

HF140FF-20

MINIATURE INTERMEDIATE POWER RELAY



File No.:E134517



File No.:R50149131



File No.:CQC10002046173



Features

- 20A switching capability
- 5kV dielectric strength
(between coil and contacts)
- 0.5mm/1.5mm/2.0mm contact gap available
- Sockets available
- UL insulation system:Class F

RoHS compliant

CONTACT DATA

Contact arrangement	2A
Contact resistance	100mΩ max.(at 1A 6VDC)
Contact material	AgSnO ₂
Contact rating (Res. load)	20A 460VAC
Max. switching voltage	480VAC
Max. switching current	20A
Max. switching power	9600VA
Mechanical endurance	Standard type: 1 x10 ⁶ OPS W type: 3 x10 ⁵ OPS
Electrical endurance	NO 3 x 10 ⁴ OPS, 20A 460VAC (Resistive load,room temperature, 1s on 9s off)

Notes: 1) The data shown above are initial values.
2) Large gap (W type) products: the ambient temperature of the relay is -40°C ~ 105°C; (When used at 75°C ~ 105°C, step-down maintenance is required: applying rated voltage for 200ms firstly to ensure stable connection, then reduce to and maintain 50- 65% of rated voltage.)

SAFETY APPROVAL RATINGS

UL	20A 460/480VAC Resistive at 105°C
TÜV	20A 460VAC Resistive at 105°C
CQC	16A 460VAC Resistive at 105°C 20A 460VAC Resistive at 85°C

Notes: 1) All values unspecified are at room temperature.
2) Only typical loads are listed above. Other load specifications can be available upon request.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	5000VAC 1min
	Between contacts sets	3000VAC 1min
	Between open contacts	Standard type: 1000VAC 1min W type: 2500VAC 1min
Surge voltage (between coil & contacts)		10kV (1.2/50 μs)
Operate time (at nomi. volt.)		20ms max.
Release time (at nomi. volt.)		15ms max.
Humidity		5% to 85% RH
Ambient temperature		-40°C to 105°C
Shock resistance	Functional	98m/s ²
	Destructive	980m/s ²
Vibration resistance		10Hz to 55Hz 1.5mmDA
Termination		PCB
Unit weight		Approx. 19g
Construction		Flux proofed

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

COIL

Coil power	Standard type: Approx. 530mW W type(1.5mm): Approx. 800mW W type(2.0mm): Approx. 1.4W
------------	---



HONGFA RELAY

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

2025 Rev. 1.00

COIL DATA

at 23°C

Standard Type (0.5mm)

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC	Coil Resistance Ω
3	≤ 2.40	≥ 0.15	3.3	17 x (1 \pm 10%)
5	≤ 4.00	≥ 0.25	5.5	45 x (1 \pm 10%)
6	≤ 4.80	≥ 0.30	6.6	67 x (1 \pm 10%)
9	≤ 7.20	≥ 0.45	9.9	150 x (1 \pm 10%)
12	≤ 9.60	≥ 0.60	13.2	270 x (1 \pm 10%)
15	≤ 12.0	≥ 0.75	16.5	420 x (1 \pm 10%)
18	≤ 14.4	≥ 0.90	19.8	610 x (1 \pm 10%)
24	≤ 19.2	≥ 1.20	26.4	1086 x (1 \pm 10%)
36	≤ 28.8	≥ 1.80	39.6	2445 x (1 \pm 10%)
48	≤ 38.4	≥ 2.40	52.8	4347 x (1 \pm 10%)
60	≤ 48.0	≥ 3.00	66.0	6720 x (1 \pm 10%)
110	≤ 88.0	≥ 5.50	121.0	22830 x (1 \pm 10%)

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	≤ 2.40	≥ 0.15	3.3	11.3 x (1 \pm 10%)
5	≤ 4.00	≥ 0.25	5.5	31 x (1 \pm 10%)
6	≤ 4.80	≥ 0.30	6.6	45 x (1 \pm 10%)
9	≤ 7.20	≥ 0.45	9.9	101 x (1 \pm 10%)
12	≤ 9.60	≥ 0.60	13.2	180 x (1 \pm 10%)
15	≤ 12.0	≥ 0.75	16.5	280 x (1 \pm 10%)
18	≤ 14.4	≥ 0.90	19.8	405 x (1 \pm 10%)
24	≤ 19.2	≥ 1.20	26.4	720 x (1 \pm 10%)
36	≤ 28.8	≥ 1.80	39.6	1620x (1 \pm 10%)
48	≤ 38.4	≥ 2.40	52.8	2880 x (1 \pm 10%)
60	≤ 48.0	≥ 3.00	66.0	4500 x (1 \pm 10%)
110	≤ 88.0	≥ 5.50	121.0	15100 x (1 \pm 10%)

W Type (2.0mm)

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC	Coil Resistance Ω
3	≤ 2.40	≥ 0.15	3.3	6x (1 \pm 10%)
5	≤ 4.00	≥ 0.25	5.5	18 x (1 \pm 10%)
6	≤ 4.80	≥ 0.30	6.6	26 x (1 \pm 10%)
9	≤ 7.20	≥ 0.45	9.9	58 x (1 \pm 10%)
12	≤ 9.60	≥ 0.60	13.2	102 x (1 \pm 10%)
15	≤ 12.0	≥ 0.75	16.5	160 x (1 \pm 10%)
18	≤ 14.4	≥ 0.90	19.8	230 x (1 \pm 10%)
24	≤ 19.2	≥ 1.20	26.4	410 x (1 \pm 10%)
36	≤ 28.8	≥ 1.80	39.6	925x (1 \pm 10%)
48	≤ 38.4	≥ 2.40	52.8	1650 x (1 \pm 10%)
60	≤ 48.0	≥ 3.00	66.0	2570 x (1 \pm 10%)
110	≤ 88.0	≥ 5.50	121.0	8068 x (1 \pm 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 coil.

ORDERING INFORMATION

Type	HF140FF-20/	012-	2H	<input type="checkbox"/>	W	T	G	F	(XXX)
Coil voltage	3,5,6,9,12,15,18,24,36,48,60,110VDC								
Contact arrangement	2H: 2 Form A								
Construction	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				

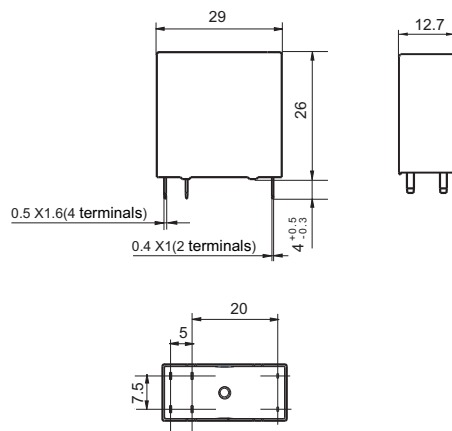
- Notes:**
- 1) We recommend flux proofed types for a clean environment (free from contaminations like H₂S, SO₂, NO₂, dust, etc.).
 - 2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB. SO₂, NO₂, dust, etc).
 - 3) There are two specifications to W type: 1.5mm contact gap and 2.0mm contact gap. The default W type is 1.5mm. So please add the special code "(456)" when releasing order, if 2.0mm contact gap is required.
 - 4) The customer special requirement express as special code after evaluating by Hongfa. e.g.(456) means contact gap can reach 2.0mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

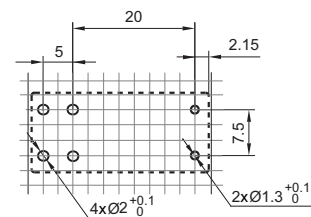
Unit: mm

2 Form A

Outline Dimensions



PCB Layout (Bottom view)

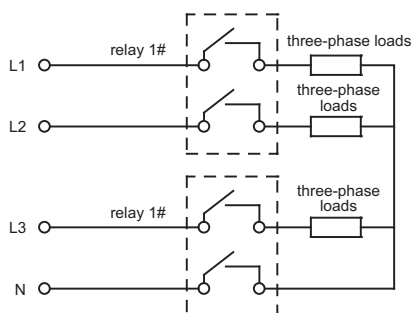


Wiring Diagram (Bottom view)



- Remark: 1) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.
 2) The tolerance without indicating for PCB layout is always $\pm 0.1\text{mm}$.
 3) The width of the gridding is 2.5mm .

ELECTRICAL DURABILITY WIRING DIAGRAM



Notes: Only when the load uses three-phase voltage above 380VAC, a combination test of 2 relays 2NO+2NO is required.

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.