

# HFK7-T

## AUTOMOTIVE RELAY



### Typical Applications

Rear window defogger, Lamp control, Seat heaters, Powered window, etc.

### Features

- Max. continuous current 30A
- Max. making current 100A
- Extended temp. range up to 125°C
- With highly established reliability
- Strong resistance ability to shock & vibration
- RoHS & ELV compliant

## CHARACTERISTICS

Contact arrangement	1A
Voltage drop (initial) <sup>1)</sup>	Typ.: 30mV (at 10A) Max.: 250mV max. (at 10A)
Max. continuous current <sup>2)</sup>	41A 30min/30A continuous (at 23°C) 38A 30min/20A continuous (at 85°C) 35A 30min/15A continuous (at 125°C)
Max. switching current	Make: 100A <sup>3)</sup> Break: 30A (Resistive, 14VDC)
Max. switching voltage	16VDC
Min. contact load	1A 12VDC <sup>4)</sup>
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1 x 10 <sup>7</sup> OPS
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength <sup>5)</sup>	500VAC
Operate time	Typ.: 4ms, Max.: 10ms

Release time <sup>6)</sup>	Typ.: 1ms Max.: 10ms
Ambient temperature	HFK7-T: -40°C to 125°C
Vibration resistance <sup>7)</sup>	10Hz to 100Hz, 44.1 m/s <sup>2</sup>
Shock resistance <sup>7)</sup>	100 m/s <sup>2</sup>
Termination	PCB <sup>8)</sup>
Construction	Plastic sealed, Flux proofed
Unit weight	Approx. 5.0g

- 1) Initial value
- 2) Test under the following conditions:  
a. The relay is mounted on the PCB, the coil is applied with 100% rated voltage;  
b. The PCB board is a double layer board. The thickness of the copper foil is 4 oz (140 μm), the width of each copper foil is 3.76×(1±5%)mm, the length of the copper foil is 50 mm±1 mm, and the Tg value of the PCB board is 150 °C.  
c. The installation spacing between relay samples is 100mm.
- 3) Inrush peak current under lamp load, at 14VDC.
- 4) 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.
- 5) 1min, leakage current less than 1mA.
- 6) The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.
- 7) When energized, opening time of closed NO contacts shall not exceed 10μs.
- 8) Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature and time is (260±3)°C, (5±0.3)s.

## CONTACT DATA

Load voltage	Load type		Load current	On/Off ratio		Electrical endurance <sup>1)</sup> OPS	Contact material	Ambient Temp.
			1A	On s	Off s			
14VDC	Resistive	Make	30	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	23°C
		Break	30					
	Inductive L=0.5mH	Make	40	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	-40°C to 125°C
		Break	20					
	Lamp	Make	100	2	2	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	10					

Remarks: This table tests the data without paralleling the suppression components. When the actual use conditions do not match the table, please provide detailed conditions of use to Hongfa for more technical support.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2025 Rev. 1.00

## COIL DATA

Nominal voltage VDC	Pick-up voltage VDC max.			Drop-out voltage VDC min.			Coil resistance $\times(1\pm10\%) \Omega$	Power consumption W
12	23°C	85°C	125°C	23°C	85°C	125°C	23°C	23°C
	$\leq 7$	$\leq 8.8$	$\leq 9.9$	$\geq 1$	$\geq 1.2$	$\geq 1.4$	300	0.48

Remarks: If the customer needs to provide other specifications of the operating voltage of the product.

## ORDERING INFORMATION

<b>Type</b> HFK7-T: Reflow soldering version or high heat-resistant version		<b>HFK7-T / 12 -H S T (XXX)</b>
<b>Coil voltage</b>	12: 12VDC	
<b>Contact arrangement</b>	H: 1 Form A	
<b>Construction</b>	S: Plastic sealed <sup>(1)</sup> Nil: Flux proofed	
<b>Contact Material</b>	T: AgSnO <sub>2</sub>	
<b>Special code</b> <sup>(2)</sup>	XXX: Customer special requirement Nil: Standard	

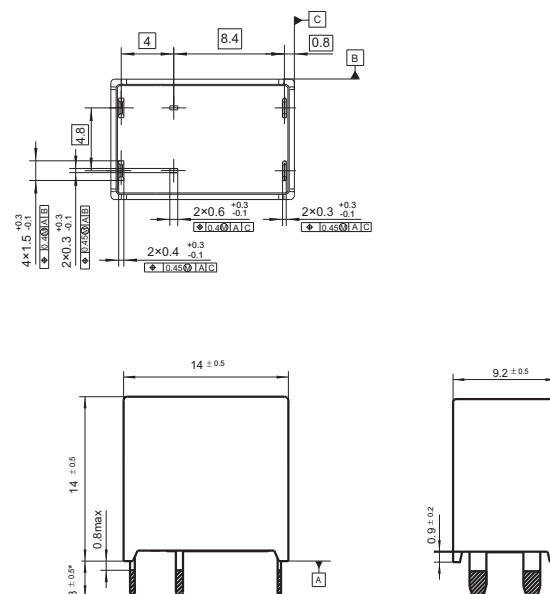
**Notes:** 1) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB  
2) The performance parameters of products with characteristic numbers shall be subject to the specific specifications provided by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

### Outline Dimensions

HFK7-T:

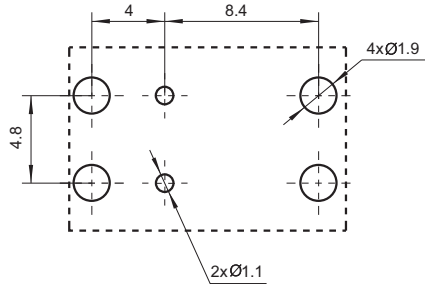


Remark: \* The additional tin top is max. 1mm.

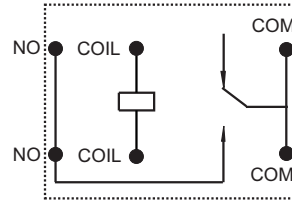
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout (Bottom view)



Wiring Diagram(Bottom view)



Remark: PC board dimensions hadn't specified tolerance:  $\pm 0.1$

## CHARACTERISTIC CURVES

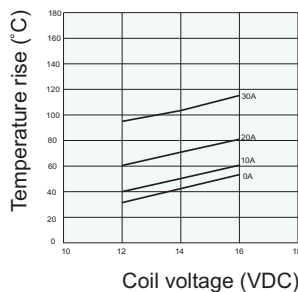
### (1) Coil temperature rise (23°C)

Experiment: HFK7-T/12-HT

Amount: three

Carrying current: 0A, 10A, 20A, 30A

Ambient temp: 23°C



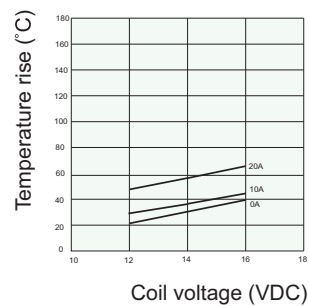
### (2) Coil temperature rise (125°C)

Experiment: HFK7-T/12-HT

Amount: three

Carrying current: 0A, 10A, 20A

Ambient temp: 125°C



Remark: The coil temperature rise test requires the relay to be installed on the PCB. The PCB is double-layered. The thickness of the copper foil is 4 oz (140  $\mu$ m), the width of each copper foil is  $3.76 \times (1 \pm 5\%)$  mm, the length of the copper foil is  $50\text{mm} \pm 1\text{mm}$ , and the Tg value of the PCB board is 150°C. The installation spacing between relay samples is 100mm.

### Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.

We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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