HF140FF(NEW) MINIATURE INTERMEDIATE POWER RELAY

c UL us
File No.:E134517

File No.:R50149131

CQC
File No.:CQC10002046173



Features

- 12A switching capability
- 5kV dielectric strength (between coil and contacts)
- 1.5mm/2.0mm/2.4mm contact gap available
- Plastic sealed and flux proofed types available
- Sockets available
- UL insulation system:Class F

RoHS compliant

CONTACT DATA

Contact arrangement	2A, 2C
Contact resistance	100mΩ max.(at 1A 6VDC)
Contact material	$AgSnO_2$
Contact rating (Res. load)	12A/10A 250VAC, 8A 30VDC
Max. switching voltage	250VAC / 30VDC
Max. switching current	12A
Max. switching power	3000VA / 360W
Mechanical endurance	W(456)/W(B59) type: 3 x 10^5OPS W type: 5 x10^5OPS
Electrical endurance	NO 3 x 10^4OPS, NC 1 x 10^4OPS (12A 250VAC,1s on 9s off) 3 x10^4ops (8A 30VDC, 1s on 9s off)

Notes: 1) The data shown above are initial values.
2) For plastic sealed type, the venting-hole should be excised in electrical endurance test.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	5000VAC 1min
	Between contacts sets	3000VAC 1min
	Between open contacts	2500VAC 1min
Surge voltage (between coil & contacts)		10kV (1.2/50 μs)
Operate time (at nomi. volt.)		20ms max.
Release time (at nomi. volt.)		5ms max.
Humidity		5% to 85% RH
Ambient temperature		-40˚C to 85˚C
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mmDA
Termination		PCB
Unit weight		Approx. 19g
Construction		Plastic sealed, Flux proofed

Notes: 1) The data shown above are initial values.
2) Z type product Operate time ⩽ 20ms.

SAFETY APPROVAL RATINGS

UL	12A 250VAC AC Resistive load 85˚C 1/3HP 125VAC NO/NC,40˚C 3/4HP 250/240VAC,NO,40˚C TV-5, 125VAC,40˚C
TÜV	12A 250VAC AC Resistive load 85˚C
CQC	12A 250VAC AC Resistive load 85˚C

Notes: Only typical loads are listed above. Other load specifications can be available upon request.

COIL

Coil power	W type(1.5mm): Approx. 0.8W W type(2.0mm/2.4mm): Approx. 1.4W

COIL DATA

at 23°C

W Type (1.5mm)

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC	Coil Resistance Ω
3	2.25	0.3	3.3	11.3 x (1±10%)
5	3.75	0.5	5.5	31 x (1±10%)
6	4.5	0.6	6.6	45 x (1±10%)
9	6.75	0.9	9.9	101 x (1±10%)
12	9	1.2	13.2	180 x (1±10%)
15	11.25	1.5	16.5	280 x (1±10%)
18	13.5	1.8	19.8	405 x (1±10%)
24	18	2.4	26.4	720 x (1±10%)
36	27	3.6	39.6	1620x (1±10%)
48	36	4.8	52.8	2880 x (1±10%)
60	45	6	66.0	4500 x (1±10%)
110	82.5	11	121.0	15100 x (1±10%)

W Type (2.0mm/2.4mm)

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC	Ω
3	2.25	0.3	3.3	6x (1±10%)
5	3.75	0.5	5.5	18 x (1±10%)
6	4.5	0.6	6.6	26 x (1±10%)
9	6.75	0.9	9.9	58 x (1±10%)
12	9	1.2	13.2	102 x (1±10%)
15	11.25	1.5	16.5	160 x (1±10%)
18	13.5	1.8	19.8	230 x (1±10%)
24	18	2.4	26.4	410 x (1±10%)
36	27	3.6	39.6	925x (1±10%)
48	36	4.8	52.8	1650 x (1±10%)
60	45	6	66.0	2570 x (1±10%)
110	82.5	11	121.0	8068 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.
3) In order to meet the stated product performance, please apply rated voltage to coli.
4) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.
5) For the CO version whose contact gap is 1.5 mm/2.0mm, the operation voltage ≤85% of rated voltage,the coil resistance tolerance is (1±15%).

ORDERING INFORMATION

HF140FF / 012 -2H S W T G F (XXX)

Type		
Coil voltage	3, 5, 6, 9,12,15,18,24, 36,48, 60,110VDC	
Contact arrangement	**2H:** 2 Form A	**2Z:** 2 Form C
Construction	**S:** Plastic sealed	**Nil:** Flux proofed
Contact Gap	**W:** Large contact gap	
Contact material	**T:** $AgSnO_2$	
Contact plating	**G:** Gold plated	**Nil:** No gold plated
Insulation standard	**F:** Class F	**Nil:** Class F
Special code	**XXX:** Customer special requirement	**Nil:** Standard

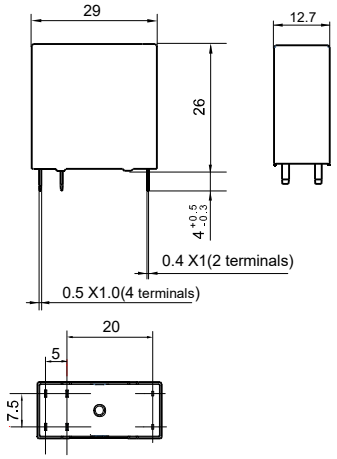
Notes: 1) We recommend flux proofed types for a clean environment (free from contaminations like H_2S, SO_2, NO_2, dust, etc.).
We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H_2S, SO_2, NO_2, dust, etc).
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
3) The W-type has three specifications: 1.5mm, 2.0mm, and 2.4mm. When you choose the W-type (large gap), the default specification is 1.5mm; If a 2.0mm specification is required, please add the characteristic number "(456)" when placing an order; If you need the 2.4mm specification, please add the characteristic number "(B59)" when ordering.
4) After being reviewed by our company, special customer requirements are identified in the form of characteristic numbers. For example, (456) indicates that the gap between disconnected contacts can reach 2.0mm, and (B59) indicates that the gap between disconnected contacts can reach 2.4mm.
5) The 2.4mm specification only offers a 2H contact form.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

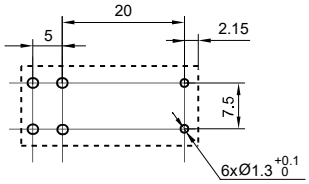
Unit: mm

Outline Dimensions

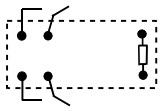
2 Form A



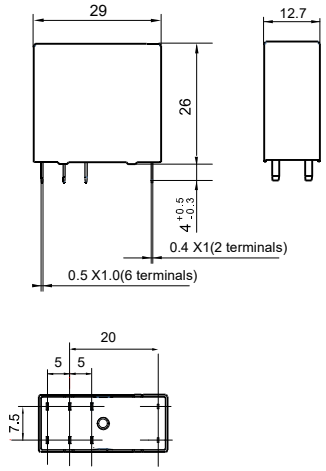
PCB Layout (Bottom view)



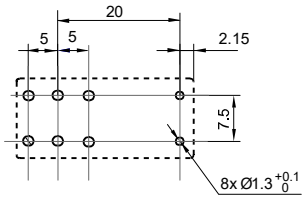
Wiring Diagram (Bottom view)



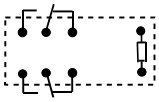
2 Form C



PCB Layout (Bottom view)



Wiring Diagram (Bottom view)



Remark: 1) 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.

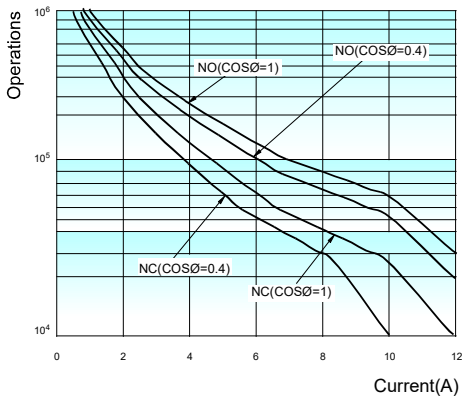
2) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension ＞1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension ＞5mm, tolerance should be ±0.4mm.

2) The tolerance without indicating for PCB layout is always ±0.1mm.

3) The width of the gridding is 2.5mm.

CHARACTERISTIC CURVES

ENDURANCE CURVE



250VAC resistive load/switching current

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.

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