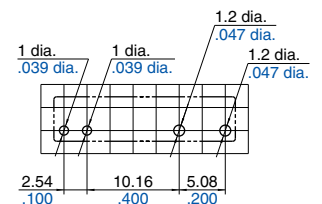
CAD Data

External dimensions



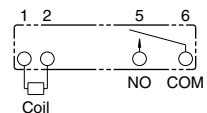
General tolerance: $\pm 0.3 \pm 0.12$

PC board pattern (Bottom view)



Tolerance: $\pm 0.1 \pm 0.004$

Schematic (Bottom view)



SAFETY STANDARDS

UL/C-UL (Recognized)				TÜV (Certified)			
File No.	Contact ratings	Temp.	Cycles	File No.	Contact ratings	Temp.	Cycles
E43149	5 A 250 V AC Resistive	40°C 104°F	5×10 ⁴	B16 01 13461 348	5 A 250 V AC (cosφ=1.0)	40°C 104°F	5×10 ⁴
	5 A 250 V AC Resistive	90°C 194°F	10 ⁴		5 A 250 V AC (cosφ=1.0)	90°C 194°F	10 ⁴
	5 A 30 V DC General use	40°C 104°F	5×10 ⁴		5 A 30 V DC (0 ms)	40°C 104°F	5×10 ⁴
	5 A 30V DC, 3 A 250 V AC General use	90°C 194°F	10 ⁴		5 A 30 V DC (0 ms)	90°C 194°F	10 ⁴
	3 A 250 V AC Resistive	40°C 104°F	10 ⁵		3 A 250 V AC (cosφ=1.0)	40°C 104°F	10 ⁵
	3 A 30 V DC General use	40°C 104°F	10 ⁵		3 A 30 V DC (0 ms)	40°C 104°F	10 ⁵
	B300, R300 Pilot duty	40°C 104°F	—				
E479891	Class I, Division 2, Groups A, B, C, D Hazardous Location (ANSI/ISA 12.12.01-2015, CAN/CSA C22.2 No.213-15)						

Insulation distance (between contact and coil)

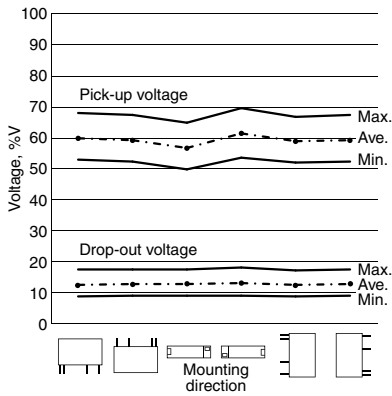
• UL/C-UL: Clearance distance: 5.29 mm **.208 inch**, Creepage distance: 5.35 mm **.211 inch**

• TÜV: Clearance distance: 5.29 mm **.208 inch**, Creepage distance: 5.35 mm **.211 inch**

NOTES

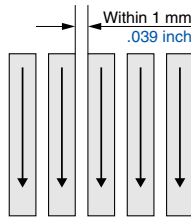
- For cautions for use, please read "GENERAL APPLICATION GUIDELINES".
- If it includes ripple, the ripple factor should be less than 5%.
- Specification values for pick-up and drop-out voltages are for the relay mounting with its terminals below.

Tested sample: APAN3124, 6 pcs.
Ambient temperature: 20°C 68°F
Measured direction: 6 direction

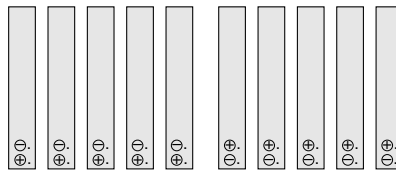


- When mounting the relays within 1 mm **.039 inch**, please notice the condition below.

- 1) Mount the relays in the same direction.



- 2) Coil terminals (Terminal No. 1 & 2) polarity should be arranged in the same direction.



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