HFKW-SH DOUBLE MAKE CONTACT AUTOMOTIVE RELAY

Features

- Small size
- Double NO contacts
- Standard terminal pitch employed
- Extended operation range
- Wash tight type available
- RoHS & ELV compliant

Typical Applications

Central door lock, Anti-theft lock, Lighting control

CHARACTERISTICS

Contact arrangement	1U (Double NO contacts)
Voltage drop (initial) 1)	Typ.: 50mV (at 10A) Max.: 250mV (at 10A)
Contact rating	Lamp: 2×4A 14VDC ($AgSnO_2$) Resistive: 2×6A 14VDC
Max. carrying current	2×20A/2min 2)
Max. shock current	2×30A
Max. switching power	2×10A 16VDC
Min.contact load	1A 6VDC
Electrical endurance	See " CONTACT DATA " table
Mechanical endurance	1 x 10^7OPS (300OPS/min)
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength	500VAC (1min, leakage current less than 1mA)
Operate time	Max.: 10ms (at nomi. vol.)

Release time	Max.: 5ms 3)
Temperature rise (at nomi. vol.)	60K max.
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	98m/s^2 (10g)
Termination	PCB 4)
Construction	Wash tight
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 and time is 240˚C to 260˚C, 2s to 5s.

CONTACT DATA 4)

at 23˚C

Load voltage	Load type		Load current A	On/Off ratio		Electrical endurance OPS	Contact material 1)	Load wiring diagram 3)
			1 U	On s	Off s			
13.5VDC	Resistive	Make	2×6	2	2	$2×10^5$	$AgSnO_2$ AgNi0.15	See diagram 1
		Break	2×6	2	2			
	Lamp 2)		(2×21W+1×5W)×2	0.2	3	$1×10^5$	$AgSnO_2$	See diagram 2
	Lamp 2)		(2×21W)×2	1	14	$1×10^5$	$AgSnO_2$	See diagram 2

1) $AgSnO_2$ 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 $AgSnO_2$ 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.
3) The load wiring diagrams are listed below:

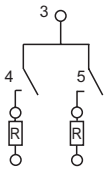


diagram 1

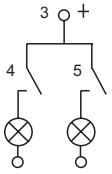


diagram 2

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

COIL DATA

at 23˚C

Nominal voltage VDC	Pick-up voltage VDC		Drop-out voltage VDC	Coil resistance x(1±10%)Ω	Power consumption W
	23˚C	85˚C			
6	3.5	4.5	0.5	36	1
9	5.2	6.8	0.7	81	1
10	5.8	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

	HFKW /	012	SH	W	(XXX)

Type

Coil voltage **006**: 6VDC **009**: 9VDC **010**: 10VDC **012**: 12VDC **024**: 24VDC

Contact arrangement **SH**: 1 Form U (Double NO contacts)

Contact material **W**: $AgSnO_2$ **N**: AgNi0.15

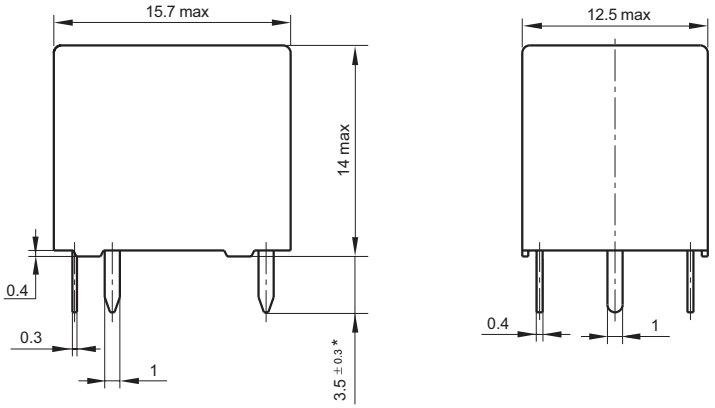
Customer special code 1) e.g. (170) stands for flasher load, (555) stands for RoHS & ELV compliant. In case there are multiple special requirements, all special codes should be followed one by one.

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

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

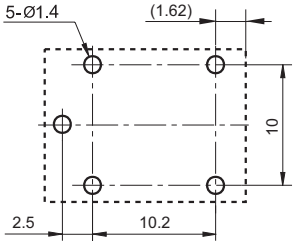
Unit: mm

Outline Dimensions



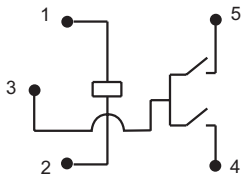
PCB Layout

(Bottom view)



Wiring Diagram

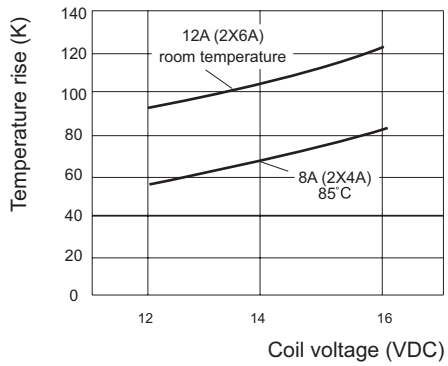
(Bottom view)



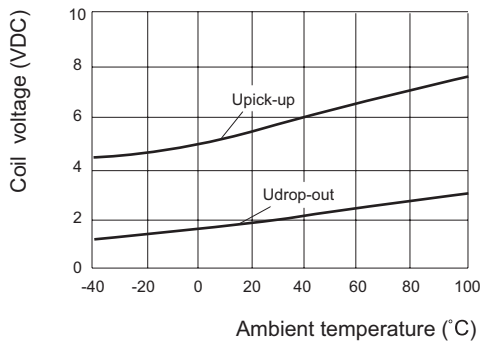
Notes: 1) * The additional tin top is max. 1mm;
2) The terminal vertical deviation tolerance is 0.2mm;
3) In case of no tolerance shown in outline dimension:
outline dimension ≤1mm, tolerance should be ±0.2mm,
outline dimension >1mm and ≤5mm, tolerance should be ±0.3m,
outline dimension >5mm, tolerance should be ±0.4mm;
4) The tolerance without indicating for PCB layout is always ±0.1mm.

CHARACTERISTIC CURVES

1. Coil temperature rise

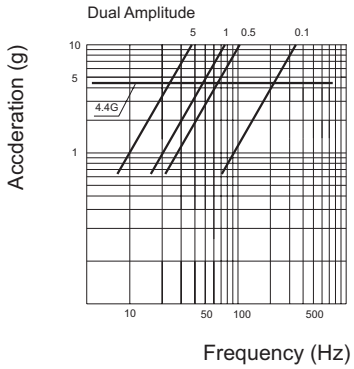


2. Pick-up & drop-out voltage - ambient temperature characteristics

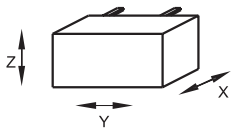


CHARACTERISTIC CURVES

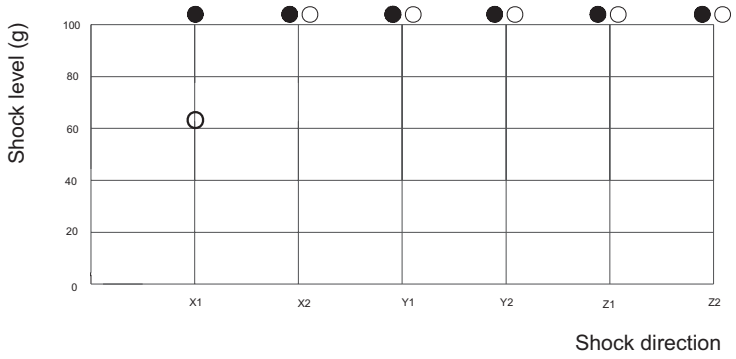
3. Vibration resistance characteristics



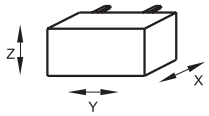
Frequency: 10 to 500 HZ
Acceleration: 10g max.
Direction of vibration: See diagram as following
Detection level: 100 us



4. Shock resistance characteristics

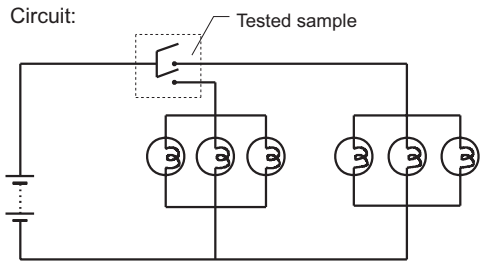


Shock application time: 11 ms
Test material: coil, energized & de-energized
Shock direction: See diagram as following
Detection level: 100 us



○ : 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