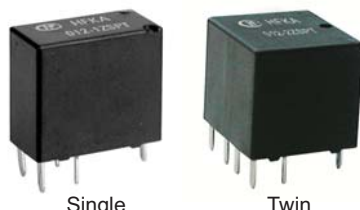


HFKA/HFKA-T

AUTOMOTIVE RELAY



Typical Applications

Power windows and doors, Central door lock, Sunroof, Seat adjustment, Mirror adjustment, Indicator lamp control, Wiper control

Features

- 25A motor lock load
- Extremely small relay
- Low pick-up type available
- Single and twin version available
- Coil wire insulation class H (180°C)
- HFKA-T (reflow soldering version) available
- RoHS & ELV compliant (555)

CHARACTERISTICS

Contact arrangement	1C (Single), 2C (Twin)
Voltage drop (initial) ¹⁾	Max.: 250mV (at 10A)
Max. switching current	30A ²⁾
Max. switching voltage	16VDC ²⁾
Max. carrying current	NO/NC: 25A 1h (at 20°C)
Min. contact load	1A 6VDC
Electrical life	1x10 ⁵ OPS
Mechanical life	1x10 ⁶ OPS 300OPS/min
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength ³⁾	between contacts: 500VAC between coil & contacts: 500VAC
Operate time	Typ.: 2.5ms Max.: 10ms (at nomi. vol.)
Release time	Typ.: 1.2ms Max.: 10ms ⁴⁾

Ambient temperature	HFKA: -40°C to +85°C HFKA-T: -40°C to +105°C
Storage temperature	-40°C to +155°C
Vibration resistance	10Hz to 500Hz 49m/s ² (5g)
Shock resistance	Functional: 98 m/s ² (10g) Destructive: 980 m/s ² (100g)
Termination	PCB ⁵⁾
Construction	HFKA: Sealed IP67 HFKA-T: Flux proof
Unit weight	Single: Approx. 4g Twin: Approx. 8g

1) Equivalent to the max. initial contact resistance is 50mΩ (at 1A 24VDC).

2) NO contact; See " Load limit curve ".

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

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

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

CONTACT DATA ³⁾

Load voltage	Load type ²⁾		Load current (A)		On/Off ratio		Electrical life (OPS)	Contact material	Ambient temp.	Load wiring diagram
			1C, 2C		On (s)	Off (s)				
			NO	NC						
14VDC	Motor locked	Make ¹⁾	25	---	0.3	19.7	1×10 ⁵	AgSnO ₂	20°C	
		Break	25	---						
	Simulate window operation	Make ¹⁾	25	---	0.2	4	1×10 ⁵	AgSnO ₂	20°C	
		Stable	10	---	2.3					
		Break	25	---	0.5					
	Simulate motor operation	Make ¹⁾	27	---	0.02	1.8	1×10 ⁵	AgSnO ₂	20°C	
		Transient	17	---	0.03					
		Break	8	---	0.15					



HONGFA RELAY

ISO9001、ISO/TS16949、ISO14001、OHSAS18001 CERTIFIED

2005 Rev. 1.00

- 1) Corresponds to the peak inrush current on initial actuation (motor).
- 2) When applied in flasher, a special silver alloy (AgSnO₂) contact material should be used and the ordering key should be 170 as a special suffix. Please heed the anode and cathode's request when wired, common terminal should connect with anode.
- 3) When the load requirement is different from content of the table above, please contact Hongfa for relay application support.

COIL DATA

at 20°C

	Nominal voltage (VDC)	Pick-up voltage (VDC)	Drop-out voltage (VDC)	Coil resistance ($\Omega \pm 10\%$)	Power consumption (W)	Max. allowable overdrive voltage ¹⁾ (VDC)	
						20°C	85°C
Standard HFKA/ST HFKA-T/T	12	7.2	1.0	225	0.64	20	16
Low pick-up voltage HFKA/SPT HFKA-T/PT	12	6.5	1.0	180	0.8	18	14

1) Max. allowable overdrive voltage is stated with no load applied.

ORDERING INFORMATION

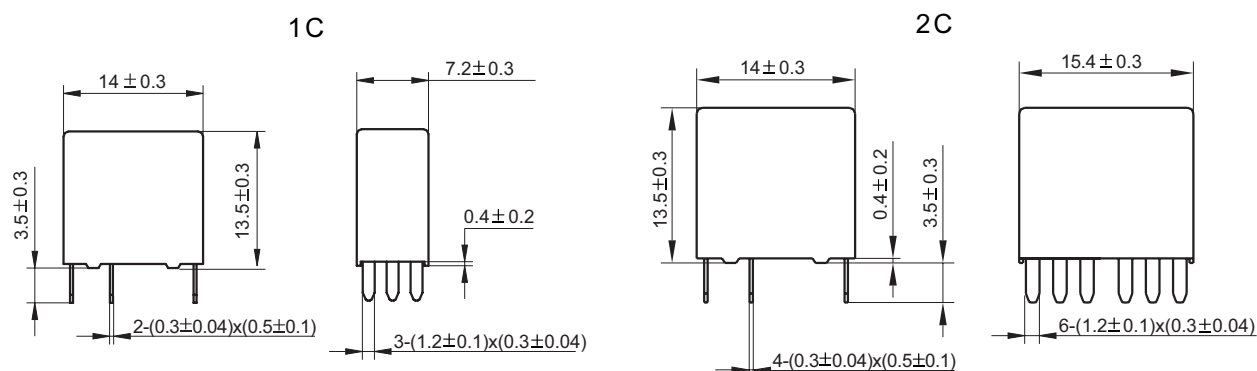
		HFKA ²⁾ /		012	1Z	S	P	T	XXX
Type		HFKA: Standard HFKA-T: Reflow soldering version ¹⁾							
Coil voltage		12VDC							
Contact arrangement		1Z: 1 Form C (Single version) 2Z: 2 Form C (Twin version)							
Structure		S: Sealed IP67 (HFKA) Nil: Flux proof (HFKA-T)							
Coil power		P: Low pick up voltage Nil: Standard							
Contact material		T: AgSnO ₂							
Customer special code		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) The structure of HFKA-T is only flux proof, the open vent hole is on the top of the relay.
- 2) HFKA/HFKA-T is an environmental friendly product, please mark special code (555) when order.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

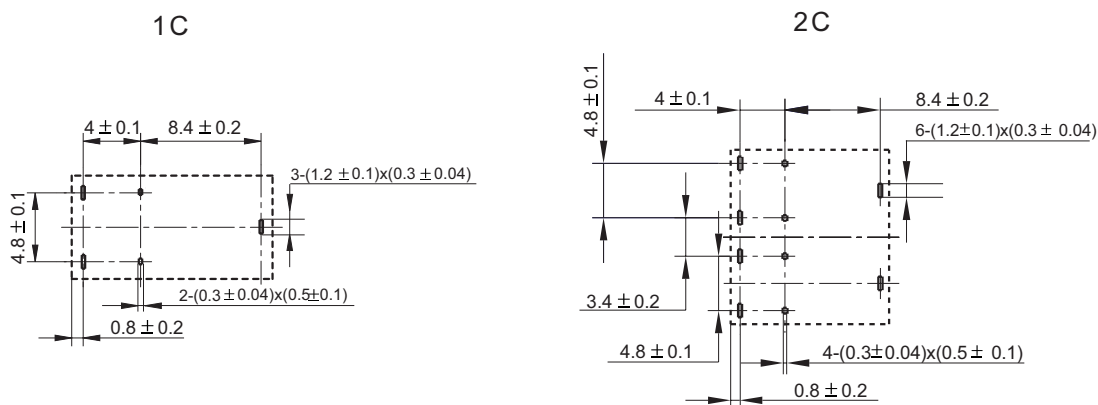


Remark: The dimensions of the terminals are before tin dipping; the terminal vertical deviation tolerance is 0.2mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout

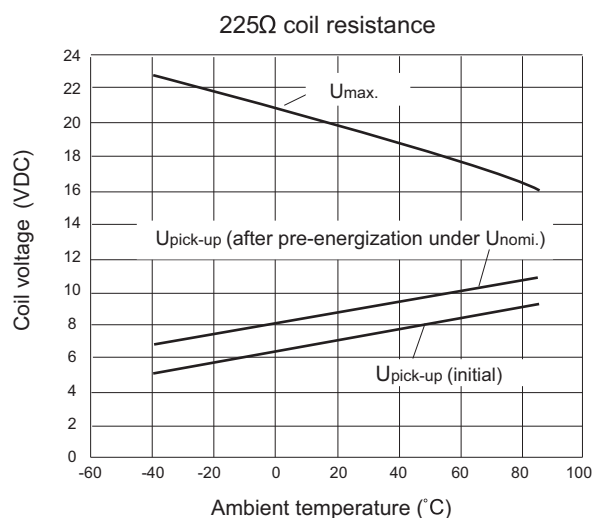


Wiring Diagram (Bottom view)



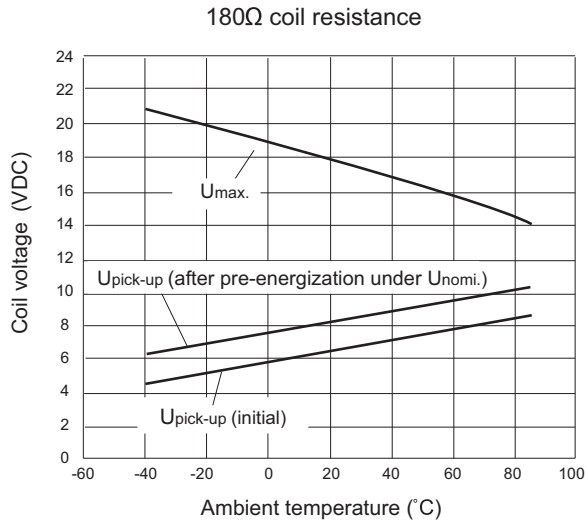
CHARACTERISTIC CURVES

1. Coil operating voltage range



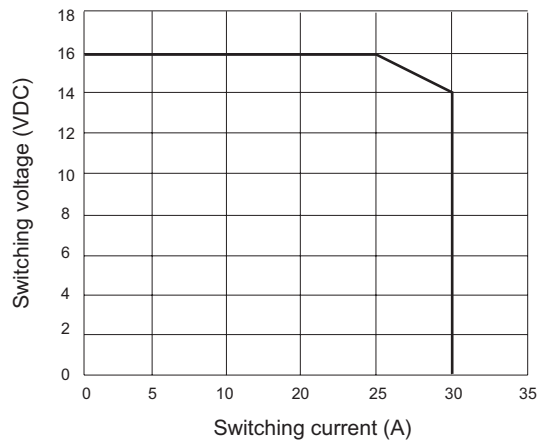
- 1) The curve is applicable under the condition of no contact load applied.
- 2) The operating voltage is connected with coil pre-energized time and voltage. After pre-energized, the operating voltage will increase.
- 3) The maximum allowable coil temperature is 180°C. For the coil temperature rise which is measured by resistance is average value, we recommend the coil temperature should be below 170°C under the different application ambient, different coil voltage and different load etc.
- 4) If the actual operating coil voltage is out of the specified range, please contact Hongfa for further details.

CHARACTERISTIC CURVES



- 1) The curve is applicable under the condition of no contact load applied.
- 2) The operating voltage is connected with coil pre-energized time and voltage. After pre-energized, the operating voltage will increase.
- 3) The maximum allowable coil temperature is 180°C. For the coil temperature rise which is measured by resistance is average value, we recommend the coil temperature should be below 170°C under the different application ambient, different coil voltage and different load etc.
- 4) If the actual operating coil voltage is out of the specified range, please contact Hongfa for further details.

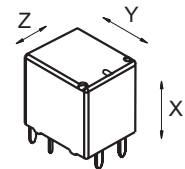
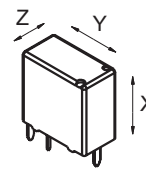
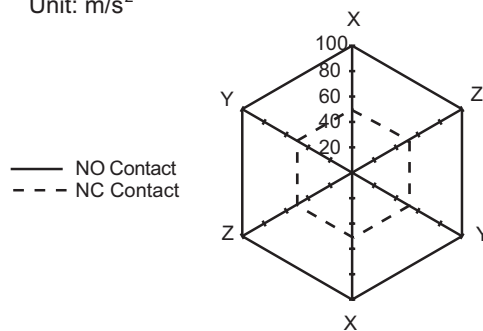
2. Load limit curve



- 1) This chart takes NO contact as example.
- 2) The load and electrical life tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.

3. Vibration resistance characteristics

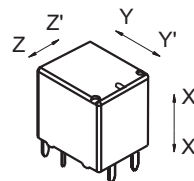
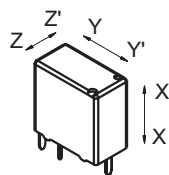
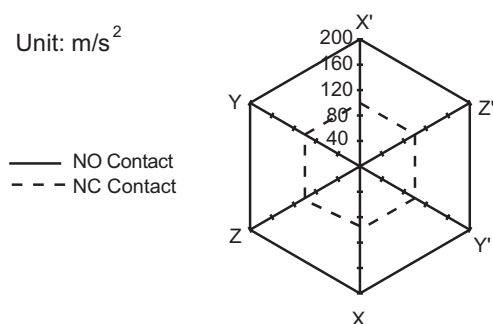
Unit: m/s²



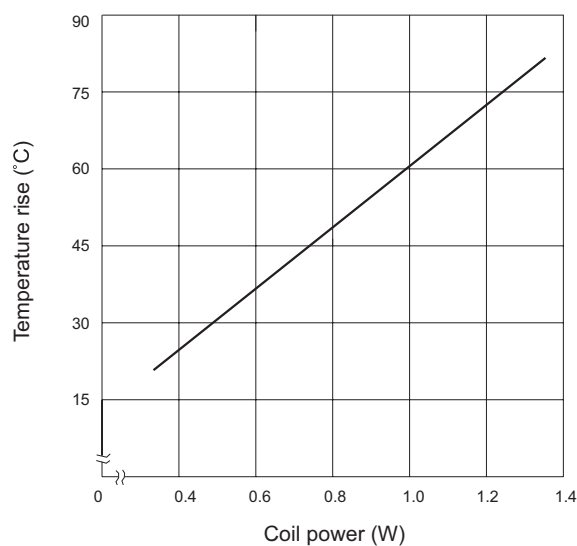
CHARACTERISTIC CURVES

4. Shock resistance characteristics

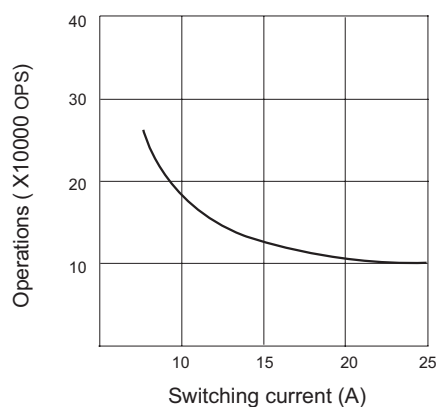
Unit: m/s^2



5. Coil temperature rise curve



6. Electrical life curve



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.

© 2005 Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.