



1a 10A TV-5 rated power relays

## FEATURES

1. High switching capacity: 10 A 277V AC

# 2. High insulation resistance between contact and coil

 Creepage distance and clearances between contact and coil: Min. 6 mm .236 inch (In compliance with IEC60065)
Surge withstand voltage between contact and coil: 10,000 V
Popular terminal pitch in AV

### equipment field

4. Space-saving slim type

Base area: Width 11 × Length 24 mm Width .433 × Length .945 inch 5. Conforms to the various safety standards

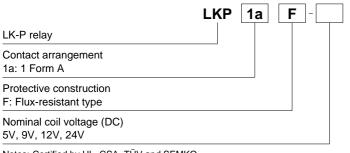
UL, CSA, VDE, TÜV and SEMKO approved

## **TYPICAL APPLICATIONS**

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

**RoHS** compliant

## **ORDERING INFORMATION**



Notes: Certified by UL, CSA, TÜV and SEMKO VDE approved type is available. Please consult us for details.

## TYPES

Contact arrangement	Nominal coil voltage	Part No.				
	5V DC	LKP1aF-5V				
1 Form A	9V DC	LKP1aF-9V				
I FOITI A	12V DC	LKP1aF-12V				
	24V DC	LKP1aF-24V				

Notes: 1. Standard packing Carton: 100 pcs. Case: 500 pcs. 2. 18 V DC types are also available. Please consult us for details.

## RATING

1.	Coi	data	

Nominal coil voltage	Pick-up voltage Drop-out voltage (at 20°C 68°F) (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)	
5V DC	70%V or less of nominal voltage (Initial)	10%V or more of nominal voltage (Initial)	106.4mA	47Ω		6.5V DC	
9V DC			58.8mA	153Ω	530mW	11.7V DC	
12V DC			44.2mA	272Ω	530000	15.6V DC	
24V DC	()	(	22.1mA	1,087Ω		31.2V DC	

#### 2. Specifications Characteristics Specifications Item 1 Form A Arrangement Contact resistance (Initial) Max. 100 mΩ (By voltage drop 6 V DC 1A) Contact Contact material AgSnO<sub>2</sub> type 10A 277V AC, 5A 30V DC Nominal switching capacity (resistive load) Max. switching power (resistive load) 2,770VA, 150W Rating 277V AC, 30V DC Max. switching voltage Max. switching current 10A (AC), 5A (DC) Min. switching capacity (reference value)\*1 100mA, 5V DC Insulation resistance (Initial) Min. 1,000MΩ (at 500V DC) Measurement at same location as "Breakdown voltage" section. Between open contacts 1,000 Vrms for 1 min. (Detection current: 10 mA) Breakdown voltage (Initial) Between contact and coil 4,000 Vrms for 1 min. (Detection current: 10 mA) Max. 45°C 113°F (By resistive method, nominal coil voltage applied to the coil; Temperature rise (coil) contact carrying current: 10A, at 70°C 158°F) Electrical Surge breakdown voltage\*2 characteristics 10.000 V (Between contact and coil) (Initial) Operate time (at nominal voltage) (at 20°C 68°F) Max. 15 ms (excluding contact bounce time.) (Initial) Release time (at nominal voltage) (at 20°C 68°F) Max. 5 ms (excluding contact bounce time) (Without diode) (Initial) Functional 200 m/s<sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10µs.) Shock resistance 1,000 m/s2 (Half-wave pulse of sine wave: 6 ms.) Destructive Mechanical characteristics Functional 10 to 55 Hz at double amplitude of 1.5 mm (Detection time: 10µs.) Vibration resistance Destructive 10 to 55 Hz at double amplitude of 1.5 mm Mechanical (at 180 times/min.) Min. 2×106 Expected life Electrical Min. 105 (ON/OFF = 1.5s : 1.5s at rated load) 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), Conditions for operation, transport and storage\*3 Conditions Air pressure: 86 to 106kPa Max. operating speed 20 times/min. (at nominal switching capacity) Unit weight Approx. 12 g .42 oz

\* Specifications will vary with foreign standards certification ratings.

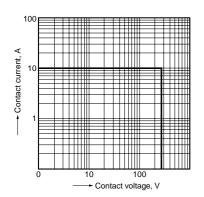
Notes: \*1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

\*2. Wave is standard shock voltage of  $\pm 1.2 \times 50 \mu s$  according to JEC-212-1981

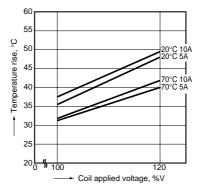
\*3. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES

## **REFERENCE DATA**

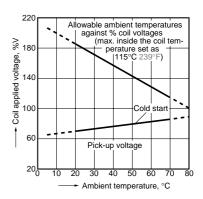
1. Max. switching power



2. Coil temperature rise Sample: LKP1aF-12V, 6 pcs. Point measured: coil inside Contact current: 5 A, 10 A

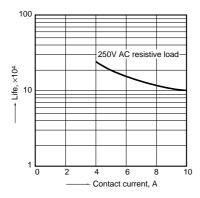


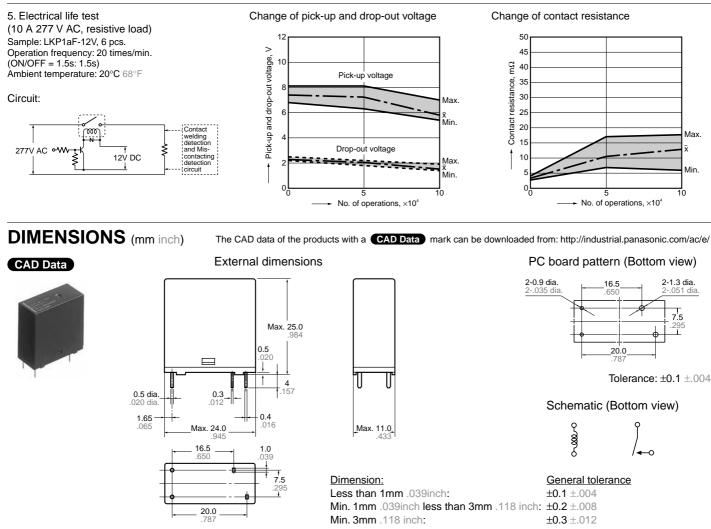
3. Ambient temperature characteristics and coil applied voltage Contact current: 10 A





#### 4. Life curve Operation frequency: 20 times/min. (ON/OFF = 1.5s: 1.5s) Ambient temperature: room temperature





### SAFETY STANDARDS

UL/C-UL (Recognized)		CSA	CSA (Certified)		VDE (Certified)		TV rating (UL/CSA)		TÜV (Certified)		SEMKO (Certified)	
File No.	Contact rating	File No.	Contact rating	File No.	Contact rating	File No.	Rating	File No.	Rating	File No.	Contact rating	
E43149	10A 277V AC 5A 30V DC		10A 277V AC 5A 30V DC	40014390	10A 250V AC (cos <i>φ</i> =1.0)	UL E43149 CSA LR26550	TV-5		10A 250V AC (cos <i>φ</i> =1.0) 5A 30V DC (0ms)	807779	3/100A 250V AC 5/40A 250V AC 10A 250V DC	

## For Cautions for Use.