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		$AgSnO_2$, AgCdO, AgNi	
Contact rating (Res. load)		Standard	Sensitive
		5A 250VAC 5A 30VDC	3A 250VAC 3A 30VDC
Max. switching voltager		277VAC / 30VDC	
Max. switching current		5A	3A
Max. switching power		1385VA / 150W	831VA / 90W
Mechanical endurance		1 x 10^7OPS	
Electrical endurance	Standard	1 x 10^5OPS (5A 250VAC Resistive load, at room temp., 1s on 9s off) 5 x 10^4OPS (5A 250VAC Resistive load, at 85°C, 1s on 9s off)	
	Sensitive	1 x 10^5OPS (3A 250VAC Resistive load, at room temp., 1s on 9s off) 5 x 10^4OPS (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.
Shock * resistance	Functional	294m/s²
	Destructive	980m/s²
Vibration resistance *	Functional	10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient oprating 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) For working environment temperature ＞ 85°C,please contact with Hongfa.

COIL

Coil power	Standard: Approx. 450mW; Sensitive: Approx. 200mW

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	$AgSnO_2$	5A 277VAC /250VAC General Use at 40˚C 5A 277VAC/250VAC General Use at 85˚C 5A 30VDC General Use 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 General Use (Sensitive) at 85˚C 3A 277VAC/250VAC General Use (Sensitive) at 105˚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 5A 277VAC/250VAC General Use at 105˚C 3A 277VAC/250VAC General Use (Sensitive) at 105˚C
VDE	$AgSnO_2$	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 5A 277VAC/250VAC Resistive at 105˚C 3A 277VAC/250VAC Resistive(Sensitive) at 105˚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 5A 277VAC/250VAC Resistive at 105˚C 3A 277VAC/250VAC Resistive (Sensitive) at 105˚C
CQC	$AgSnO_2$	5A 277VAC/250VAC Resistive at 85˚C 5A 30VDC Resistive at 85˚C 3A 277VAC/250VAC Resistive (Sensitive) at 85˚C 5A 277VAC/250VAC Resistive at 105˚C 3A 277VAC/250VAC Resistive (Sensitive) at 105˚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 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

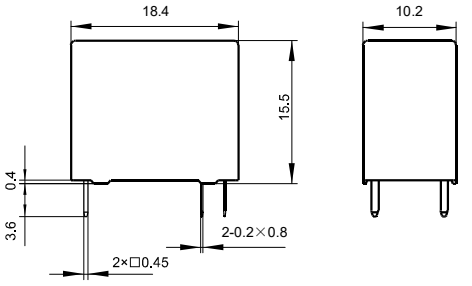
	HF32FV /	12	-H	S	L	T	F	(XXX)
Type								
Coil voltage	3, 5, 6, 9, 12, 18, 24, 48VDC							
Contact arrangement	**H:** 1 Form A							
Construction[1)2)]	**S:** Plastic sealed	**Nil:** Flux proofed						
Coil power	**L:** Sensitive[3)]	**Nil:** Standard						
Contact material	**T:** $AgSnO_2$	**Nil:** AgCdO	**3:** AgNi					
Insulation standard	**F:** Class F							
Customer special code[4)]	**XXX:** Customer special requirement		**Nil:** Standard					

Notes:1) We recommend flux proofed types for a clean environment (free from contaminations like H_2S, SO_2, NO_2, 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.
5) Two packing methods available: paper box package, tube package,Standard tube packing length is 553mm. Any special requirement needed, please contact us for more details.
6) For products that should meet the explosion-proof requirements of "IEC 60079 series",please note [Ex] after the specification while placing orders.Not all products have explosion-proof certification,so please contact us if necessary, in order to select the suitable products.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

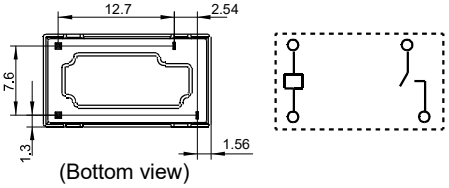
Unit: mm

Outline Dimensions



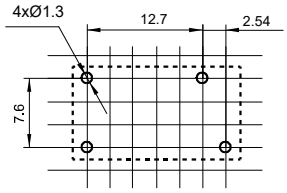
Wiring Diagram

(Bottom view)



PCB Layout

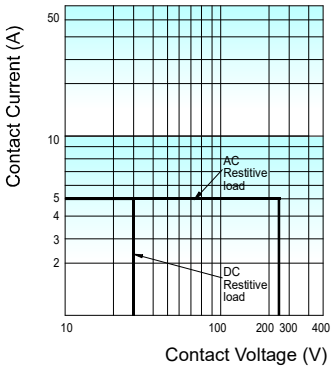
(Bottom view)



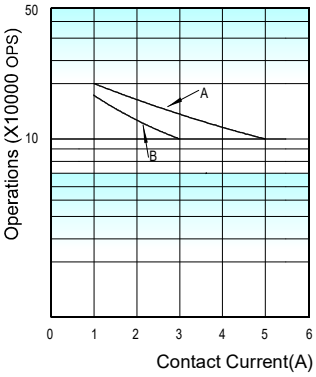
Remark: 1) *The additional tin top is max. 1mm.
2) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension ＞1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension ＞5mm, tolerance should be ±0.4mm.
3) The tolerance without indicating for PCB layout is always ±0.1mm.
4) The width of the gridding is 2.54mm.

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



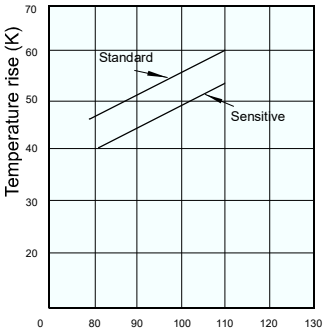
ENDURANCE CURVE



Remark:

1. Carve A: standard
   Carve 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.

COIL TEMPERATURE RISE



Testing conditions:

Standard: 5A at 85˚C.
Sensitive: 3A at 85˚C
Mounting distance: 5mm