HF32FV-G/HF32FV-T SUBMINIATURE INTERMEDIATE POWER RELAY

c UL us
File No.:E134517

VDE
File No.:40012204

cqc
File No.:CQC14002120720

Features

- 10A switching capability
- Dielectric strength 4kV (between coil and contacts)
- TV-5 products are available
- Relow soldering version available
- Halogen-free products are available
- Product in accordance to IEC60335-1 available
- Product in accordance to IEC60730-1 available
- Product in accordance to IEC62368-1 available
- Meet reinforce insulation
- UL insulation system: Class F

RoHS compliant

CONTACT DATA

Contact arrangement		1A	
Contact resistance[1)]		100mΩ max.(at 1A 6VDC)	
Contact material		$AgNi^{2)}$,$AgSnO_2$, $AgCdO^{2)}$	
Contact rating (Res. load)		Standard	Sensitive
		10A 250VAC	
Max. switching voltager		277VAC	
Max. switching current		10A	
Max. switching power		2770VA	
Mechanical endurance		1×10^7OPS	
Electrical endurance	Standard	HF32FV-G: 1×10^5OPS (10A 250VAC Resistive load, at room temp., 1s on 9s off) 5×10^4OPS (10A 250VAC Resistive load, at 85°C, 1s on 9s off) HF32FV-T: 5×10^4OPS (10A 250VAC Resistive load, at 105°C, 1s on 9s off)	
	Sensitive	HF32FV-G(no suffix 590) 1×10^5OPS (8A 250VAC Resistive load, at room temp., 1s on 9s off) 5×10^4OPS (8A 250VAC Resistive load, at 85°C, 1s on 9s off) 5×10^4OPS (10A 250VAC Resistive load, at room temp., 1s on 9s off) 3×10^4OPS (10A 250VAC Resistive load, at 85°C,,1s on 9s off) HF32FV-G(590): 5×10^4 OPS (10A 250VAC Resistive load,at 85°C,1s on 9s off) TV-5 HF32FV-T 3×10^4OPS (10A 250VAC Resistive load, at 105°C, 1s on 9s off)	

Notes: 1) The data shown above are initial values.
2) Only applicable to HF32FV-G no suffix 590.

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*2) resistance	Functional	294m/s²
	Destructive	980m/s²
Vibration resistance*2)	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) HF32FV-T only provides Flux proofed;
3) 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	HF32FV-G	$AgSnO_2$	10A 277VAC /250VAC General use	85˚C
			10A 277VAC/250VAC Resistive Load	40˚C
			10A 277VAC/250VAC Resistive Load	105˚C
			10A 277VAC/250VAC General use(Sensitive)	105˚C
			10A 277VAC/250VAC Resistive Load(Sensitive)	40˚C
			10A 277VAC/250VAC Resistive Load(Sensitive)	85˚C
			8A 277VAC/250VAC General use(Sensitive)	85˚C
			TV-5 120VAC(suffix 590)	40˚C
			3A 120VAC electronic ballast(Sensitive suffix 590)	85˚C
		AgCdO	10A 277VAC/250VAC General use	85˚C
			10A 277VAC/250VAC Resistive Load	105˚C
			10A 30VDC Resistive Load	85˚C
			10A 277VAC/250VAC Resistive Load	40˚C
			8A 277VAC/250VAC General use(Sensitive)	85˚C
		AgNi	10A 277VAC/250VAC Resistive Load	40˚C
			8A 277VAC/250VAC Resistive Load(Sensitive)	40˚C
			10A 277VAC/250VAC General use	105˚C
			10A 277VAC/250VAC General use(Sensitive)	105˚C
	HF32FV-T	$AgSnO_2$	10A 277VAC/250VAC General use	105˚C
			10A 277VAC/250VAC Resistive Load	105˚C
			1/3HP 250VAC Motor Load	105˚C
			10A 277VAC/250VAC General use(Sensitive)	105˚C
VDE	HF32FV-G	$AgSnO_2$	10A 277VAC/250VAC Resistive Load	85˚C
			10A 277VAC/250VAC Resistive Load	105˚C
			10A 277VAC/250VAC Resistive Load(Sensitive)	85˚C
			8A 277VAC/250VAC Resistive Load(Sensitive)	85˚C
			10A 277VAC/250VAC Resistive Load(Sensitive)	105˚C
		AgCdO	10A 277VAC/250VAC Resistive Load	85˚C
		AgNi	10A 277VAC/250VAC Resistive Load	85˚C
			8A 277VAC/250VAC Resistive Load(Sensitive)	85˚C
	HF32FV-T	$AgSnO_2$	10A 277VAC/250VAC Resistive Load	105˚C
			5A 250VAC COSΦ 0.6	105˚C
			10A 277VAC/250VAC Resistive Load	105˚C
CQC	HF32FV-G	$AgSnO_2$	10A 277VAC/250VAC Resistive Load	85˚C
			8A 277VAC/250VAC Resistive Load(Sensitive)	85˚C
			10A 277VAC/250VAC Resistive Load(Sensitive)	85˚C
			10A 277VAC/250VAC Resistive Load	105˚C
			10A 277VAC/250VAC Resistive Load(Sensitive)	105˚C
		AgCdO	10A 277VAC/250VAC Resistive Load	85˚C
		AgNi	10A 277VAC/250VAC Resistive Load	85˚C
			8A 277VAC/250VAC Resistive Load(Sensitive)	85˚C
	HF32FV-T	$AgSnO_2$	10A 277VAC/250VAC Resistive Load	105˚C
			10A 277VAC/250VAC Resistive Load(Sensitive)	105˚C

Notes: 1) During high-temperature testing, open the ventilation holes on the casing.
2) Only typical loads are listed above. Other load specifications can be available upon request.

ORDERING INFORMATION

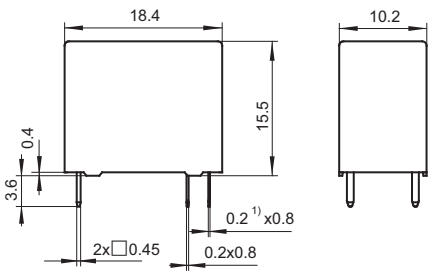
	HF32FV-G/	12	-H	S	L	T	F	(XXX)
Type	HF32FV-G HF32FV-T							
Coil voltage	3, 5, 6, 9, 12, 18, 24, 48VDC							
Contact arrangement	**H:** 1 Form A							
Construction [1) 2)]	**S:** Plastic sealed[3)]	**Nil:** Flux proofed						
Coil power	**L:** Sensitive	**Nil:** Standard						
Contact material	**T:** $AgSnO_2$	**3:** AgNi[4)]	**Nil:** AgCdO[4)]					
Insulation standard	**F:** Class F							
Special code[5)]	**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) Only applicable to HF32FV-G;
4) Only applicable to HF32FV-G with no suffix 590.
5) The customer special requirement express as special code after evaluating by Hongfa. e.g.(590) stands for product in accordance to the TV load and is only applicable to HF32FV-G;
6) 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.
7) 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

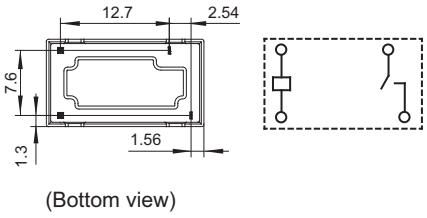
Unit: mm

Outline Dimensions



Wiring Diagram

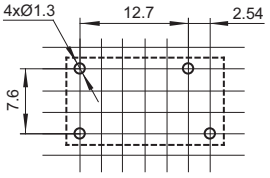
(Bottom view)



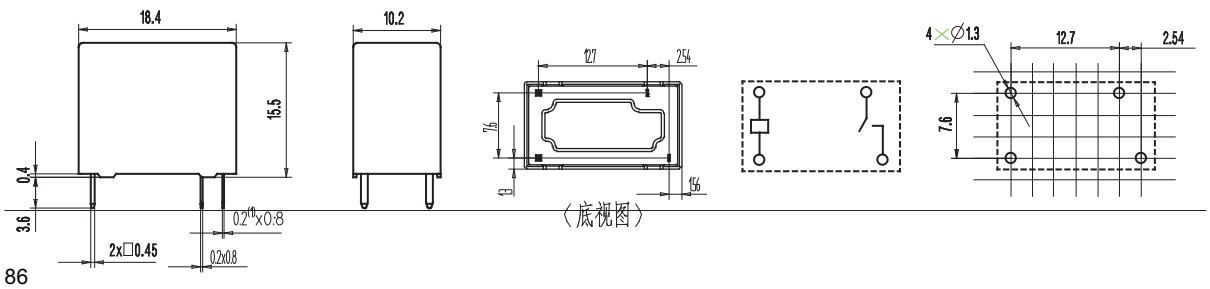
(Bottom view)

PCB Layout

(Bottom view)



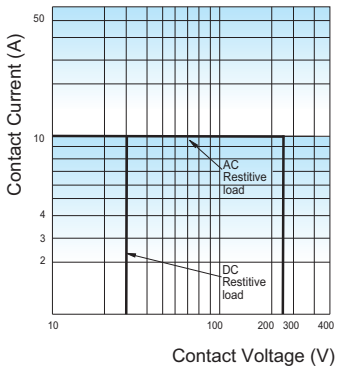
Remark: 1) Available in 0.2 and 0.3 specifications. For details, contact us.
2) The pin dimension of the product outline drawing is the size before tinning (it will become larger after tinning), and the mounting hole size is the recommended design size of the PCB board hole. The specific PCB board hole design size can be mapped and adjusted according to the actual product.
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 ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
4) The tolerance without indicating for PCB layout is always ±0.1mm.
5) The width of the gridding is 2.54mm.



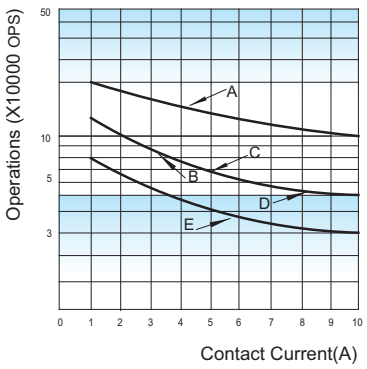
Remark: 1) the pin size of HF32FV-G sensitive with suffix 590 is 0.3mm

CHARACTERISTIC CURVES

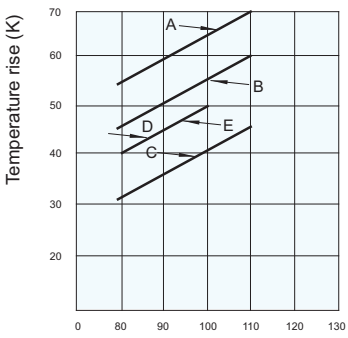
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



Remark:

1. Carve A: HF32FV-G standard
   Carve B: HF32FV-G sensitive(no suffix 590)
   Carve C: HF32FV-T sensitive(suffix 590)
   Carve D: HF32FV-T standard
   Carve E: HF32FV-T sensitive
2. Testing conditions:
   HF32FV-G Standard: flux proofed, resistive load, 10A/250VAC, at room temp. 1s on 9s off.
   HF32FV-G Sensitive(no suffix 590): flux proofed, resistive load, 10A/250VAC, at room temp. 1s on 9s off.
   HF32FV-G Sensitive(suffix 590): resistive load, 10A/250VAC, at 85˚C. 1s on 9s off.
   HF32FV-T Standard: flux proofed, resistive load, 10A/250VAC, 105˚C. 1s on 9s off.
   HF32FV-T Sensitive: flux proofed, resistive load, 10A/250VAC, 105˚C. 1s on 9s off.

Testing conditions:

10A at 85˚C(Carve A、Carve B、Carve C)
10A at 85˚C(Carve D、Carve E)
Mounting distance: 10mm