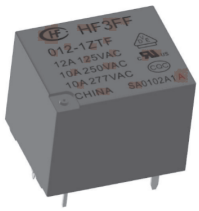
HF3FF SUBMINIATURE HIGH POWER RELAY

c UL us
File No.:E134517

VDE
File No.:40025218

File No.:R50148356

CQC
File No.:CQC13002098175
CQC16002140467



Features

- 15A 125VAC、10A 250VAC switching capability
- 1 Form A and 1 Form C configurations
- Subminiature, standard PCB layout
- Plastic sealed and flux proofed types available
- UL insulation system: Class F

CONTACT DATA

Contact arrangement	1A	1C	
		NO	NC
Contact resistance[1]	100mΩ max.(at 1A 6VDC)		
Contact material	$AgSnO_2$, AgCdO		
Contact rating (Res. load)	10A 277VAC 10A 28VDC	10A 277VAC[2] 10A 28VDC[2]	5A 250VAC
Max. switching voltage	277VAC / 28VDC		250VAC
Max. switching current	15A	10A	5A
Max. switching power	2770VA / 280W		1250VA
Mechanical endurance	1 x 10^7OPS		
Electrical endurance[3]	1H type: 1x 10^5OPS (10A 250VAC, Resistive load, Room temp., 1s on 9s off) 1Z type: 5 x 10^4OPS (NO: 5A/NC: 5A 250VAC,Resistive load, Room temp., 5s on 5s off)		

Notes: 1) The data shown above are initial values.
2) Applicable when NC is not energized with load.
3) For plastic sealed type, the venting-hole should be opened in electrical endurance test.

CHARACTERISTICS

Insulation resistance		100MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	1500VAC 1min
	Between open contacts	750VAC 1min
Operate time (at rated. volt.)		10ms max.
Release time (at rated. volt.)		5ms max.
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient oprating temperature		-40℃ to 105℃
Termination		PCB
Unit weight		Approx. 7g
Construction		Plastic sealed, Flux proofed

Notes: 1) The data shown above are initial values.
2) If the ambient temperature is higher than 85℃, please contact with Hongfa.

COIL

Coil power	Standard type: Approx. 360mW 48VDC:Approx. 510mW (899):Approx. 450mW

COIL DATA at 23℃

Nominal Voltage VDC	Pick-up Voltage VDC max.[1]	Drop-out Voltage VDC min.[1]	Max. Voltage VDC *[3]	Coil Resistance Ω	Coil Power mW
5	3.80	0.5	6.5	70 x (1±10%)	Approx. 360
6	4.50	0.6	7.8	100 x (1±10%)	
9	6.80	0.9	11.7	225 x (1±10%)	
12	9.00	1.2	15.6	400 x (1±10%)	
18	13.5	1.8	23.4	900 x (1±10%)	
24	18.0	2.4	31.2	1600 x (1±10%)	
48[2]	36.0	4.8	62.4	6400 x (1±10%)	
48	36.0	4.8	62.4	4500 x (1±10%)	Approx. 510
5	3.8	0.5	6.5	55 x (1±10%)	Approx.[4] 450
6	4.5	0.6	7.8	80 x (1±10%)	
9	6.8	0.9	11.7	180 x (1±10%)	
12	9.0	1.2	15.6	320 x (1±10%)	
18	13.5	1.8	23.4	720 x (1±10%)	
24	18.0	2.4	31.2	1280 x (1±10%)	
48	36.0	4.8	62.4	5120 x (1±10%)	

Notes:1) The data shown above are initial values.
2) If 48VDC coil voltage specification of 360mW is required, please add special suffix (068) in the ordering information.
3) *Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.
4) If 360mW type is required, please add a special suffix (068) in the ordering information.

SAFETY APPROVAL RATINGS

UL/CUL	1 Form A	10A 277VAC 10A 28VDC 15A 125VAC 6A 250VAC
	1 Form C	NO:10A 277VAC NO:10A 28VDC NO:10A 120VAC NO:6A 250VAC
VDE (only $AgSnO_2$)	1 Form A	10A 250VAC 12A 125VAC
	1 Form C	NO/NC:5A/5A 250VAC NO:10A 250VAC NO:12A 125VAC

Notes: 1) Only typical loads are listed above. Other load specifications can be available upon request.
2) For sealed type, the vent-hole cover should be excised.

ORDERING INFORMATION

	HF3FF /	012	-1H	S	T	F	(XXX)
Type							
Coil voltage	5, 6, 9, 12, 18, 24, 48VDC						
Contact arrangement	**1H**:1 Form A	**1Z**:1 Form C					
Construction[1) 2)]	**S**: Plastic sealed	**Nil**: Flux proofed					
Contact material	**T**: $AgSnO_2$	**Nil**: AgCdO					
Insutation standard	**F**: Class F						
Special code[4)]	**XXX:** Customer special requirement		**Nil:** Standard				

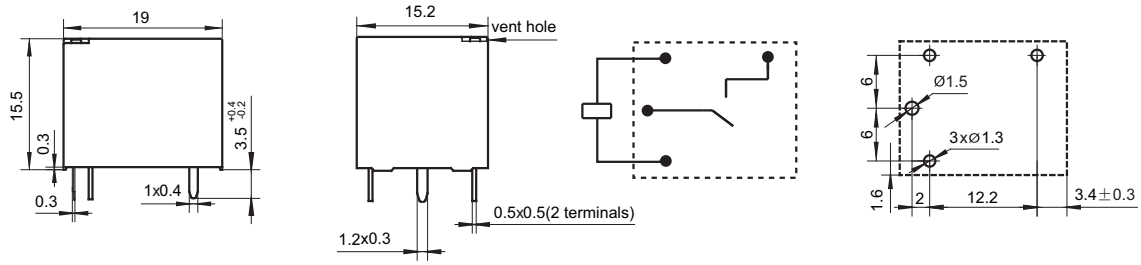
Notes: 1) We recommend flux proofed types for a clean environment (free from contaminations like H_2S, SO_2, NO_2, dust, etc.).
We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H_2S, SO_2, NO_2, dust, etc).
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
3) The characteristic number represents the product with special requirements from customers, for example: 899 means power consumption 450mW.The customer special requirement express as special code after evaluating by Hongfa.
4) Two packing methods available: paper box package, tube package,Standard tube packing length is 420mm(Holds 25 relays). Any special requirement needed, please contact us for more details.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

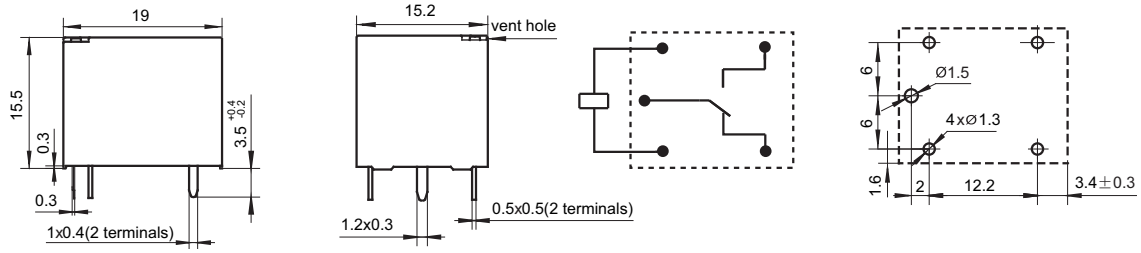
Unit: mm

Outline Dimensions | Wiring Diagram (Bottom view) | PCB Layout (Bottom view)

1 Form A



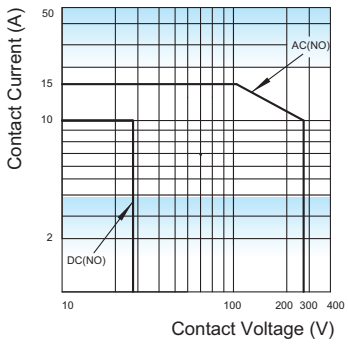
1 Form C



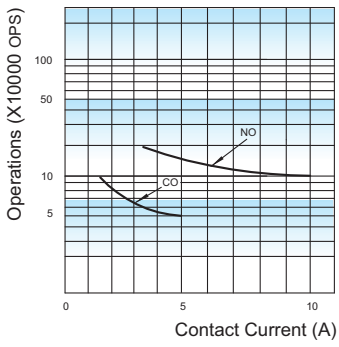
Remark:1)In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2)The additional tin top is max. 1mm.
3)The tolerance without indicating for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

CHARACTERISTIC CURVES

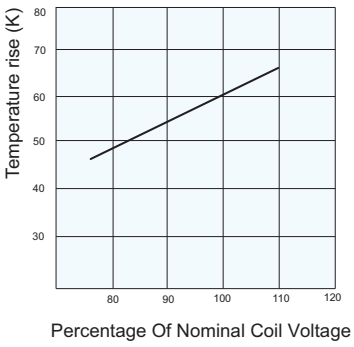
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



Test conditions:
NO, Resistive load, 277VAC/28VDC,
Flux proofed, Room temp., 1s on 9s off
CO, Resistive load, 250VAC,
Flux proofed, Room temp., 5s on 5s off.
Notes: For plastic sealed type,the venting-hole should be opened in electrical endurance test.

Testing conditions:
10A at 85°C.
Mounting distance: 10mm

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.