

# HF32FV

## SUBMINIATURE INTERMEDIATE POWER RELAY



File No.:E134517



File No.:40012204



File No.:CQC14002120720



### Features

- 5A switching capability
- Dielectric strength 4kV (between coil and contacts)
- 1 Form A configurations
- Standard PCB layout
- Plastic sealed and flux proofed types available
- UL insulation system: Class F
- Product in accordance to IEC 60335-1 available
- Meet reinforce insulation
- Relow soldering version available
- Halogen-free products are available

### CONTACT DATA

Contact arrangement	1A	
Contact resistance 1)	100mΩ max.(at 1A 6VDC)	
Contact material	AgSnO <sub>2</sub> , AgCdO, AgNi	
Contact rating (Res. load)	Standard	Sensitive
	5A 250VAC 5A 30VDC	3A 250VAC 3A 30VDC
Max. switching voltage	250VAC / 30VDC	
Max. switching current	5A	3A
Max. switching power	1250VA / 150W	750VA / 90W
Mechanical endurance	1 x 10 <sup>7</sup> OPS	
Electrical endurance	Standard	1 x 10 <sup>5</sup> OPS (5A 250VAC Resistive load, at room temp., 1s on 9s off)
		5 x 10 <sup>4</sup> OPS (5A 250VAC Resistive load, at 85°C, 1s on 9s off)
	Sensitive	1 x 10 <sup>5</sup> OPS (3A 250VAC Resistive load, at room temp., 1s on 9s off)
		5 x 10 <sup>4</sup> OPS (3A 250VAC Resistive load, at 85°C, 1s on 9s off)

Notes: 1) The data shown above are initial values.

### CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1000VAC 1min
Surge withstand voltage	6kV(1.2 / 50μs)	
Operate time (at rated. volt.)	8ms max.	
Release time (at rated. volt.)	5ms max.	
Coil temperature rise(at nomi. volt.)	60k max.	
Shock * resistance	Functional	294m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance *	Functional	10Hz to 55Hz 1.5mm DA
Humidity	5% to 85% RH	
Ambient operating temperature	-40°C to 105°C	
Termination	PCB	
Unit weight	Approx. 6g	
Construction	Plastic sealed, Flux proofed	

Notes: 1) The data shown above are initial values.

2) \*Index is not in relay length direction.

3) In order to obtain better electrical endurance, it's better not use this product in the high temperature environment.

4) For working environment temperature of 105°C, please contact with Hongfa.



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2019 Rev. 1.00

### COIL

Coil power	Standard: Approx. 450mW; Sensitive: Approx. 200mW
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### COIL DATA

at 23°C

#### Standard Type

Nominal Voltage VDC	Pick-up Voltage VDC max.1)	Drop-out Voltage VDC min.1)	Max. Voltage VDC*2)	Coil Resistance Ω
3	2.25	0.15	3.9	20 x (1±10%)
5	3.75	0.25	6.5	55 x (1±10%)
6	4.50	0.30	7.8	80 x (1±10%)
9	6.75	0.45	11.7	180 x (1±10%)
12	9.00	0.60	15.6	320 x (1±10%)
18	13.5	0.90	23.4	720 x (1±10%)
24	18.0	1.20	31.2	1280 x (1±10%)
48	36.0	2.40	62.4	5120 x (1±10%)

#### Sensitive Type

Nominal Voltage VDC	Pick-up Voltage VDC max.1)	Drop-out Voltage VDC min.1)	Max. Voltage VDC*2)	Coil Resistance Ω
3	2.25	0.15	4.5	45 x (1±10%)
5	3.75	0.25	7.5	125 x (1±10%)
6	4.50	0.30	9.0	180 x (1±10%)
9	6.75	0.45	13.5	400 x (1±10%)
12	9.00	0.60	18.0	720 x (1±10%)
18	13.5	0.90	27.0	1600 x (1±10%)
24	18.0	1.20	36.0	2800 x (1±10%)
48	36.0	2.40	72.0	11520 x (1±10%)

Notes: 1) The data shown above are initial values.

2)\* Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

## SAFETY APPROVAL RATINGS

UL/CUL	AgSnO <sub>2</sub>	5A 277VAC /250VAC General Use at 40°C 5A 277VAC/250VAC General Use at 85°C 5A 30VDC Resistive at 85°C 300W 120VAC Tunsten at 40°C 1/4HP 250VAC at 85°C 3A 277VAC/250VAC General Use (Sensitive) at 85°C 5A 277VAC/250VAC Resistive at 105°C 3A 30VDC Resistive (Sensitive) at 85°C TV-3 120VAC at 40°C
	AgCdO	5A 277VAC/250VAC General Use at 85°C 5A 30VDC Resistive at 85°C
	AgNi	5A 277VAC/250VAC General Use at 85°C 5A 30VDC Resistive at 85°C 3A 30VDC Resistive (Sensitive) at 85°C 3A 277VAC/250VAC General Use (Sensitive) at 85°C
VDE	AgSnO <sub>2</sub>	250VAC 4(2) Inductive load at 85°C 5A 30VDC Resistive at 85°C 5A 277VAC/250VAC Resistive at 85°C 3A 277VAC/250VAC Resistive at 85°C 3A 30VDC Resistive (Sensitive) at 85°C
	AgCdO	5A 277VAC/250VAC Resistive at 85°C 5A 30VDC Resistive at 85°C
	AgNi	5A 277VAC/250VAC Resistive at 85°C 3A 277VAC/250VAC Resistive (Sensitive) at 85°C
CQC	AgSnO <sub>2</sub>	5A 277VAC/250VAC Resistive at 85°C 5A 30VDC Resistive at 85°C 3A 277VAC/250VAC Resistive (Sensitive) at 85°C
	AgCdO	5A 277VAC/250VAC Resistive at 85°C 5A 30VDC Resistive at 85°C
	AgNi	5A 277VAC/250VAC Resistive at 85°C 5A 30VDC Resistive at 85°C 3A 30VDC Resistive (Sensitive) at 85°C 3A 277VAC/250VAC Resistive (Sensitive) at 85°C

Notes: 1) All values unspecified are at room temperature.

2) Only typical loads are listed above. Other load specifications can be available upon request.

## ORDERING INFORMATION

Type	HF32FV / 12 -H S L T F (XXX)
Coil voltage	3, 5, 6, 9, 12, 18, 24, 48VDC
Contact arrangement	H: 1 Form A
Construction <sup>1)2)</sup>	S: Plastic sealed Nil: Flux proofed
Coil power	L: Sensitive <sup>3)</sup> Nil: Standard
Contact material	T: AgSnO <sub>2</sub> Nil: AgCdO 3: AgNi
Insulation standard	F: Class F
Customer special code <sup>5)</sup>	XXX: Customer special requirement Nil: Standard

Notes:1) We recommend flux proofed types for a clean environment (free from contaminations like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.).

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

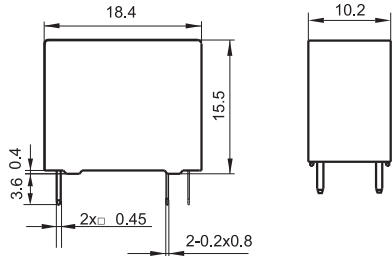
3) Sensitive loading: 3A.

4) The customer special requirement express as special code after evaluating by Hongfa. e.g.(335) stands for product in accordance to IEC 60335-1 (GWT); e.g.(590) stands for product in accordance to TV-3 loading,only for standard type.

# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

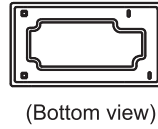
Unit: mm

## Outline Dimensions

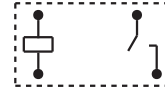


## Wiring Diagram

(Bottom view)

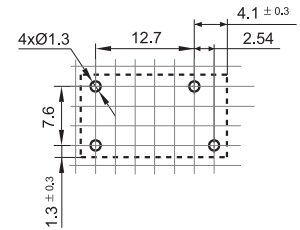


(Bottom view)



## PCB Layout

(Bottom view)



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

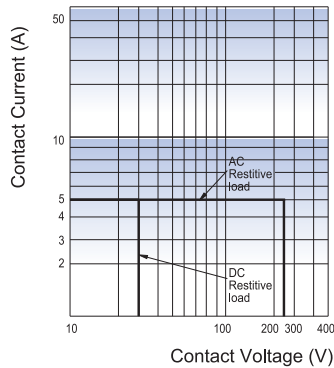
2) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1$ mm, tolerance should be  $\pm 0.2$ mm; outline dimension  $> 1$ mm and  $\leq 5$ mm, tolerance should be  $\pm 0.3$ mm; outline dimension  $> 5$ mm, tolerance should be  $\pm 0.4$ mm.

3) The tolerance without indicating for PCB layout is always  $\pm 0.1$ mm.

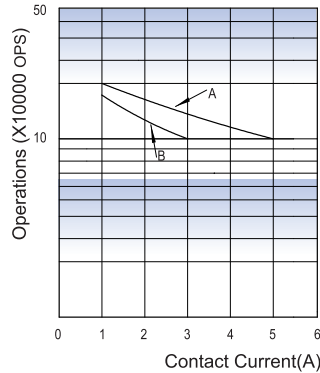
4) The width of the gridding is 2.54mm.

# CHARACTERISTIC CURVES

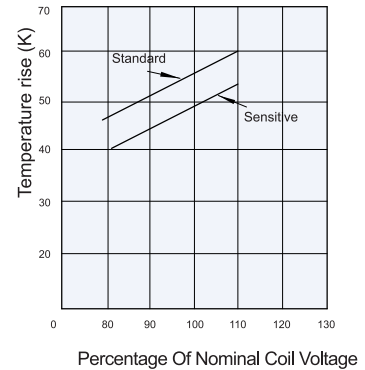
## MAXIMUM SWITCHING POWER



## ENDURANCE CURVE



## COIL TEMPERATURE RISE



### Remark:

1. Curve A: standard

Curve B: sensitive

2. Testing conditions:

Standard: flux proofed, resistive load, 5A 250VAC, at room temp. 1s on 9s off.

Sensitive: flux proofed, resistive load, 3A 250VAC, at room temp. 1s on 9s off.

### Testing conditions:

Standard: 5A at 85°C.

Sensitive: 3A at 85°C

Mounting distance: 5mm

## Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications 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.