

# HFKW-SH

# DOUBLE MAKE CONTACT AUTOMOTIVE RELAY



### Typical Applications

Central door lock, Anti-theft lock, Lighting control

### Features

- Small size
- Double NO contacts
- Standard terminal pitch employed
- Extended operation range
- Sealed IP67 type available
- RoHS & ELV compliant (555)

## CHARACTERISTICS

Contact arrangement	1U (Double NO contacts)
Voltage drop (initial) <sup>1)</sup>	Typ.: 100mV (at 10A) Max.: 250mV (at 10A)
Contact rating	Lamp: 2×4A 14VDC (AgSnO <sub>2</sub> ) Resistive: 2×6A 14VDC
Max. carrying current	2×20A/2min <sup>2)</sup>
Max. shock current	2×30A
Max. switching power	2×10A 16VDC
Min. contact load	1A 6VDC
Electrical life	See " CONTACT DATA " table
Mechanical life	1 x 10 <sup>7</sup> OPS 300OPS/min
Initial insulation resistance	100MΩ (500VDC)
Dielectric strength	500VAC (1min, leakage current less than 1mA)
Operate time	Max.: 10ms (at nomi. vol.)

Release time	Max.: 5ms <sup>3)</sup>
Temperature rise (at nomi. vol.)	Max. 60°C
Ambient temperature	-40°C to +85°C
Storage temperature	-40°C to +155°C
Humidity	98%, +40°C
Vibration resistance	10Hz to 55Hz 1.5mm DA
Shock resistance	Functional: 100m/s <sup>2</sup> (10g) Destructive: 1000m/s <sup>2</sup> (100g)
Termination	PCB <sup>4)</sup>
Construction	Sealed IP67
Unit weight	Approx. 6g

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

2) 25°C, measured when coil is energized with 100% nominal voltage.

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

4) Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature is 240°C to 260°C.

## CONTACT DATA <sup>4)</sup>

at 20°C

Load voltage	Load type		Load current (A)	On/Off ratio		Electrical life (OPS)	Contact material <sup>1)</sup>	Load wiring diagram <sup>3)</sup>
			1 U	On (s)	Off (s)			
12VDC	Resistive	Make	2×6	2	2	2×10 <sup>5</sup>	AgSnO <sub>2</sub> AgNi0.15	See diagram 1
		Break	2×6	2	2			
	Lamp <sup>2)</sup>		(2×21W+1×5W)×2	0.2	3	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 2
	Lamp <sup>2)</sup>		(2×21W)×2	1	14	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 2



HONGFA RELAY

ISO9001、ISO/TS16949、ISO14001、OHSAS18001 CERTIFIED

2006 Rev. 1.10

- 1) AgSnO<sub>2</sub> contact is suitable for the lamp load, inductive load and motor load, while AgNi contact is suitable for resistive load.
- 2) When it is utilized in flasher, a special AgSnO<sub>2</sub> contact material should be used and the ordering key should be 170 as a special suffix. Please connect by the polarity according to the diagram below.
- 3) The load wiring diagrams are listed below:

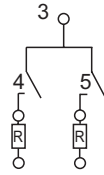


diagram 1

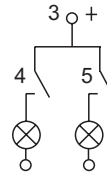


diagram 2

- 4) When the load requirement is different from content of the table above, please contact Hongfa for relay application support.

## COIL DATA

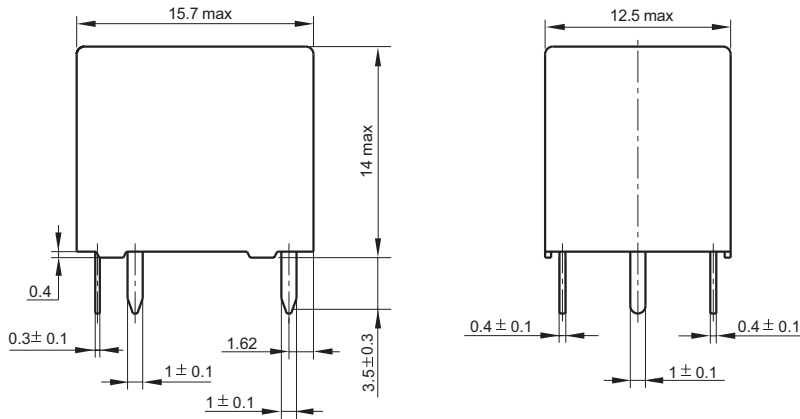
Nominal voltage (VDC)	Pick-up voltage (VDC)		Drop-out voltage (VDC)	Coil resistance (Ω±10%)	Power consumption (W)
	20°C	85°C	20°C		
6	3.5	4.5	0.5	36	1
9	5.2	6.8	0.7	81	1
10	5.2	7.9	0.8	100	1
12	6.9	9.0	1.0	144	1
24	14	18.0	1.9	576	1

## ORDERING INFORMATION

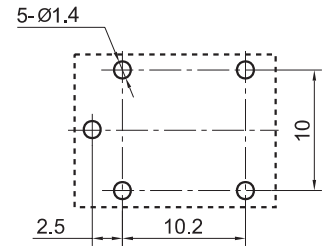
	<b>HFKW</b> <sup>1)</sup> /	012	SH	W	XXX
<b>Type</b>					
<b>Coil voltage</b>	006: 6VDC    009: 9VDC 010: 10VDC    012: 12VDC    024: 24VDC				
<b>Contact arrangement</b>	SH: 1 Form U (Double NO contacts)				
<b>Contact material</b>	W: AgSnO <sub>2</sub> N: AgNi0.15				
<b>Customer special code</b>	e.g. 170 stands for flasher load, 555 stands for RoHS & ELV compliant. In case there are multiple special requirements, all special codes should be followed one by one.				

1) HFKW-SH is an environmental friendly product, please mark special code (555) when order.

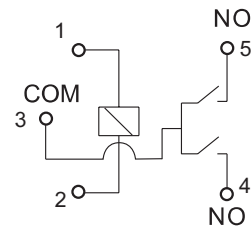
**Outline Dimensions**



**PCB Layout**



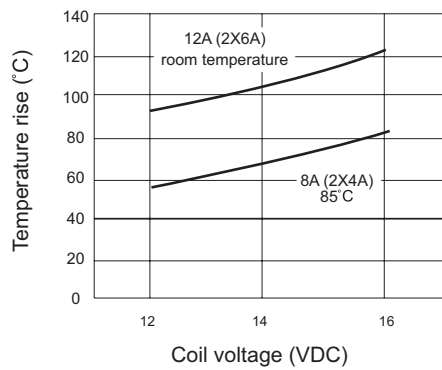
**Wiring Diagram**



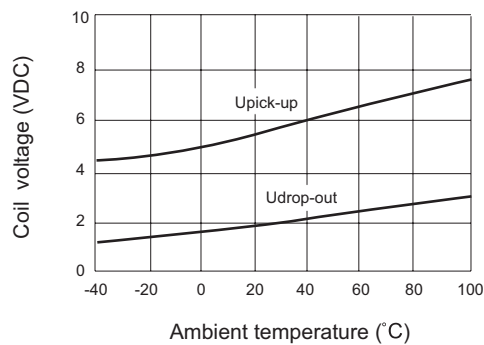
- Remark: 1) In case of no tolerance shown in outline dimension:  
 outline dimension  $\leq 1$ mm, tolerance should be  $\pm 0.2$ mm,  
 outline dimension  $> 1$ mm and  $\leq 5$ mm, tolerance should be  $\pm 0.3$ mm,  
 outline dimension  $> 5$ mm, tolerance should be  $\pm 0.4$ mm.  
 2) The tolerance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

**CHARACTERISTIC CURVES**

**1. Coil temperature rise**

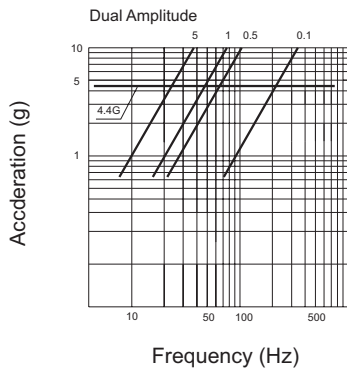


**2. Pick-up & drop-out voltage - ambient temperature characteristics**

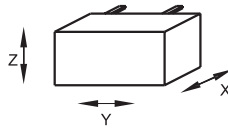


## CHARACTERISTIC CURVES

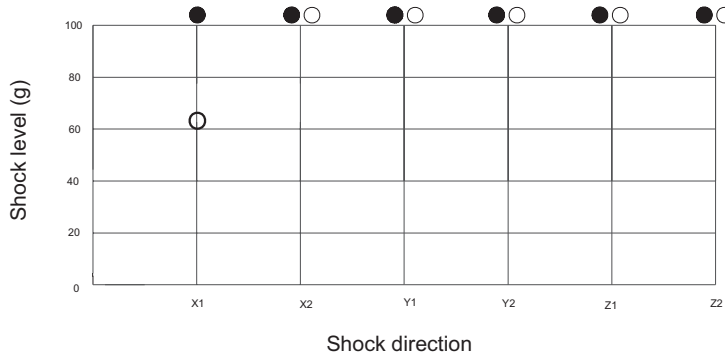
### 3. Vibration resistance characteristics



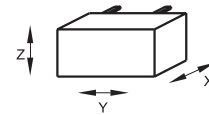
Frequency: 10 to 500 HZ  
 Acceleration: 10g max.  
 Direction of vibration: See diagram as following  
 Detection level: 100 us



### 4. Shock resistance characteristics

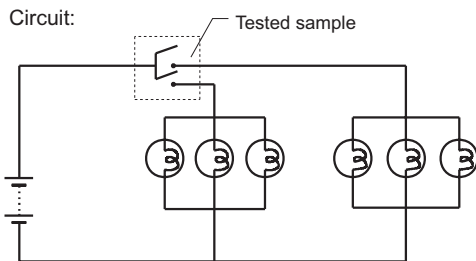


Shock application time: 11 ms  
 Test material: coil, energized & de-energized  
 Shock direction: See diagram as following  
 Detection level: 100 us

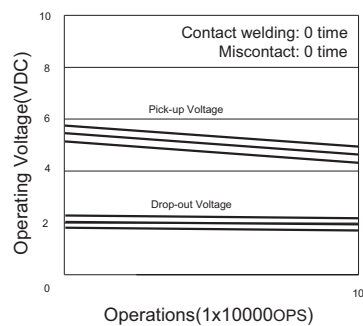


○ : NC Contact  
 ● : NO Contact

### 5. Applied load circuit ( for example )



Tested sample: HFKW-012-SHW, 6 PCS  
 Load: Lamp, (2 x 21W + 5W) x 2  
 Operating frequency: ON 0.3s, OFF 2s



### Disclaimer

This datasheet is for the customers' reference. All the specifications are 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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