HF140FF-V MINIATURE INTERMEDIATE POWER RELAY

File No.:E134517

File No.:R50149131

File No.:CQC10002046173

Features

- 10A switching capability
- 5kV dielectric strength(between coil and contacts)
- Standard:Creepage distance ›8mm
- 2 poles are connected in series to achieve DC 500V 10A DC high voltage opening and closing
- Contact Gap:3.0mm(When wired in 2-pole series)
- UL insulation system: Class F available

RoHS compliant

CONTACT DATA

Contact arrangement	2A
Contact resistance[1)]	100mΩ max. (1A 6VDC)
Contact material	$AgSnO_2$
Contact rating	10A 500VDC
Max. switching voltage	500VDC
Max. switching current	10A
Max. switching power	5000W
Mechanical endurance	1×10^6 OPS (Switching frequency18000 OPS/h)
Electrical endurance	2 poles in series: 10A 500VDC，1×10^4 OPS 2 poles in series: 1A 500VDC，3×10^4OPS

Notes: 1) The data shown above are initial values.
2) Please refer to the performance graph for detailed electric durability information, and contact us if you have any other requirements.

CHARACTERISTICS

Insulation resistance		1000 MΩ (500VDC)
Dielectric strength	Between coil & contacts	5000VAC 1min
	Between open contacts	2500VAC 1min
	Between contacts & contacts	3000VAC 1min
Operate time (at nomi. volt.)		15ms max.
Release time (at nomi. volt.)		5ms max.
Humidity		5% to 85%RH
Ambient temperature		-40℃ to 85℃
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10 Hz to 55 Hz 1.5mm DA
Termination		PCB
Unit weight		Approx. 28g
Construction		dust protected type

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

COIL

Coil power	Approx. 800mW

COIL DATA 23℃

Nominal Voltage VDC	Pick-up Voltage VDC max.[1)]	Drop-out Voltage VDC min.[1)]	Max. Voltage VDC[2)]	Coil Resistance Ω
3	2.4	0.3	3.9	11.3×(1±10%)
5	4.0	0.5	6.5	31×(1±10%)
6	4.8	0.6	7.8	45×(1±10%)
9	7.2	0.9	11.7	101×(1±10%)
12	9.6	1.2	15.6	180×(1±10%)
15	12	1.5	19.5	280×(1±10%)
18	14.4	1.8	23.4	405×(1±10%)
24	19.2	2.4	31.2	720×(1±10%)
36	28.8	3.6	46.8	1620×(1±10%)
48	38.4	4.8	62.4	2880×(1±10%)
60	48	6.0	78	4500×(1±10%)
110	88	11	143	15125×(1±10%)

Notes: 1) Under ambient temperature, applying more than 80% of rating voltage to coil, relay will take action accordingly. But in order to meet the stated product performance, please apply rated voltage to coli.
2) Max. voltage refers to the maximum voltage which relay coil could endure in a short period of time

SAFETY APPROVAL RATINGS

UL/CUL	10A 500VDC 1A 500VDC
TÜV	10A 500VDC 1A 500VDC
CQC	10A 500VDC 1A 500VDC

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

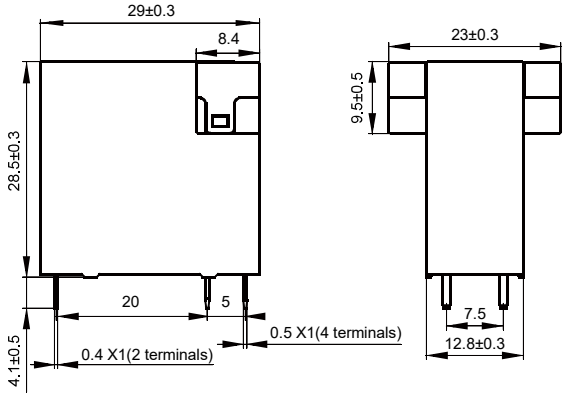
	HF140FF-V/	012	-2H	W	T	F	（XXX）
Type							
Coil voltage	3, 5, 6, 9, 12, 15, 18, 24, 36, 48, 60, 110 VDC						
Contact arrangement	**2H:** 2 Form A						
Contact Gap	**W:** Large contact gap						
Contact material	**T:** $AgSnO_2$						
Insulation standard	**F:** Class F						
Special code[1)]	**XXX:** Customer special requirement		**Nil:** Standard				

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

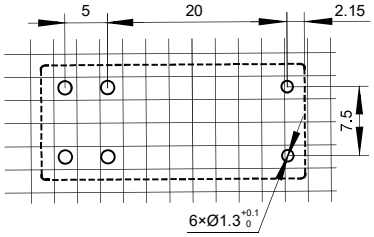
Unit: mm

Outline Dimensions



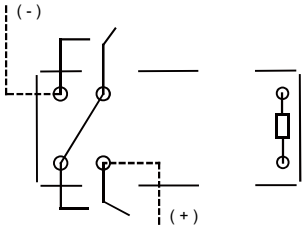
PCB Layout

(Bottom view)

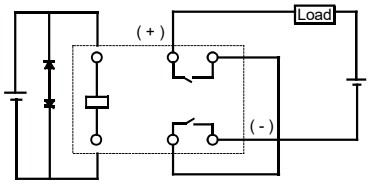


Wiring Diagram

(Bottom view)



Circuit diagram



Remark: 1) The pin dimension of the product outline drawing is the size before 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.

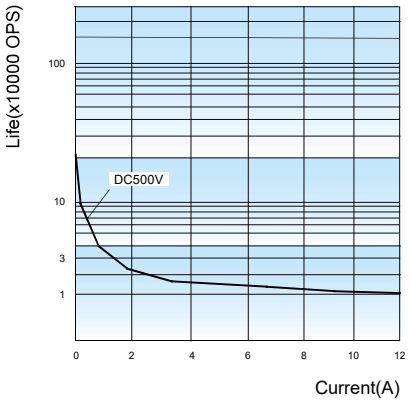
2) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±2mm; outline dimension ＞1mm and ≤5mm, tolerance should be ±3mm; outline dimension ＞5mm, tolerance should be ±4mm.

3) The tolerance without indicating for PCB layout is always ±1mm.

4) Circuit diagram: Please note that the switch section has polarity; the diode and Zener diode are for coil surge absorption, and the coil has no polarity.

CHARACTERISTIC CURVES

ENDURANCE CURVE



PRECAUTIONS FOR USE

- About use

1) This product is an anti-solder type structure, so it cannot be cleaned as a whole.

- About installation

1) This product has polarity in the switch section. Please note that miswiring may result in failure to cut off.
2) This product is designed and manufactured on the premise of using 2-pole series wiring, so do not use it if it is only level 1.
3) The relay should be installed in a dry place with little dust and toxic gases. High temperature, high humidity and toxic gases may cause deterioration of performance due to condensation and corrosive substances, resulting in failure and burnout of the relay body.

- About the operation coil and diode connection

1) Please connect the diode and Zener diode to the relay coil (see the following figure).
2) Diodes are for coil surge absorption. Using only diode may affect the switching performance, so please use it in combination with Zener diode.
3) The coil is not polarized, so when installing the diode, please make its polarity opposite to the applied voltage to the coil.
4) The recommended Zener voltage of the Zener diode is 3 times the rated voltage of the coil.