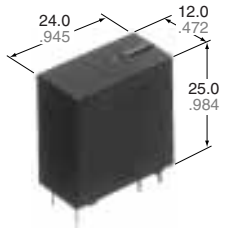
Panasonic
ideas for life

2 FORM A
SLIM POWER RELAY

LA RELAYS (ALA)



mm inch

FEATURES

1. 2 Form A slim type
24(L) × 12(W) × 25(H) mm
.945(L)×.472(W)×.984(H) inch

2. 3A type and 5A TV type
3A type: Contact reliability and break performance best suited for protecting and switching speakers.
5A TV type: Tough against inrush current and optimal for turning on and off the power supply. Rated TV-4 (UL/CSA).

3. High insulation resistance
• Creepage distance and clearances between contact and coil: Min. 6 mm .236 inch (In compliance with IEC65)
• Surge withstand voltage between contact and coil: 10,000 V or more.

4. High noise immunity realized by the card separation structure between contact and coil

5. Conforms to the various safety standards
• UL/CSA, VDE, TÜV, SEMKO, SEV approved

SPECIFICATIONS

Contact

Type		3A rated	5A TV rated
Arrangement		2 Form A	
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)		Max. 50 mΩ	Max. 100 mΩ
Contact material		Gold-clad silver alloy	Silver alloy
Rating (resistive load)	Nominal switching capacity	3 A 125 V AC	5 A 277 V AC
	Max. switching power	625 VA	1,385 V A
	Max. switching voltage	125 V AC	277 V AC
	Max. switching current	5 A (AC)	
	Min. switching capacity#1	100 mA, 5 V DC	
Expected life (min. operations)	Mechanical (at 180 cpm)	10^6	
	Electrical (at 20 cpm) (at rated load)	5×10^4 (ON: OFF=1.5s: 1.5s)	

Coil

Nominal operating power	530 mW

#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.

Remarks
* Specifications will vary with foreign standards certification ratings.
*1 Measurement at same location as "Initial breakdown voltage" section.
*2 Detection current: 10mA
*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: 11 ms; detection time: 10 μs
*6 Half-wave pulse of sine wave: 6 ms
*7 Detection time: 10 μs
*8 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT

Characteristics

Type			3A rated	5A TV rated
Max. operating speed			20 cpm	
Initial insulation resistance*1			Min. 1,000 MΩ (at 500 V DC)	
Initial *2 breakdown voltage	Between contact sets		1,000 Vrms for 1 min.	
	Between open contacts		1,000 Vrms for 1 min.	
	Between contact and coil		4,000 Vrms for 1 min.	
Surge voltage between contact and coil*3			Min. 10,000 V	
Operate time*4 (at nominal voltage)			Max. 15ms (at 20°C 68°F)	
Release time (with diode)*4 (at nominal voltage)			Max. 15ms (at 20°C 68°F)	
Temperature rise (at 70°C)			Max. 45°C with nominal coil voltage and at 3 A contact carrying current	Max. 45°C with nominal coil voltage and at 5 A contact carrying current
Shock resistance		Functional*5	Min. 200 m/s²{approx. 20 G}	
		Destructive*6	Min. 1,000 m/s²{approx. 100 G}	
Vibration resistance		Functional*7	10 to 55Hz at double amplitude of 1.5mm	
		Destructive	10 to 55Hz at double amplitude of 1.5mm	
Conditions for operation, transport and storage*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.	
		Air pressure	86 to 106 kPa	
Unit weight			Approx. 13 g .46 oz	

ORDERING INFORMATION

Ex. A | LA | 2 | P | F | 12

Product name	Contact arrangement	Contact capacity	Protective construction	Coil voltage(V DC)
LA	2: 2 Form A	Nil: 3A P: 5A TV-4	F: Flux-resistant type	12, 24

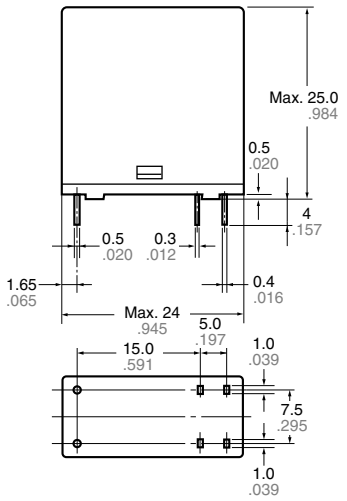
UL/CSA, VDE, TÜV, SEMKO, TV-4 approved type is standard.
Notes: 1. Standard packing Carton: 100 pcs. Case: 500 pcs.
2. 4.5V, 5V, 9V and 18V DC types are also available. Please consult us for details.

TYPES AND COIL DATA (at 20°C 68°F)

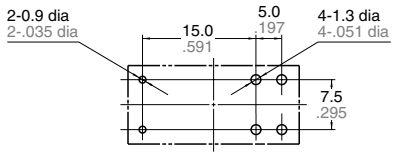
Part No.		Nominal voltage, V DC	Pick-up voltage, V DC (max.)	Drop-out voltage, V DC (min.)	Coil resistance, Ω (±10%)	Nominal operating current, mA (±10%)	Nominal operating power, mW	Maximum allowable voltage, V DC
3 A type	5A TV type							
ALA2F12	ALA2PF12	12	(Initial) 9	(Initial) 0.6	272	44.2	530	15.6
ALA2F24	ALA2PF24	24	(Initial) 18	(Initial) 1.2	1,087	22.1	530	31.2

DIMENSIONS

mm inch



PC board pattern (Bottom view)



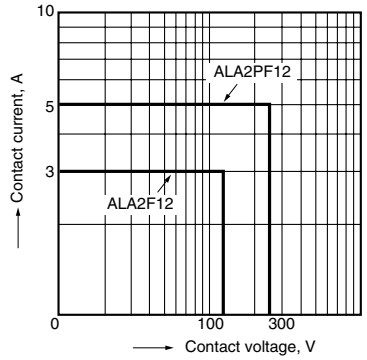
Tolerance : ±0.1 ±.004

Schematic (Bottom view)

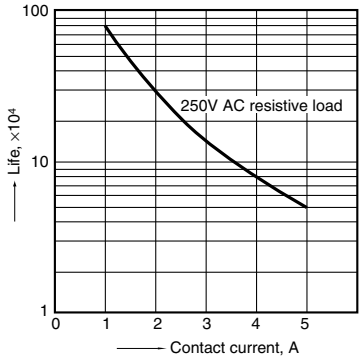
Dimension:	General tolerance
Max. 1mm .039 inch:	±0.1 ±.004
1 to 3mm .039 to .118 inch:	±0.2 ±.008
Min. 3mm .118 inch:	±0.3 ±.012

REFERENCE DATA

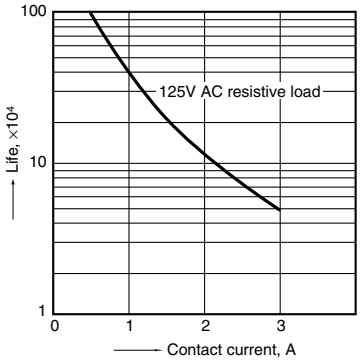
1. Max. switching power (AC resistive load)



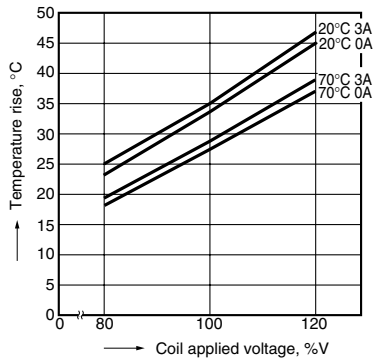
2-(1). Life curve (250 V AC resistive load)



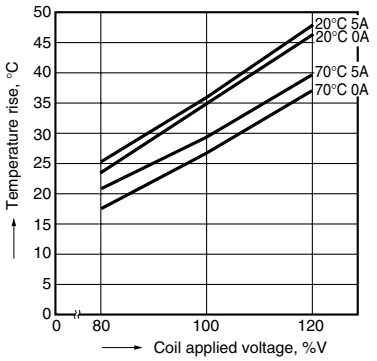
2-(2). Life curve (125 V AC resistive load)



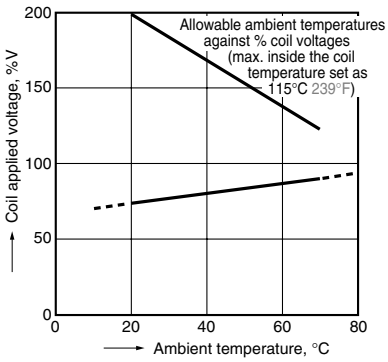
3-(1). Coil temperature rise
Sample: ALA2F12, 6 pcs.
Measured portion: coil inside
Contact current: 0 A, 3A



3-(2). Coil temperature rise
Sample: ALA2PF12, 6 pcs.
Measured portion: coil inside
Contact current: 0 A, 5A



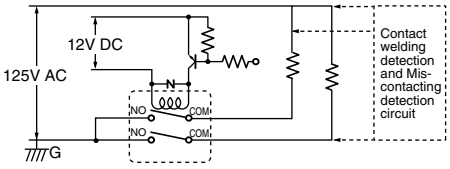
4. Ambient temperature characteristics and coil applied voltage
Contact current: ALA2F=3A
ALA2PF=5A



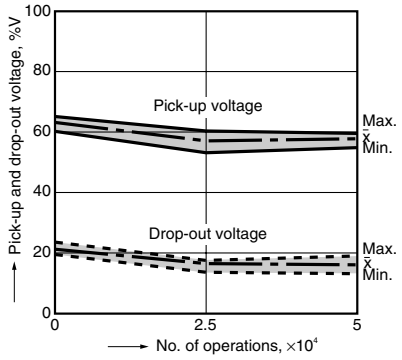
LA (ALA)

5-(1). Electrical life test
(3 A 125 V AC, resistive load)
Sample: ALA2F12, 6 pcs.
Operation frequency: 20 times/min.
(ON/OFF = 1.5s: 1.5s)
Ambient temperature: 20°C 68°F

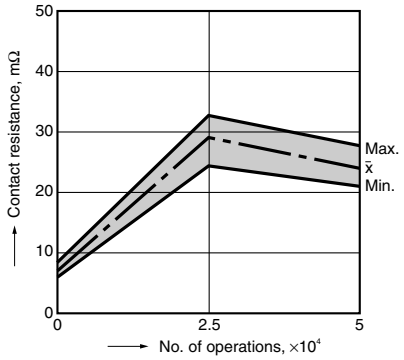
Circuit:



Change of pick-up and drop-out voltage

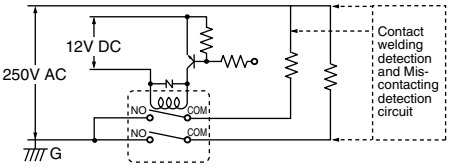


Change of contact resistance

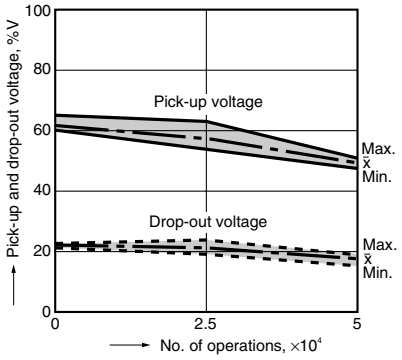


5-(2). Electrical life test
(5 A 250 V AC, resistive load)
Sample: ALA2PF12, 6 pcs.
Operation frequency: 20 times/min.
(ON/OFF = 1.5s: 1.5s)
Ambient temperature: 20°C 68°F

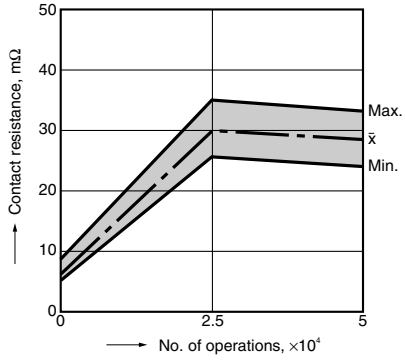
Circuit:



Change of pick-up and drop-out voltage

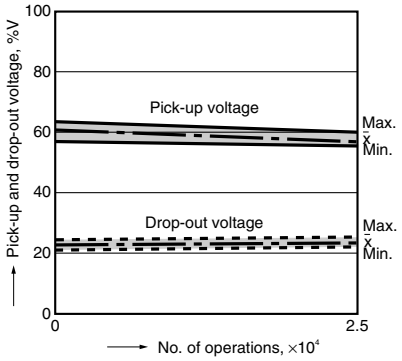


Change of contact resistance

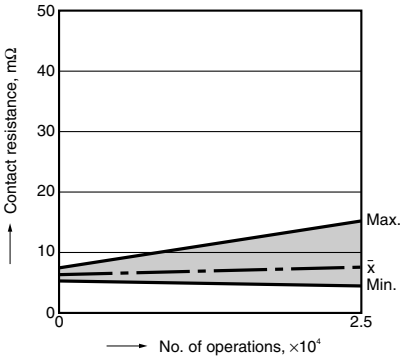


5-(3). Electrical life test
(UL lamp load test TV-4)
Tested sample: ALA2PF12, 6 pcs.
- Overload test
  Load: 6.0 A 120 V AC (60 Hz),
  Inrush: 91 A
  Operation frequency: 10 times/min
  (ON: OFF = 1 s: 5 s)
  No. of operations: 50 ope.
- Endurance test
  Load: 4A 120 V AC (60 Hz),
  Inrush: 65 A
  Operation frequency: 10 times/min
  (ON: OFF = 1 s: 5 s)
  No. of operations: 25,000 ope.

Change of pick-up and drop-out voltage



Change of contact resistance



For Cautions for Use, see Relay Technical Information