

# HFK10-T(C16)

# AUTOMOTIVE RELAY



File No.: E133481



File No.: R50523646



### Features

- Max.continuous current 20A(105°C)
- Extended temp. Range up to 105°C
- With highly established reliability
- Strong resistance ability to shock & vibration
- Reflow soldering version available
- RoHS, ELV compliant

### Typical Applications

OBC charge(16A 277VAC)

RoHS compliant

## CHARACTERISTICS

Contact arrangement	1A/1C
Voltage drop (initial) <sup>1)</sup>	Typ.:30mV(at 10A) Max.:250mV(at 10A)
Max. continuous current <sup>2)</sup>	NO: 25A (at 23°C,7.8V) NO: 22.5A (at 85°C,7.8V) NO: 20A (at 105°C,7.8V)
Max. switching current	AC:NO:16A(Resistive,277VAC)
Max. switching voltage	277VAC
Min.contact load	1A 6VDC
Electrical load	See "CONTACT DATA"
Mechanical endurance	3×10 <sup>5</sup> OPS
Insulation resistance (initial) <sup>1)</sup>	100MΩ(at 500VDC)
Dielectric strength (initial) <sup>3)</sup>	1000VAC 1min(between contacts) 2500VAC 1min( coil & contacts)
Operate time(initial) <sup>4)</sup>	Typ.:4ms Max.:10ms
Release time	Typ.:3ms Max:10ms

Ambient temperature	HFK10-T:-40°C to 105°C
Vibration resistance(initial) <sup>5)</sup>	10Hz to 55Hz 1.5mm DA
Shock resistance(initial) <sup>5)</sup>	100 m/s <sup>2</sup>
Termination	PCB <sup>6)</sup>
Construction	Plastic sealed,Flux proofed
Unit weight	Appros.15g

Notes:1) Initial value

2) The test under the follow conditions:

a.the relay is mounted on the PCB,the coil is applied with 100% rated voltage.After 200ms., the coil excitation voltage is reduced to7.8V;

b.The PCB is a double layer board,the thickness of the copper foil is4 oz(140 um),the width if each copper foil is 10.64×(1±5%)mm,the length of the copper foil is 50 mm±1 mm,and the Tg value of the PCB is 150°C;

3) 1 min , leakage current less than 1mA.

4) The value is measured when voltage drops suddenly from nominal voltage to 0VDC and coil is not paralleled with suppression circuit.

5) When non-energized,close time of NO contacts shall not exceed 100us,when energized,opening time of closed NO contact shall not exceed 100us.

6) 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<sup>1)</sup>

Load voltage	Load type	Contact arrangement	Load current Making <sup>2)</sup>	Load current Carrying <sup>2)</sup>	Load current Breaking <sup>2)</sup>	On/Off ratio		Electrical endurance OPS	Ambient Temperature
			A	A	A	On s	Off s		
277VAC	Resistive	NO	2	20	2	1	9	1×10 <sup>5</sup>	105°C

Notes:1) Load mentioned in this chart is for relays with no parallel diode or Zener Diode.For those with parallel diode,Zener Diode or other components,please contact Hongfa for more technical supports.Please also contact Hongfa if the actual application load is different from what mentioned above. All the rating are tested with open vent hole.

2) Making 100ms,loading 800ms,breaking 100ms.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2024 Rev. 1.00

## COIL DATA

23°C

Nominal voltage VDC	Pick-up voltage VDC	Drop-out voltage VDC	Coil resistance $\times(1\pm 10\%)$ $\Omega$	Power consumption W
12	$\leq 9.6$	$\geq 1.0$	261	0.55

Notes: 1) when the ambient temperature exceeds 85°C, the coil excitation voltage is required to be 13.5V, 200ms. After the relay is connected and stabilized, the coil excitation voltage is reduced to 12V.

## ORDERING INFORMATION

<b>HFK10-T /</b>		<b>12</b>	<b>-Z</b>	<b>S</b>	<b>T</b>	<b>(C16)</b>
Type	HFK10-T: Reflow soldering version					
Coil voltage	12: 12VDC					
Contact arrangement	Z: 1 Form C    H: 1 Form A					
Construction <sup>1)</sup>	S: Plastic sealed <sup>1)</sup> Nil: Flux proofed (Reflow soldering version)					
Contact material	T: AgSnO <sub>2</sub>					
Special code	C16: 16A 277VAC load					

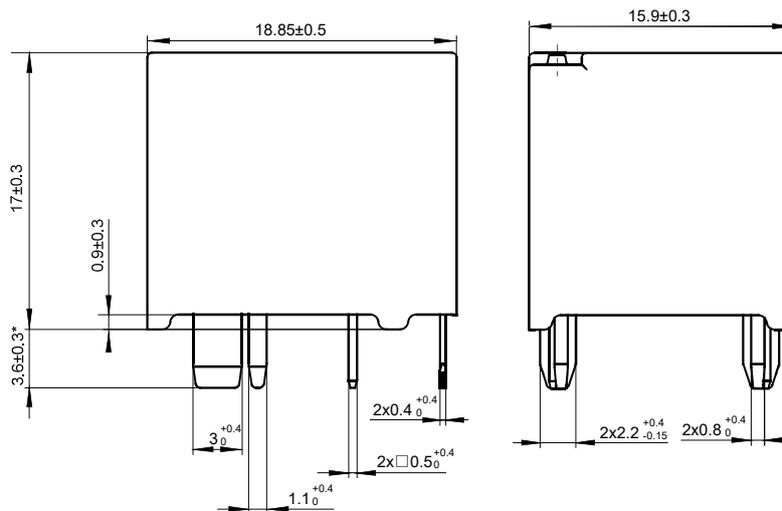
Notes: 1) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

### Outline Dimensions

HFK10-T-Z

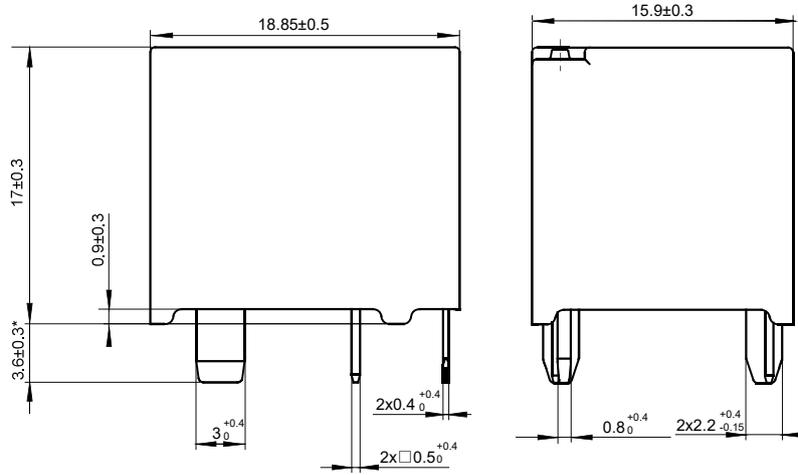


# OUTLINE DIMENSIONS, WIRING DIAGRAM AND TERMINAL FUNCTION DEFINITION

Unit: mm

## Outline Dimensions

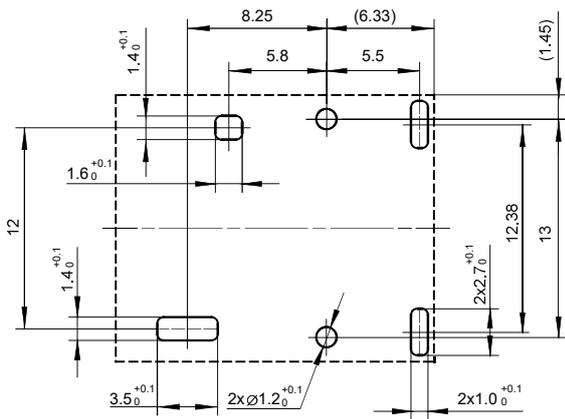
HFK10-T-H



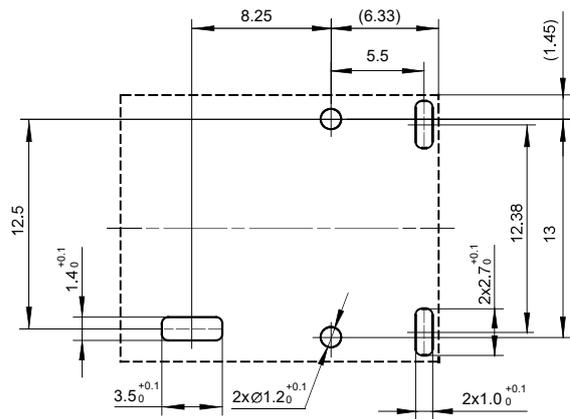
Notes:\* The additional tin top is max. 1mm.

## PCB Layout(Bottom view)

HFK10-T-Z



HFK10-T-H

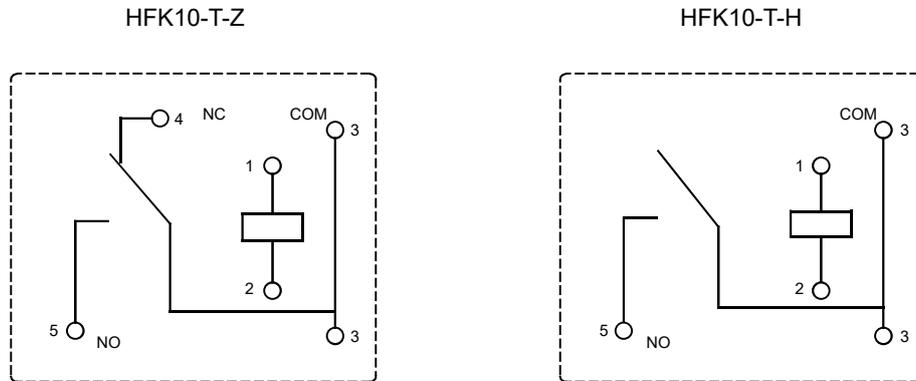


- Notes:1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1$ mm, tolerance should be  $\pm 0.2$ mm; outline dimension  $> 1$ mm and  $\leq 5$ mm, tolerance should be  $\pm 0.3$ mm; outline dimension  $> 5$ mm and  $\leq 30$ mm, tolerance should be  $\pm 0.4$ mm; outline dimension  $> 30$  mm, tolerance should be  $\pm 0.6$ mm;  
2) The tolerance without indicating for PCB layout is always  $\pm 0.1$ mm.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND TERMINAL FUNCTION DEFINITION

Unit: mm

### Wiring Diagram(Bottom view)



- Notes: 1) Coil terminals 1# and 2# are close to load terminals 3#, 4# and 5#, to meet withstand voltage requirement of PCB, it is suggested to use PCB bonding pad 0.2mm for coil terminals 1# and 2#, and use bonding pad 0.3mm for load terminals 3# and 4#.
- 2) Please consider to add shield between terminal 1# and 3#, 1# and 4#, 2# and 3# in PCB, so as to raise the withstand voltage requirement.

### Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. 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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