

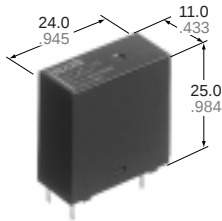
NAIS

10 A Slim Power Relay

LK-P RELAYS

UL File No.: E43149

CSA File No.: LR26550



mm inch

1. High switching capacity: 10 A 277V AC

2. High inrush current capability

- 1) 111 A inrush current
- 2) UL/CSA TV-5 rating

3. High insulation resistance between contact and coil

- 1) Creepage distance and clearances between contact and coil: Min. 6 mm .236 inch (In compliance with IEC65).

- 2) Surge withstand voltage between contact and coil: 10,000V 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, TÜV and SEMKO approved and SEV, VDE under application

SPECIFICATIONS

Contact

Arrangement		1 Form A
Initial contact resistance, max. (By voltage drop 6 V DC 1 A)		Max. 100 mΩ
Contact material		Silver alloy
Rating (resistive load)	Nominal switching capacity	10 A 277 V AC, 5 A 30V DC
	Max. switching power	2,770 V A, 150W
	Max. switching voltage	277 V AC, 30 V DC
	Max. switching current	10 A (AC), 5 A (DC)
Expected life (min. operations)	Mechanical (at 180 cpm)	2 × 10 ⁶
	Electrical (at 20 cpm) (at rated load)	10 ⁵ (ON:OFF=1.5s:1.5s)

Coil

Nominal operating power	530 mW
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Remarks

- *1 Measurement at same location as "Initial breakdown voltage" section.
 *2 Detection current: 10mA
 *3 Wave is standard shock voltage of $\pm 1.2 \times 50\mu s$ 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. Usage, transport and storage conditions NOTES (Page 8)

Characteristics

Max. operating speed		20 cpm (at rated load)
Initial insulation resistance*1		Min. 1,000 MΩ (at 500 V DC)
Initial *2 breakdown voltage	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 (initial)
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 10 A contact carrying current
Shock resistance	Functional*5	Min. 200 m/s ² {approx. 20 G}
	Destructive*6	Min. 1,000 m/s ² {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. 12 g .42 oz

TYPICAL APPLICATIONS

- Audio visual equipment
TVs, VTRs
- Office equipment
LBP, CRT
- Home appliances
Refrigerator, Air conditioner

ORDERING INFORMATION

Ex. LKP 1a F - 12V

Contact arrangement	Protective construction	Coil voltage(DC)
1a: 1 Form A	F: Flux-resistant type	12, 24V

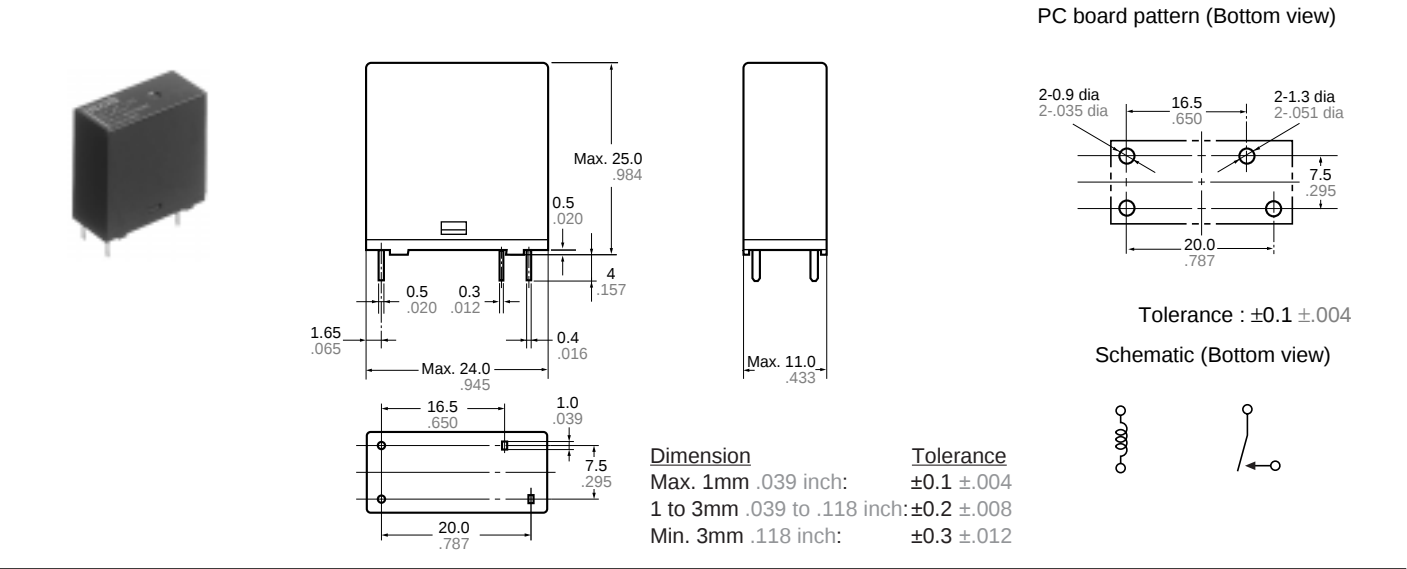
(Note) Standard packing Carton: 100 pcs. Case: 500 pcs.

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
LKP1aF-12V	12	(Initial) 8.4	(Initial) 1.2	272	44.2	530	15.6
LKP1aF-24V	24	(Initial) 16.8	(Initial) 2.4	1,087	22.1	530	31.2

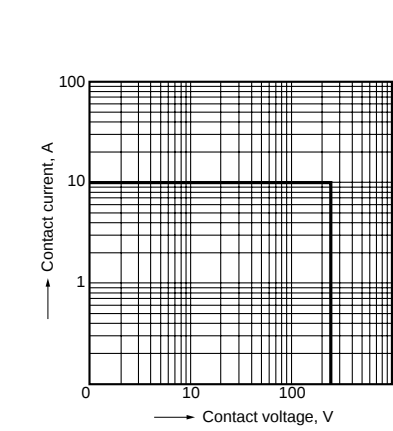
DIMENSIONS

mm inch



REFERENCE DATA

1. Max. switching power

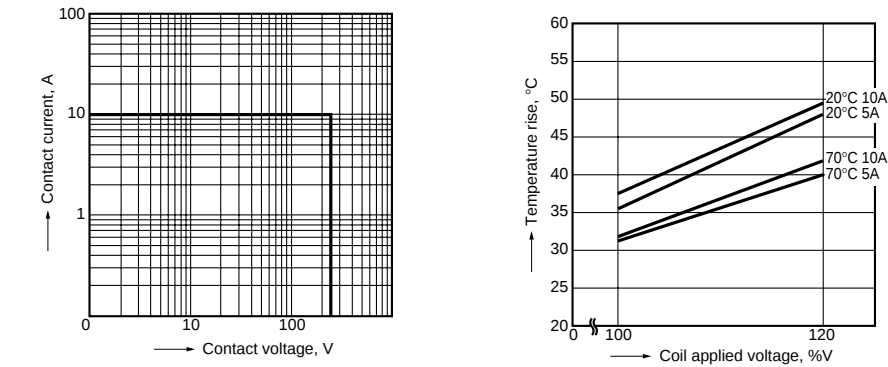


2. Coil temperature rise

Sample: LKP1aF-12V, 6 pcs.

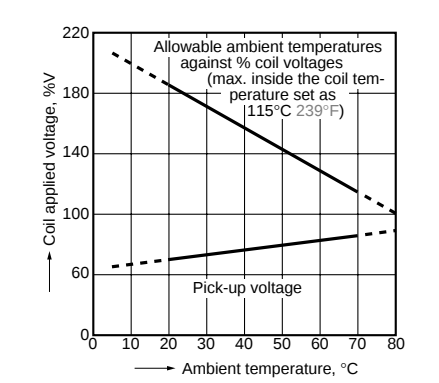
Point measured: coil inside

Contact current: 5 A, 10 A



3. Ambient temperature characteristics and coil applied voltage

Contact current: 10 A



4. Electrical life test

(10 A 250 V AC, resistive load)

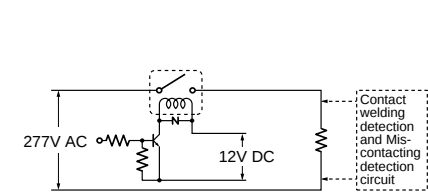
Sample: LKP1aF-12V, 6 pcs.

Operation frequency: 20 times/min.

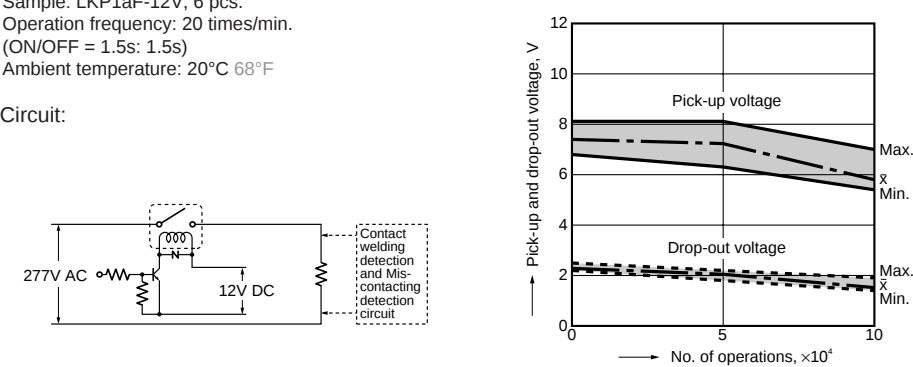
(ON/OFF = 1.5s: 1.5s)

Ambient temperature: 20°C 68°F

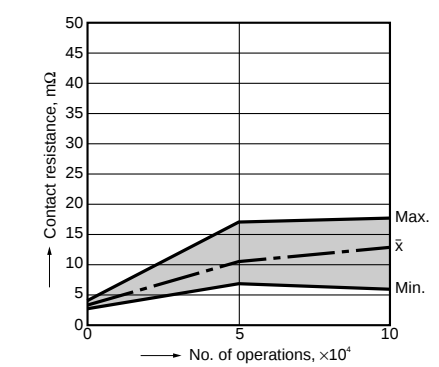
Circuit:



Change of pick-up and drop-out voltage



Change of contact resistance



For Cautions for Use