



Przełącznik HFKP-012-1H4T; Hongfa; 45A; 12V DC; 1 st. zwierny;



Dane techniczne:

Nazwa: HFKP-012-1H4T

Wersja przełącznika: samochodowy

Konfiguracja styków: 1 styk zwierny

Napięcie cewki nominalne: 12VDC

Prąd styków maks. : 45A

Producent: HONGFA



Typical Applications

Turning lamp, dangerous signal&scram lamp control, Audio system, Air-conditioning, Fuel pump control, Low temperature control, Seat adjustment, Window defoggers, Starter solenoid switches, Power door & windows, Anti-theft lock, Central door lock

Features

- 45 A switching capability
- 1 Form A & 1 Form C contact arrangement
- PCB terminals available
- Two pin out choices
- Open and sealed IP67 types available
- RoHS & ELV compliant (555)

CHARACTERISTICS

Contact arrangement	1A, 1C
Voltage drop (initial) ¹⁾	Typ.: 20mV (at 10A) Max.: 250mV (at 10A)
Min. contact load	1A 6VDC
Electrical life	See " CONTACT DATA " table
Mechanical life	1x10 ⁷ OPS 300OPS/min
Max. switching voltage	75VDC ²⁾
Max. switching current ³⁾	Make: 100A (Lamp, Inrush current) Break: 60A
Initial insulation resistance	500MΩ (at 500VDC)
Dielectric strength ⁴⁾	between contacts: 500VAC between coil & contacts: 500VAC
Operate time	Typ.: 5ms Max.: 10ms (at nomi. vol.)
Release time	Typ.: 3ms Max.: 10ms ⁵⁾

Ambient temperature	-40°C to +125°C
Storage temperature	-40°C to +155°C
Vibration resistance	10Hz to 40Hz 1.27mm DA
	40Hz to 70Hz 49m/s ² (5g)
	70Hz to 100Hz 0.5mm DA
	100Hz to 500Hz 98m/s ² (10g)
Shock resistance	Functional: 98m/s ² (10g)
	Destructive: 196m/s ² (20g)
Termination	PCB ⁶⁾
Construction	Sealed IP67 & Open
Unit weight	Approx. 20g

- 1) Equivalent to the max. initial contact resistance is 100mΩ (at 1A 6VDC).
- 2) NO contact, see "Load limit curve".
- 3) NO contact, at 14VDC.
- 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) 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 ³⁾

Load voltage	Load type		Load current (A)			On/Off ratio		Electrical life	Contact material	Ambient temp.	Load wiring diagram ²⁾			
			1C		1A	On (s)	Off (s)							
			NO	NC	NO									
14VDC	Resistive	Make	45	30	45	1.5	1.5	1×10 ⁵ OPS	AgSnO ₂	23°C	See diagram 1			
		Break	45	30	45									
	Resistive	Make	45	30	45	1.5	1.5	1×10 ⁵ OPS	AgNi0.15					
		Break	45	30	45									
	Flasher ¹⁾	2×21W+5W		---	2×21W+5W		0.375	0.375	1000h			Special AgSnO ₂	23°C	See diagram 2
		4×21W+2×5W		---	4×21W+2×5W		0.375	0.375	360h					

- 1) When it is utilized in flasher, a special AgSnO₂ 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.
- 2) The load wiring diagrams are listed below:

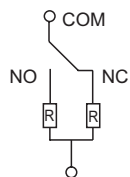


diagram 1

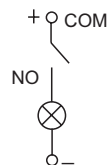


diagram 2

- 3) 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 ($\Omega \pm 10\%$)	Power consumption (W)	Max. allowable overdrive voltage ¹⁾ (VDC)	
						23°C	85°C
Standard	6	3.3	0.6	19	1.9	9.0	6.5
	12	6.8	1.2	90	1.6	19.6	14.3
	24	13.9	2.4	362	1.6	39.3	28.6
Sensitive	6	4.5	0.6	30	1.2	11.0	8.0
	12	9.0	1.2	120	1.2	22.1	16.0
	24	19.2	2.4	480	1.2	44.3	30.0

1) Max. allowable overdrive voltage is stated with no load applied, illustrated with open version.

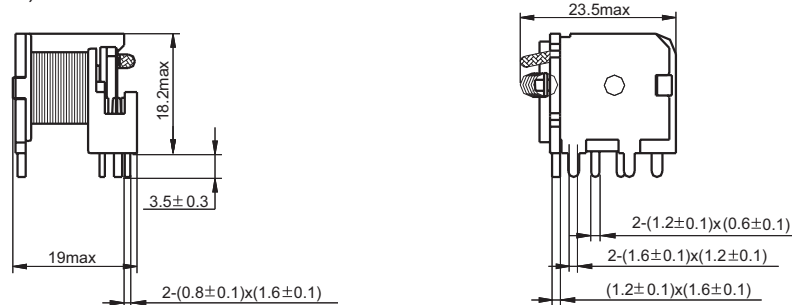
ORDERING INFORMATION

	HFKP¹⁾ /	012	1H	1	T	S	XXX
Type							
Coil voltage	006: 6VDC 012: 12VDC 024: 24VDC						
Contact arrangement	1H: 1 Form A 1Z: 1 Form C						
Version	1: U.S.A. Open Model 2: U.S.A. Sealed Model 3: European Open Model 4: European Sealed Model 5: U.S.A. Sealed Model, 3 yoke terminals 6: European Sealed Model, 3 yoke terminals						
Contact Material	T: AgSnO₂ Nil: AgNi0.15						
Coil Power	S: Sensitive Nil: Standard						
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) HFKP is an environmental friendly product, please mark special code (555) when order.

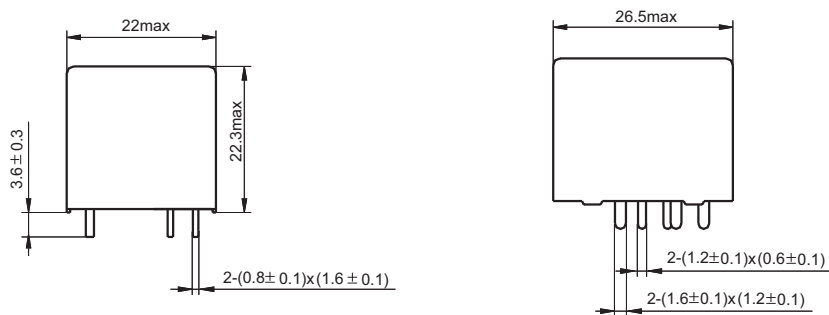
Outline Dimensions

HFKP/□□□-1□1□□(XXX)



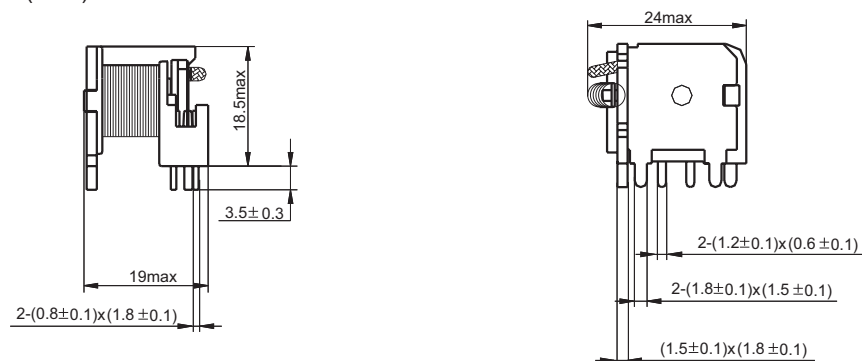
Remark: The dimensions of the terminals are before tin dipping; the terminal vertical deviation tolerance is 0.2mm.

HFKP/□□□-1□2□□(XXX)



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

HFKP/□□□-1□3□□(XXX)

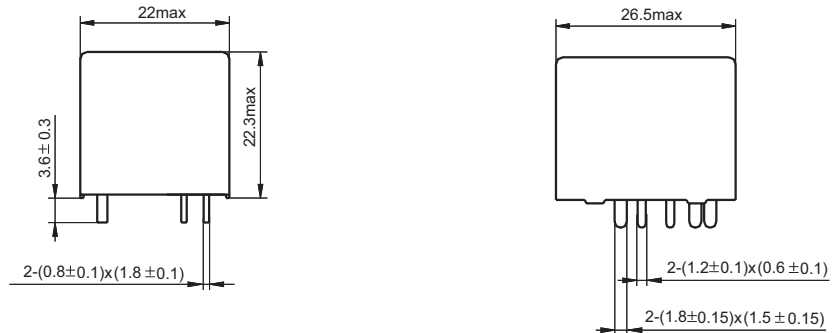


Remark: The dimensions of the terminals are before tin dipping; the terminal vertical deviation tolerance is 0.2mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

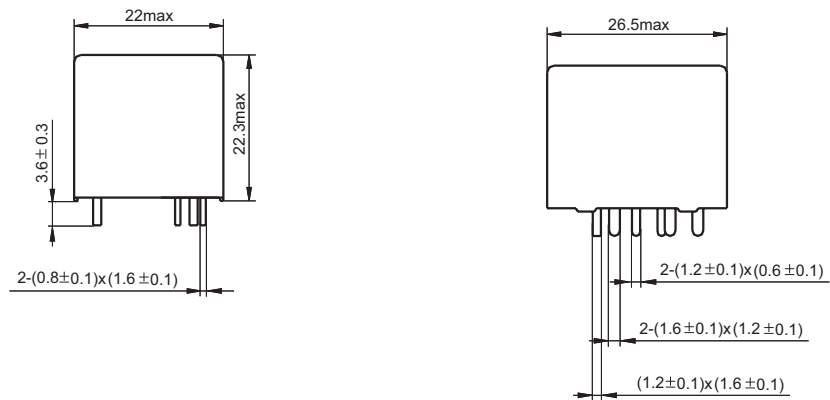
Unit: mm

HFKP/□□□-1□4□□(XXX)



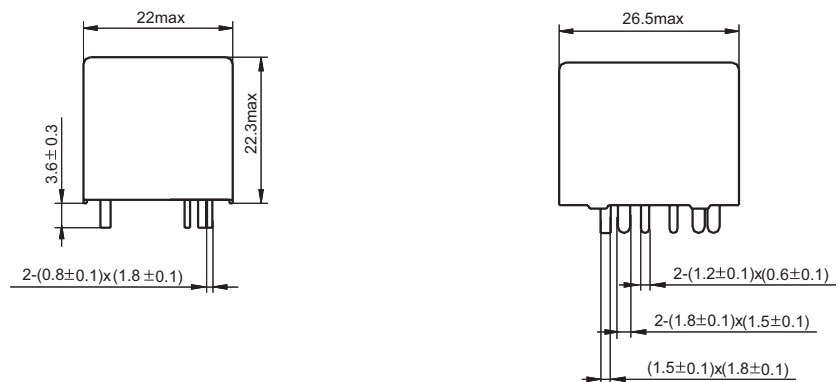
Remark: The dimensions of the terminals are before tin dipping; the terminal vertical deviation tolerance is 0.2mm.

HFKP/□□□-1□5□□(XXX)



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

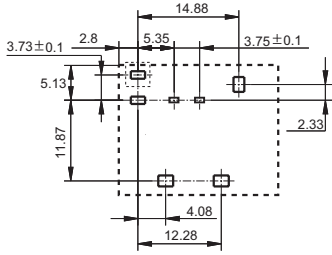
HFKP/□□□-1□6□□(XXX)



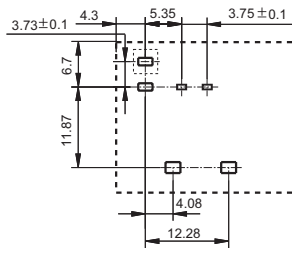
Remark: The dimensions of the terminals are before tin dipping; the terminal vertical deviation tolerance is 0.2mm.

PCB Layout

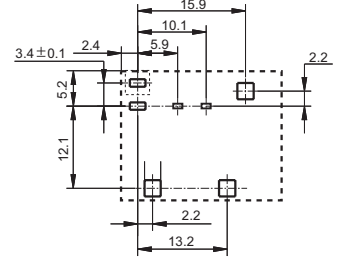
HFKP/□□□-1□1□□(XXX)



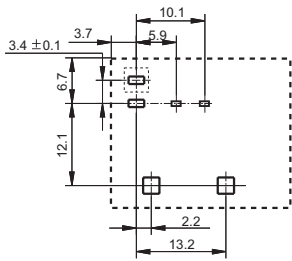
HFKP/□□□-1□2□□(XXX)



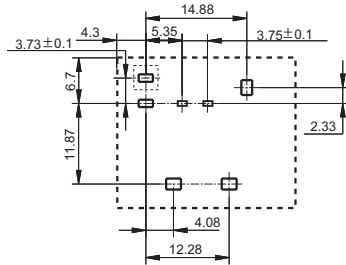
HFKP/□□□-1□3□□(XXX)



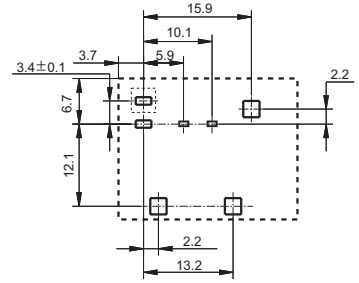
HFKP/□□□-1□4□□(XXX)



HFKP/□□□-1□5□□(XXX)

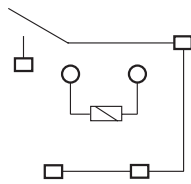


HFKP/□□□-1□6□□(XXX)

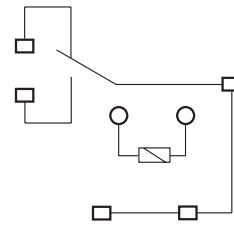


Wiring Diagram (Bottom view)

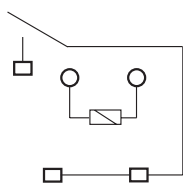
- HFKP/□□□-1H1□□(XXX)
- HFKP/□□□-1H3□□(XXX)
- HFKP/□□□-1H5□□(XXX)
- HFKP/□□□-1H6□□(XXX)



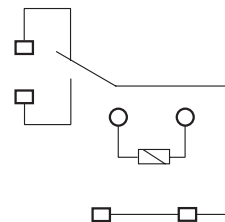
- HFKP/□□□-1Z1□□(XXX)
- HFKP/□□□-1Z3□□(XXX)
- HFKP/□□□-1Z5□□(XXX)
- HFKP/□□□-1Z6□□(XXX)



- HFKP/□□□-1H2□□(XXX)
- HFKP/□□□-1H4□□(XXX)

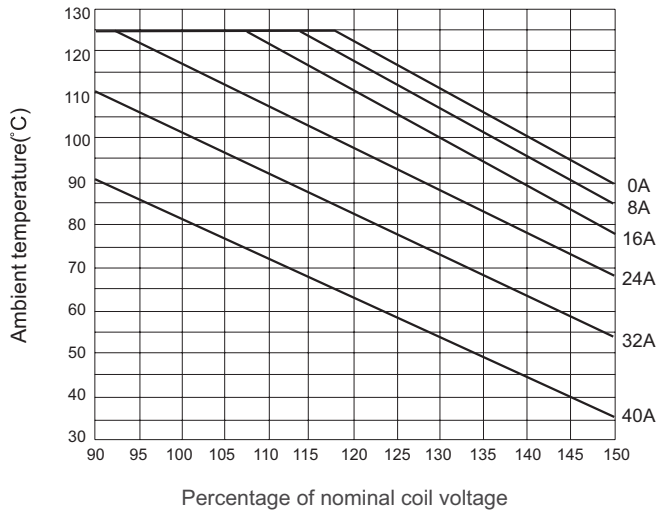


- HFKP/□□□-1Z2□□(XXX)
- HFKP/□□□-1Z4□□(XXX)



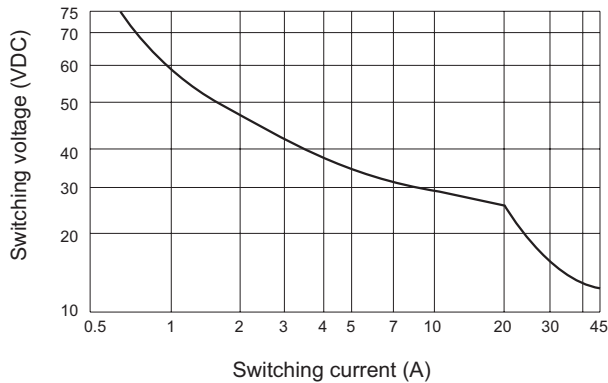
CHARACTERISTIC CURVES

1. Coil operating voltage range



- 1) This chart takes sensitive open version as example.
- 2) The maximum allowable coil temperature is 155°C. For the coil temperature rise which is measured by resistance is average value, we recommend the coil temperature should be below 130°C under the different application ambient, different coil voltage and different load etc.
- 3) If the actual operating coil voltage is out of the specified range, please contact Hongfa for further details.

2. Load limit curve (at 23°C)



- 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.

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.