

# HFKW-SH

## AUTOMOTIVE RELAY



### Typical Applications

Anti-theft lock, Lighting control

### Features

- Small size
- Double NO contacts
- Standard terminal pitch employed
- Plastic sealed and flux proofed types available
- RoHS & ELV compliant

## CHARACTERISTICS

Contact arrangement	1U (Double NO contacts)
Voltage drop (initial) <sup>1)</sup>	Typ.: 50mV (at 10A) Max.: 250mV (at 10A)
Max. continuous current <sup>2)</sup>	2 × 10A (at 23°C, 1h)
Max. switching current <sup>3)</sup>	2 × 10A
Min. contact load	1A 12VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1 × 10 <sup>7</sup> OPS (300 OPS/min)
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength <sup>4)</sup>	500VAC
Operate time	Max.: 10ms (at nomi. vol.)
Release time <sup>5)</sup>	Max.: 5ms

Ambient temperature	Plastic sealed: -40°C to 85°C Flux proofed: -40°C to 125°C
Vibration resistance <sup>6)</sup>	10Hz to 55Hz 1.5mm DA
Shock resistance <sup>6)</sup>	98m/s <sup>2</sup>
Termination	PCB <sup>7)</sup>
Construction	Plastic sealed, Flux proofed
Unit weight	Approx. 6g

1) Equivalent to the max. initial contact resistance is 100mΩ (at 1A 6VDC).

2) For NO contacts, measured when applying 100% rated voltage on coil.

3) 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 4oz(140μm), the width of each copper foil is 3.76x(1±5%)mm, the length of copper foil is 50mm±1mm and the Tg value of the PCB board is 150°C.

c) The sample orders were only tested.

4) 1min, leakage current less than 1mA.

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

6) When energized, opening time of NO contacts shall not exceed 100μs.

7) 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>3)</sup>

at 23°C

Load voltage	Load type		Load current A	On/Off ratio		Electrical endurance OPS	Contact material	Load wiring diagram <sup>2)</sup>
			1 U	On s	Off s			
13.5VDC	Resistive	Make	2 × 6	2	2	2 × 10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 1
		Break	2 × 6	2	2			
	Lamp <sup>1)</sup>	-	(2×21W+1×5W) × 2	0.3	2	1 × 10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 2
	Lamp <sup>1)</sup>	-	(2×21W) × 2	1	14	1 × 10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 2

1) When it is utilized in flasher, a special AgSnO<sub>2</sub> contact material should be used and the customer special code should be (170) as a suffix. Please connect by the polarity according to the diagram below.

2) The load wiring diagrams are listed below:

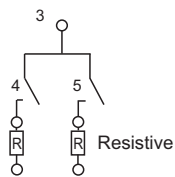


diagram 1

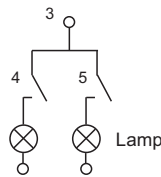


diagram 2

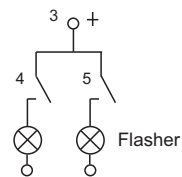


diagram 3

3) When the load voltage is at 24VDC or higher, or the applications conditions are different from the table above, please submit the detailed application conditions to Hongfa to get more support.



HONGFA RELAY

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

2025 Rev. 1.00

## COIL DATA

Nominal voltage <sup>1)</sup> VDC	Pick-up voltage VDC max.			Drop-out voltage VDC min.			Coil resistance $\times(1\pm 10\%) \Omega$	Power consumption W
	23°C	85°C	125°C	23°C	85°C	125°C	23°C	23°C
6	3.6	4.4	5.0	0.5	0.6	0.7	36	1
9	5.4	6.5	7.4	0.7	0.8	0.9	81	1
10	5.8	7.3	8.2	0.8	1.0	1.1	100	1
12	6.9	8.7	9.8	1.0	1.2	1.4	144	1

1) Other types on request.

## ORDERING INFORMATION

Type	HFKW / 012 -SH W L C (XXX)							
Coil voltage	006: 6VDC 009: 9VDC 010: 10VDC 012: 12VDC							
Contact arrangement	SH: 1 Form U (Double NO contacts)							
Contact material	W: AgSnO <sub>2</sub>							
Construction <sup>1)</sup>	L: Flux proofed (Reflow soldering version) Nil: Plastic sealed <sup>2)</sup>							
Packing style	C: Tape and reel packing Nil: Tube packing							
Special code <sup>3)</sup>	XXX: Customer special requirement Nil: Standard							

Notes: 1) The structure of HFKW/□□□-SHW-L□ is only flux proof, the open vent hole is at the bottom of the base.

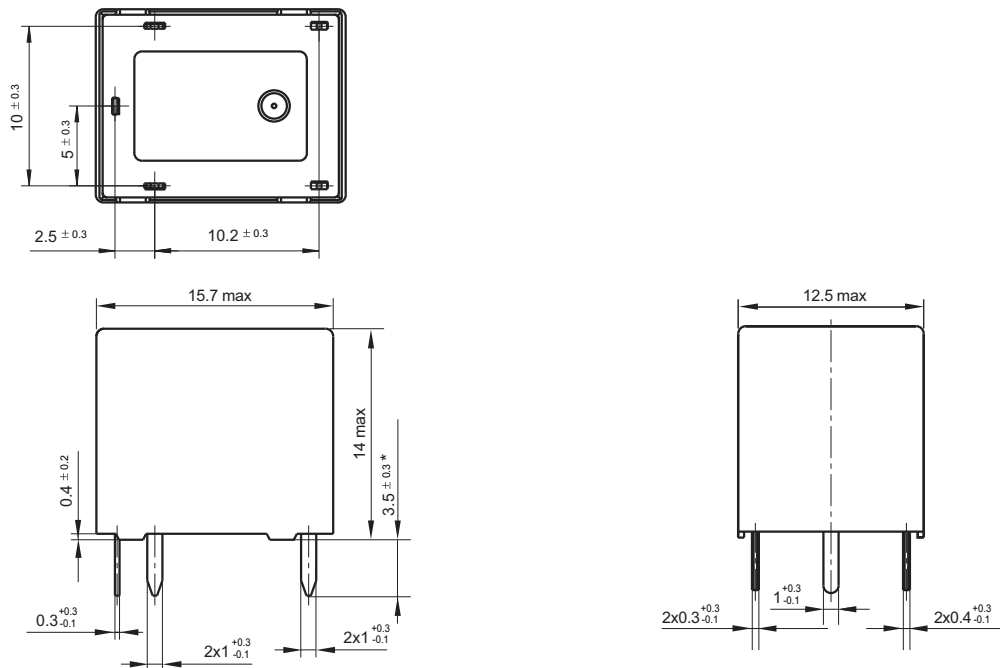
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

3) 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

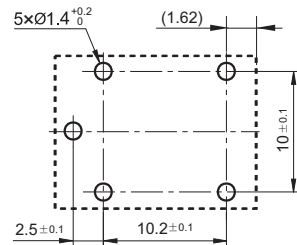


Remark: \* The additional tin top is max. 1mm

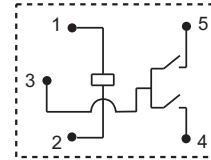
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout  
(Bottom view)



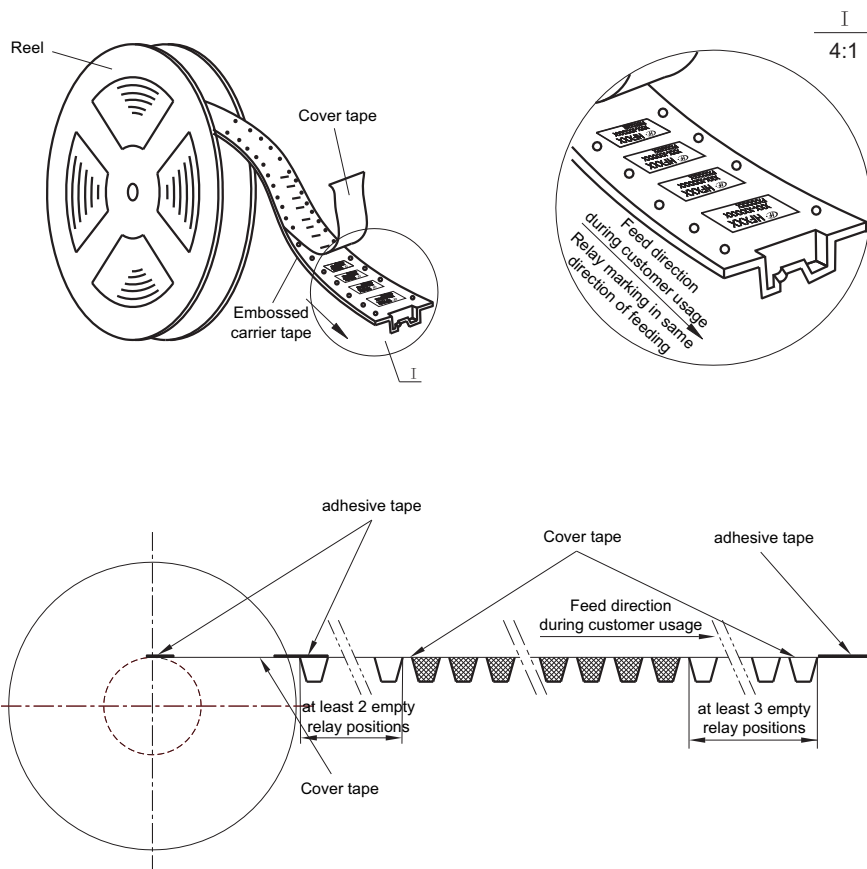
Wiring Diagram  
(Bottom view)



## TAPE AND REEL PACKING

Unit: mm

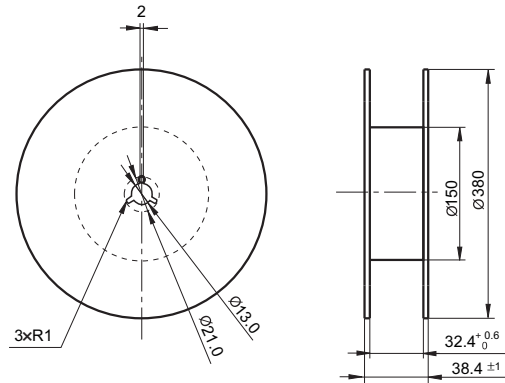
### Direction of Relay Insertion



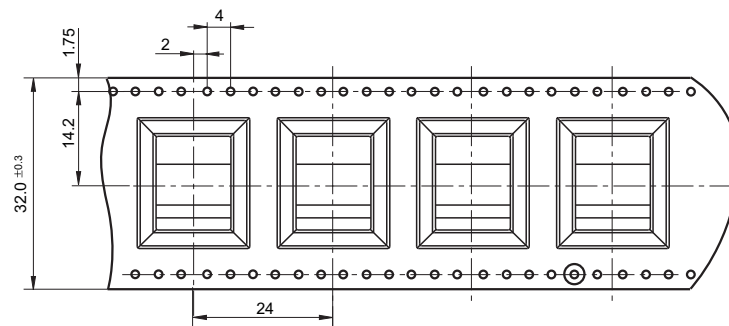
## TAPE AND REEL PACKING

Unit: mm

Reel Dimensions

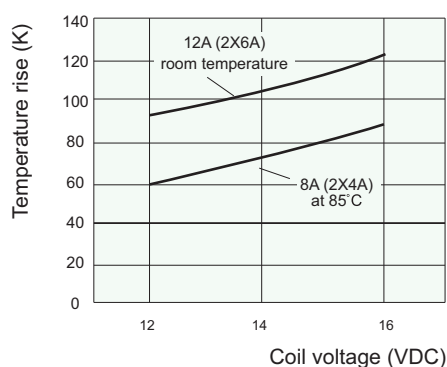


Tape Dimensions



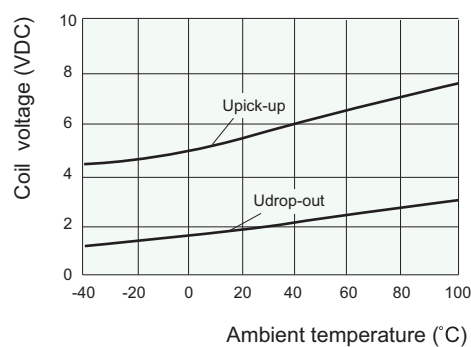
## CHARACTERISTIC CURVES

### 1. Coil temperature rise



### 2. Pick-up & drop-out voltage - ambient temperature characteristic

HFKW/012-SHW(XXX)



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 μm), the width of load side 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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