HF3FF SUBMINIATURE HIGH POWER RELAY

c UL us
File No.:E134517

VDE
File No.:40025218

File No.:R50148356

CQC
File No.:CQC13002098175

Features

- 15A 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
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (19.0 x 15.2 x 15.5) mm

CONTACT DATA

Contact arrangement	1A	1C	
		NO	NC
Contact resistance	100mΩ max.(at 1A 6VDC)		
Contact material	$AgSnO_2$, AgCdO		
Contact rating (Res. load)	10A 277VAC 10A 28VDC	10A 277VAC[1)] 10A 28VDC[1)]	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	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) Applicable when NC is not energized with load.

CHARACTERISTICS

Insulation resistance		100MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	1500VAC 1min
	Between open contacts	750VAC 1min
Operate time (at nomi. volt.)		10ms max.
Release time (at nomi. 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 temperature		-40˚C to 70˚C
Termination		PCB
Unit weight		Approx. 10g
Construction		Plastic sealed, Flux proofed

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

COIL

Coil power	5VDC to 24VDC: Approx. 360mW; 48VDC: Approx. 510mW

COIL DATA at 23˚C

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC *	Coil Resistance Ω
5	3.80	0.5	6.5	70 x (1±10%)
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	36.0	4.8	62.4	4500 x (1±10%)
48 [1)]	36.0	4.8	62.4	6400 x (1±10%)

Notes: 1) There are 2 types for 48V--510mW and 360mW. The coil resistance for 510mW type is 4500ohm while for that for 360mW type is 6400ohm. If 360mW type is required, please add a special suffix (068) in the ordering information.
2) *Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

UL/CUL	1 Form A	10A 277VAC 10A 28VDC 15A 125VAC at 70˚C 1/2HP 125VAC ($AgSnO_2$)
	1 Form C	NO:10A 277VAC NO:10A 28VDC NO:10A 120VAC at 70˚C NC:10A 120VAC at 70˚C
VDE (only $AgSnO_2$)	1 Form A	10A 250VAC at 70˚C 12A 125VAC
	1 Form C	NO/NC:5A/5A 250VAC at 70˚C NO:10A 250VAC at 70˚C NO:12A 125VAC

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

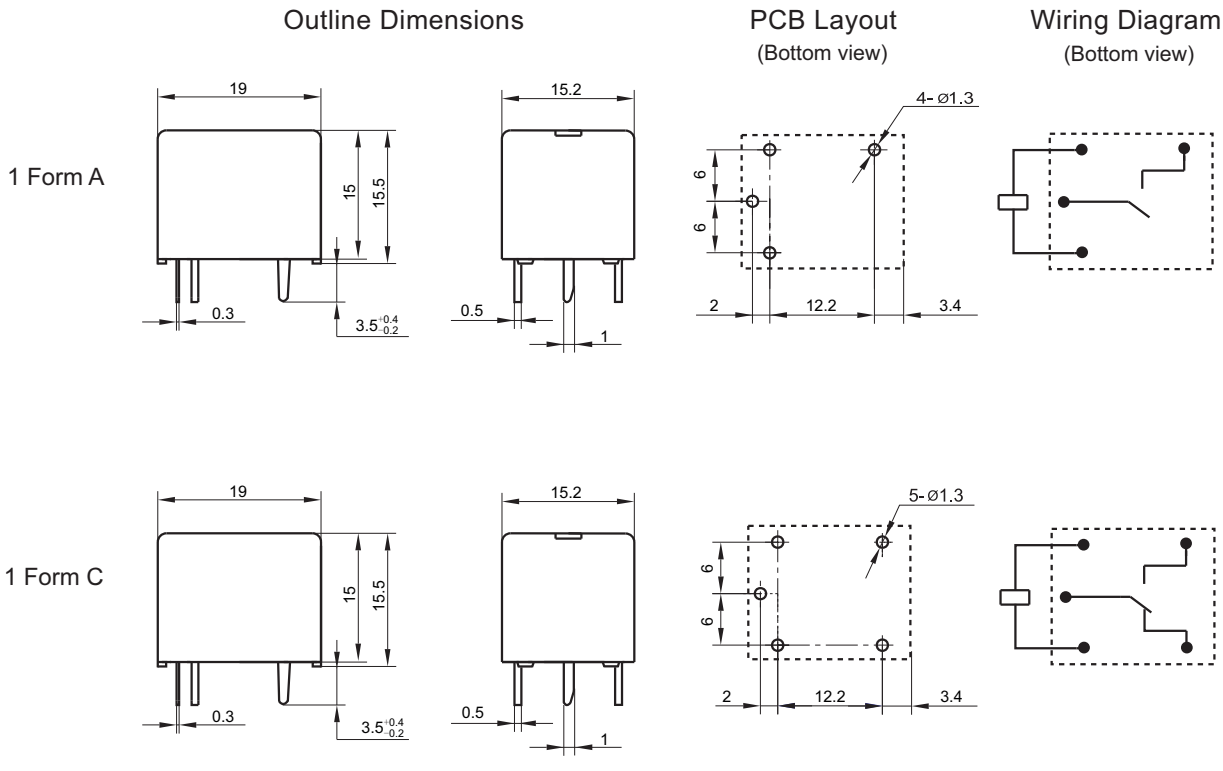
ORDERING INFORMATION

	HF3FF /	012	-1H	S	T	(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				
Special code[3)]	**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 customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

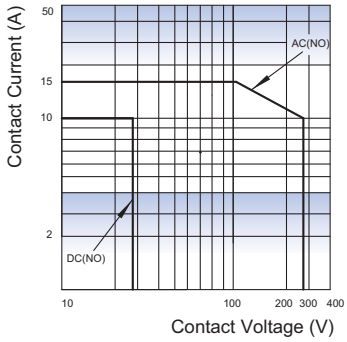
Unit: mm



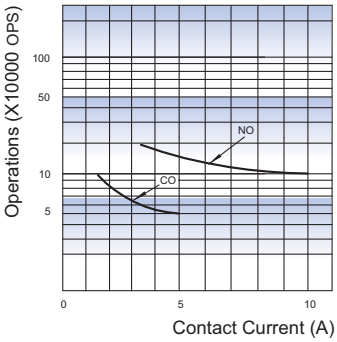
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER

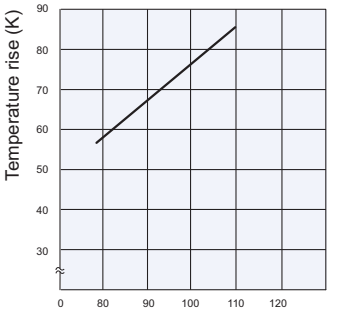


ENDURANCE CURVE



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.

COIL TEMPERATURE RISE



Testing conditions:
10A at 70˚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.