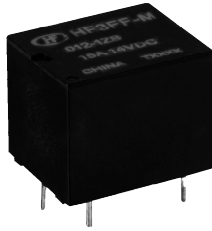


# HF3FF-M

## AUTOMOTIVE RELAY



### Typical Applications

Anti-theft lock, Central door lock

### Features

- 15A switching capability
- Subminiature, standard PCB layout
- 1 Form A & 1 Form C contact arrangement
- Plastic sealed and Flux proofed types available
- RoHS & ELV compliant

## CHARACTERISTICS


Contact arrangement	1A, 1C
Voltage drop (initial) <sup>1)</sup>	Typ: 20mV (at 10A) Max.: 250mV (at 10A)
Max. continuous current <sup>2)</sup>	10A
Max. switching current <sup>3)</sup>	15A
Max. switching voltage	30VDC
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1×10 <sup>7</sup> OPS (300OPS/min)
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength <sup>4)</sup>	Between contacts: 750VAC Between coil & contacts: 1500VAC
Operate time	Typ: 5ms Max.: 10ms (at nomi. vol.)

Release time <sup>5)</sup>	Typ: 3ms Max.: 10ms
Ambient temperature	-40°C to 85°C
Vibration resistance <sup>6)</sup>	10Hz to 55Hz 1.5mm DA
Shock resistance <sup>6)</sup>	98m/s <sup>2</sup>
Termination	PCB <sup>7)</sup>
Construction	Plastic sealed, Flux proofed
Unit weight	Approx.10g

- 1) Equivalent to the max. initial contact resistance is 100mΩ (at 1A 6VDC).  
 2) For NO contacts, measured when applying 100% rated voltage on coil.  
 3) At 23°C, 13.5VDC (100 cycles, resistive load).  
 4) 1min, leakage current less than 1mA.  
 5) The value is measured when voltage drops suddenly from nominal voltage to 0VDC and coil is not paralleled with suppression circuit.  
 6) When energized, opening time of NO contacts shall not exceed 100μs, when non-energized, opening time of NC contacts shall not exceed 100μs, meantime, NO contacts shall not be closed.  
 7) Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature and time is (250±3)°C, (5±0.3)s.

## CONTACT DATA <sup>1)</sup>

at 23°C

Load voltage	Load type		Load current A			On/Off ratio		Electrical endurance OPS	Contact material	Load wiring diagram
			1C		1A	On s	Off s			
			NO	NC	NO					
13.5VDC	Resistive	Make	15	5	15	5	5	1×10 <sup>5</sup>	HF3FF-M/M1: AgSnO <sub>2</sub> HF3FF-M2: AgNi	
		Break	15	5	15	5	5			

1) When the load voltage is at 24VDC or higher, or the applications conditions are different from the table above, please submit the detailed application conditions to Hongfa to get more support.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2024 Rev. 1.01

## COIL DATA

at 23°C

Type	Nominal voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Coil resistance $\times(1\pm10\%) \Omega$	Power consumption W	Max. allowable overdrive voltage <sup>1)</sup> VDC	
						at 23°C	at 85°C
HF3FF-M	9	6.75	0.90	180	0.45	11.7	10.8
	12	9.00	1.20	320	0.45	15.6	14.4
	24	18.00	2.40	1280	0.45	31.2	28.8
HF3FF-M1	9	5.85	0.65	126	0.64	11.3	10.3
	12	7.80	0.90	225	0.64	15.0	13.8
	24	15.6	1.80	900	0.64	30.0	27.6
HF3FF-M2	9	5.15	0.60	100	0.80	10.8	9.9
	12	6.80	0.80	180	0.80	14.4	13.2
	24	13.70	1.60	720	0.80	28.8	26.4

1) Max. allowable overdrive voltage is stated with no load applied.

## ORDERING INFORMATION

HF3FF-M /		012	-1H	S	(XXX)
Type	HF3FF-M: 0.45W HF3FF-M1: 0.64W HF3FF-M2: 0.80W				
Coil voltage	009: 9VDC 012: 12VDC 024: 24VDC				
Contact arrangement	1H: 1 Form A 1Z: 1 Form C				
Construction	S: Plastic sealed <sup>1)</sup> Nil: Flux proofed				
Special code <sup>2)</sup>	XXX: Customer special requirement Nil: Standard				

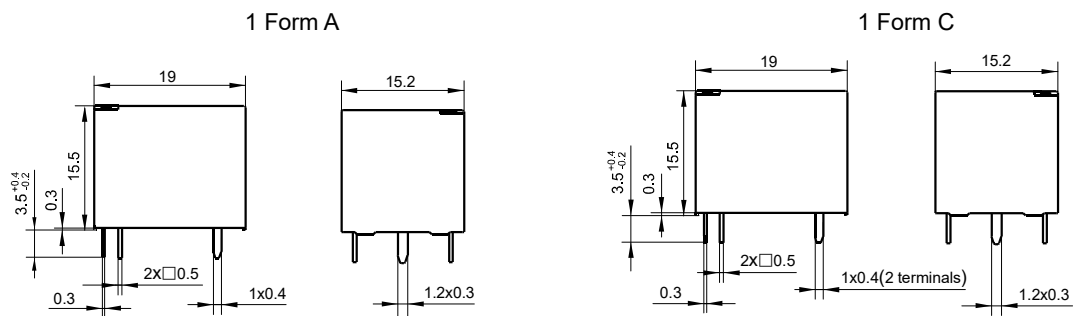
Notes: 1) If washing or surface treatment is required after the relay is assembled on PCB, please provide with the conditions in details for our confirmation or our recommendation with suitable products.

2) The customer special requirement express as special code after evaluating by Hongfa.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

### Outline Dimensions

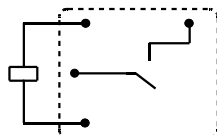


## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

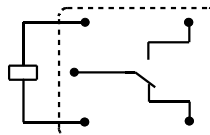
Unit: mm

Wiring Diagram (Bottom view)

1 Form A

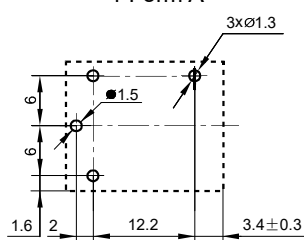


1 Form C

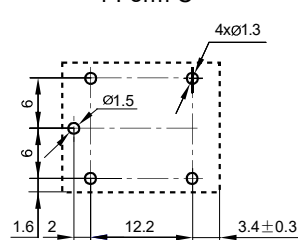


PCB Layout (Bottom view)

1 Form A



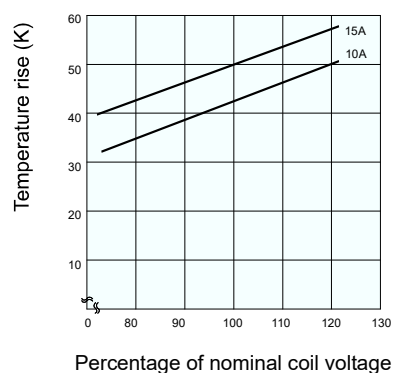
1 Form C



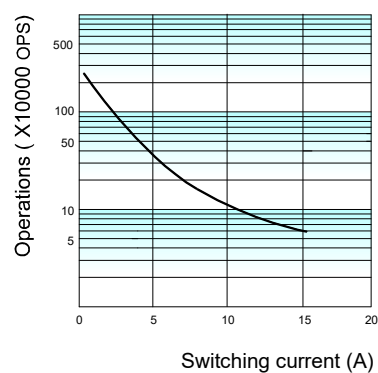
**Remark:** 1) \* The additional tin top is max. 1mm.  
2) The tolerance without indicating for PCB layout is always ±0.1mm.

## CHARACTERISTIC CURVES

COIL TEMPERATURE RISE



ENDURANCE CURVE



### Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.

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.

© Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.