Discontinued

RATING

1. Coil data

1) PA type

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. allowable voltage (at 20°C 68°F)
5V DC	70%V or less of nominal voltage (Initial)	5%V or more of nominal voltage (Initial)	24.0mA	208Ω	120mW	120%V of nominal voltage
6V DC			20.0mA	300Ω		
9V DC			13.3mA	675Ω		
12V DC			10.0mA	1,200Ω		
18V DC			6.7mA	2,700Ω		
24V DC			7.5mA	3,200Ω	180mW	
24V DC			5.0mA	4,800Ω	120mW	

2) PAD type

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. allowable voltage (at 20°C 68°F)
5V DC	70%V or less of nominal voltage (Initial)	5%V or more of nominal voltage (Initial)	36.0mA	139Ω	180mW	120%V of nominal voltage
12V DC			15.0mA	800Ω		
18V DC			10.0mA	1,800Ω		
24V DC			7.5mA	3,200Ω		

2. Specifications

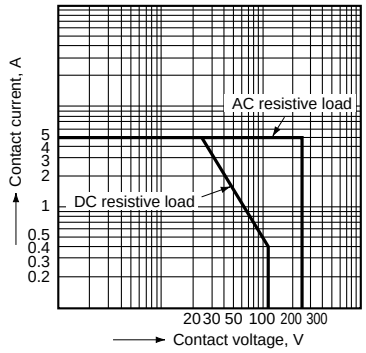
Characteristics	Item		Specifications	
			PA type	PAD type
Contact	Arrangement		1 Form A	
	Initial contact resistance, max.		Max. 30 mΩ (By voltage drop 6 V DC 1A)	
	Contact material		Au-clad AgNi type	
Rating	Nominal switching capacity (resistive load)		5 A 250 V AC, 5 A 30 V DC	3 A 250 V AC, 3 A 30 V DC
	Max. switching power (resistive load)		1,250 VA, 150 W	750 VA, 90 W
	Max. switching voltage		250 V (AC), 110 V (DC)	
	Max. switching current		5 A	3 A
	Nominal operating power		120 mW (5 to 24 V DC), 180 mW (24 V DC)	180 mW
	Min. switching capacity (Reference value)*1		100μA 100mV DC	
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as “Initial breakdown voltage” section.	
	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1min. (Detection current: 10mA.)	
		Between contact and coil	2,000 Vrms for 1min. (Detection current: 10mA.)	
	Surge breakdown voltage (Initial)	Between contacts and coil*2	4,000 V	
	Temperature rise (at 20°C 68°F)		Max. 45°C (By resistive method, nominal voltage applied to the coil, nominal switching capacity.)	
	Operate time (at nominal voltage) (at 20°C 68°F)		Max. 10 ms	
	Release time (at nominal voltage) (at 20°C 68°F)		Max. 5 ms	
Mechanical characteristics	Shock resistance	Functional	Min. 147 m/s² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)	
		Destructive	Min. 980 m/s² (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. 2×10⁷ (at 180 times/min.)	
	Electrical	3 A 250 V AC, 30 V DC	Min. 1×10⁵ operations (at 20 times/min.)	
		5 A 250 V AC, 30 V DC	Min. 5×10⁴ operations (at 20 times/min.)	—
		5 A 230 V AC	—	Min. 2×10⁴ operations (at 25°C)
		5 A 30 V DC	—	Min. 1×10⁴ operations (at 25°C)
Conditions	Conditions for operation, transport and storage*3		Ambient temperature: –40°C to 70°C –40°F to 158°F; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
	Max. operating speed (at rated load)		20 times/min.	
Unit weight			Approx. 3 g .15 oz	

Notes:

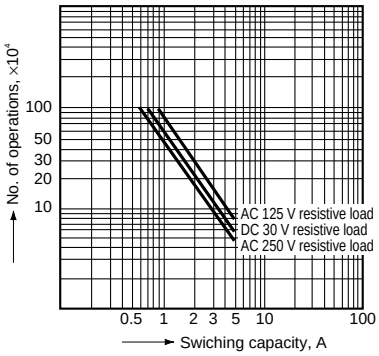
*1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.
*2 Wave is standard shock voltage of ±1.2×50μs according to JEC-212-1981.
*3 Refer to “6. Usage, Storage and Transport Conditions“ in AMBIENT ENVIRONMENT section in Relay Technical Information.

REFERENCE DATA

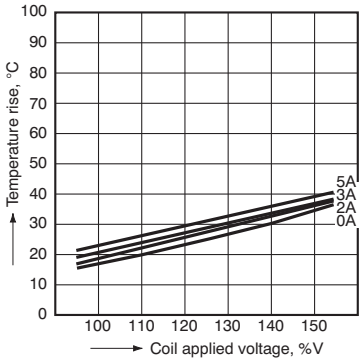
1. Max. switching capacity



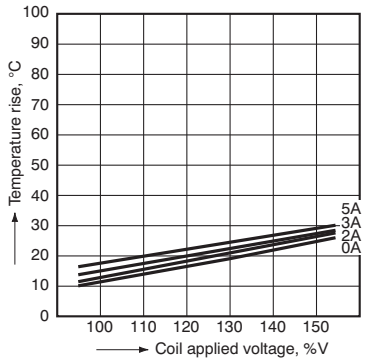
2. Life curve



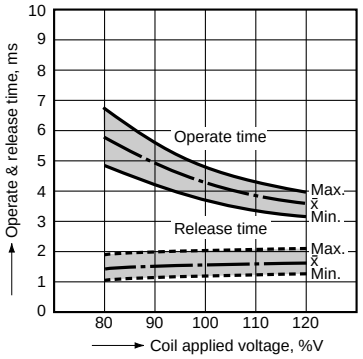
3.-(1) Coil temperature rise (180 mW)
Tested sample: PA1a-12V
Measured portion: Inside the coil
Ambient temperature: 20°C 68°F



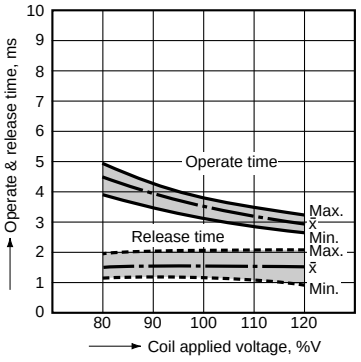
3.-(2) Coil temperature rise (120 mW)
Tested sample: PA1a-24V
Measured portion: Inside the coil
Ambient temperature: 20°C 68°F



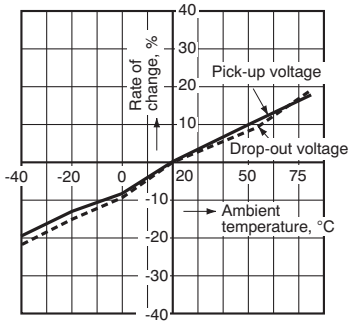
4.-(1) Operate & release time (120 mW)
Tested sample: PA1a-12V, 20 pcs.



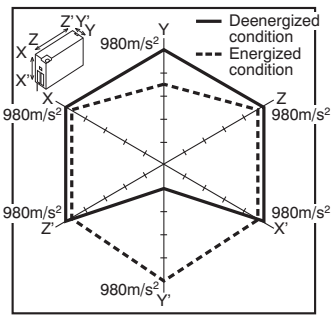
4.-(2) Operate & release time (180 mW)
Tested sample: PA1a-24V, 20 pcs.



5. Ambient temperature characteristics
Tested sample: PA1a-12V, 6 pcs.



6. Malfunctional shock
Tested sample: PA1a-12V, 6 pcs.



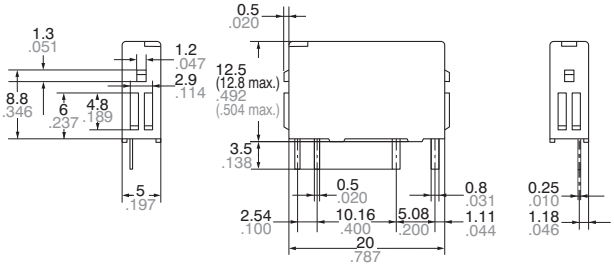
Discontinued

DIMENSIONS(mm inch)

Download CAD Data from our Web site.

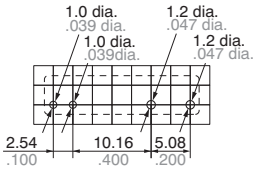
CAD Data

External dimensions



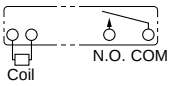
General tolerance: ±0.3 ±.012

PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

Schematic (Bottom view)

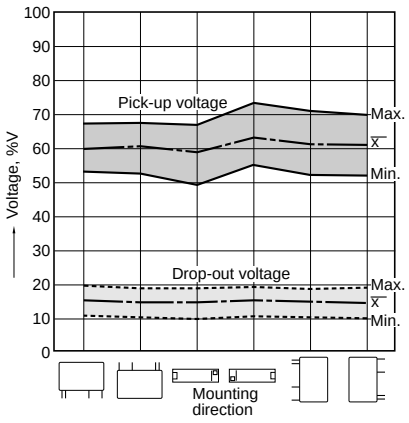


SAFETY STANDARDS

Certification authority	File No.	PA type rating	PAD type rating	Remarks
UL/C-UL (Recognized)	E43149	3A 250V AC (1×10^5 operations) 3A 30V DC (1×10^5 operations) 5A 250V AC (5×10^4 operations) 5A 250V AC (5×10^4 operations)	3A 250V AC (1×10^5 operations) 3A 30V DC (1×10^5 operations)	—
CSA (Certified)	LR26550 etc.	3A 250V AC (1×10^5 operations) 3A 30V DC (1×10^5 operations) 5A 250V AC (5×10^4 operations) 5A 30V DC (5×10^4 operations)	3A 250V AC (1×10^5 operations) 3A 30V DC (1×10^5 operations)	—
TÜV (Certified)	B 12 01 13461 316	IEC1131-2 Reinforced 3A 250V AC ($\cos\varphi=1.0$) (1×10^5) 3A 30V AC (0ms) (1×10^5) 5A 250V AC ($\cos\varphi=1.0$) (5×10^4) 5A 30V AC (0ms) (5×10^4)	IEC1131-2 Reinforced 3A 250V AC ($\cos\varphi=1.0$) (1×10^5) 3A 30V AC (0ms) (1×10^5)	—

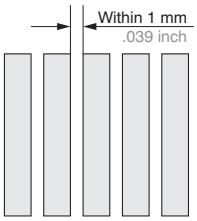
NOTES

1. If it includes ripple, the ripple factor should be less than 5%.
2. Specification values for pick-up and drop-out voltages are for the relay mounting with its terminals below.

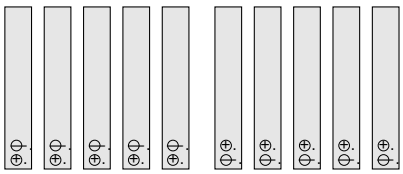


3. When mounting the relays within 1 mm .039 inch, please notice the condition below.

1) Mount the relays in the same direction.

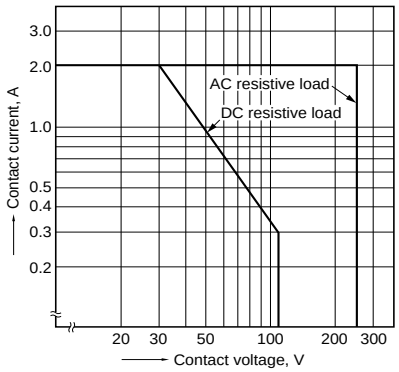


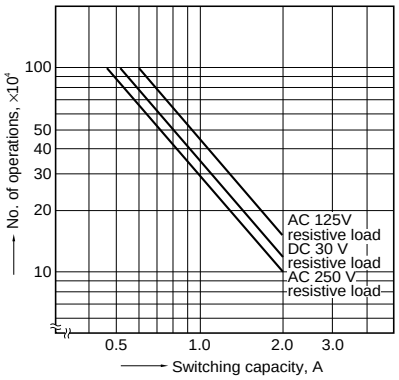
2) Coil terminals (Terminal No. 1 & 2) polarity should be arranged in the same direction.



3) Allowable contact current is 2 A.

4) About the electrical life for close mounting, please refer to data below.





4. Soldering conditions
   Please obey the following conditions when soldering automatically:
   (1) Preheating: Within 120°C 248°F (bottom of the PC board) and within 120 seconds
   (2) Soldering iron: 260°C±5°C 500°F±41°F (solder temperature) and within 6 seconds (soldering time)

For Cautions for Use, see Relay Technical Information.

Panasonic

ACCESSORIES

PA RELAYS SOCKET

Standard type terminal socket

Self clinching type terminal socket

TYPES

Product name	Part No.
Standard type terminal socket	PA1a-PS
Self clinching type terminal socket	PA1a-PS-H

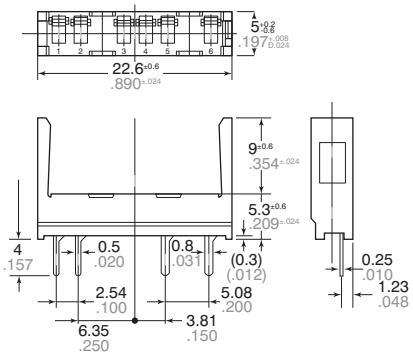
DIMENSIONS (mm inch)

Download CAD Data from our Web site.

Standard type terminal socket

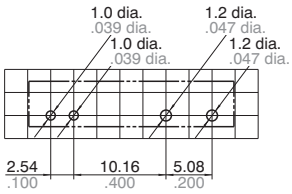
CAD Data

External dimensions



General tolerance: ±0.3 ±.012

PC board pattern (Bottom view)

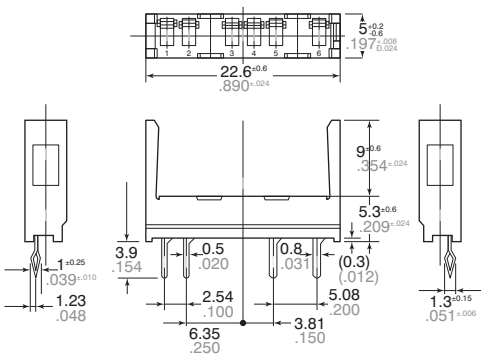


Tolerance: ±0.1 ±.004

Self clinching type terminal socket

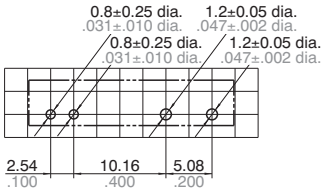
CAD Data

External dimensions



General tolerance: ±0.3 ±.012

PC board pattern (Bottom view)

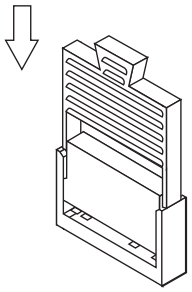


INSTALLING AND REMOVING

Installing and removing the relay

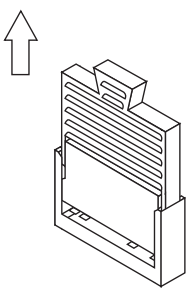
1) Firmly insert the relay into the socket with the terminals going in the direction of the blade receptacles.

(1) Insert the removal key into the socket slots.



2) The relay can be easily removed using the removal key (APA801).

(2) Pull the removal key up to remove the relay.



(3) Slide the removal key off of the relay.