

HF41F

SUBMINIATURE POWER RELAY



File No.: E133481



File No.: 40020043



File No.: CQC09002035072



Features

- Slim size (width 5mm)
- High breakdown voltage 4kV (between coil and contacts)
- Surge voltage up to 6kV (between coil and contacts)
- Meeting VDE 0700, 0631 reinforce insulation
- High sensitive: Approx.170mW
- Sockets available
- 1 Form A and 1 Form C configurations
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (28.0 x 5.0 x 15.0) mm

CONTACT DATA

Contact arrangement	1A, 1C
Contact resistance	100mΩ max. (at 1A 6VDC) Gold plated: 30mΩ max.(at 1A 6VDC)
Contact material	AgSnO ₂ , AgNi
Contact rating (Res. load)	6A 250VAC/30VDC
Max. switching voltage	400VAC / 125VDC
Max. switching current	6A
Max. switching power	1500VA / 180W
Mechanical endurance	1 x 10 ⁷ OPS
Electrical endurance (UL Approval)	1A: 6 x 10 ⁴ OPS (at 85°C) 1C: (NO) 3 x 10 ⁴ OPS (at 85°C) (NC) 1 x 10 ⁴ OPS (at 85°C)

CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	4000VAC 1 min
	Between open contacts	1000VAC 1 min
Operate time (at nomi.volt.)	8ms max.	
Release time (at nomi.volt.)	4ms max.	
Shock resistance	Functional	49m/s ²
	Destructive	980m/s ²
Vibration resistance	10Hz to 55Hz 1mm DA	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 85°C	
Termination	PCB	
Unit weight	Approx. 5g	
Construction	Plastic sealed, Flux proofed	

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

2) Please find coil temperature curve in the characteristic curves below.

3) Please do not install a SPDT(1 Form C) type relay on either of the smallest sides or facing downward.

4) UL insulation system: Class A

COIL

Coil power	5VDC to 24VDC: Approx. 170mW
	48VDC, 60VDC: Approx. 210mW

COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC	Coil Resistance Ω
5	3.75	0.25	7.5	147 x (1±10%)
6	4.50	0.30	9.0	212 x (1±10%)
9	6.75	0.45	13.5	476 x (1±10%)
12	9.00	0.60	18	848 x (1±10%)
18	13.5	0.90	27	1906 x (1±15%)
24	18.0	1.20	36	3390 x (1±15%)
48	36.0	2.40	72	10600 x (1±15%)
60	45.0	3.00	90	16600 x (1±15%)

Notes: When require pick-up voltage=70% nominal voltage, special order allowed .

SAFETY APPROVAL RATINGS

UL/CUL	6A 30VDC
	Resistive: 6A 277VAC Pilot duty: R300 B300
VDE	6A 30VDC 6A 250VAC

Notes: Only some typical ratings are listed above. If more details are required, please contact us.



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2012 Rev. 1.01

ORDERING INFORMATION

Type		HF41F / 12 -H 8 S T G (XXX)	
Coil voltage	5, 6, 9, 12, 18, 24, 48, 60VDC		
Contact arrangement	H: 1 Form A	Z: 1 Form C	
Version ¹⁾	8: Flat pack version	Nil: Vertical version	
Construction ²⁾	S: Plastic sealed	Nil: Flux proofed	
Contact material	T: AgSnO ₂	Nil: AgNi	
Contact plating	G: Gold plated	Nil: No gold plated	
Customer special code	e.g. (210) stands for pick-up voltage less than 70% of nominal voltage		

Notes: 1) We recommend flux proofed types for the flat pack version.

2) We recommend flux proofed types for a clean environment (free from contaminations like H₂S, SO₂, NO₂, dust, etc.).

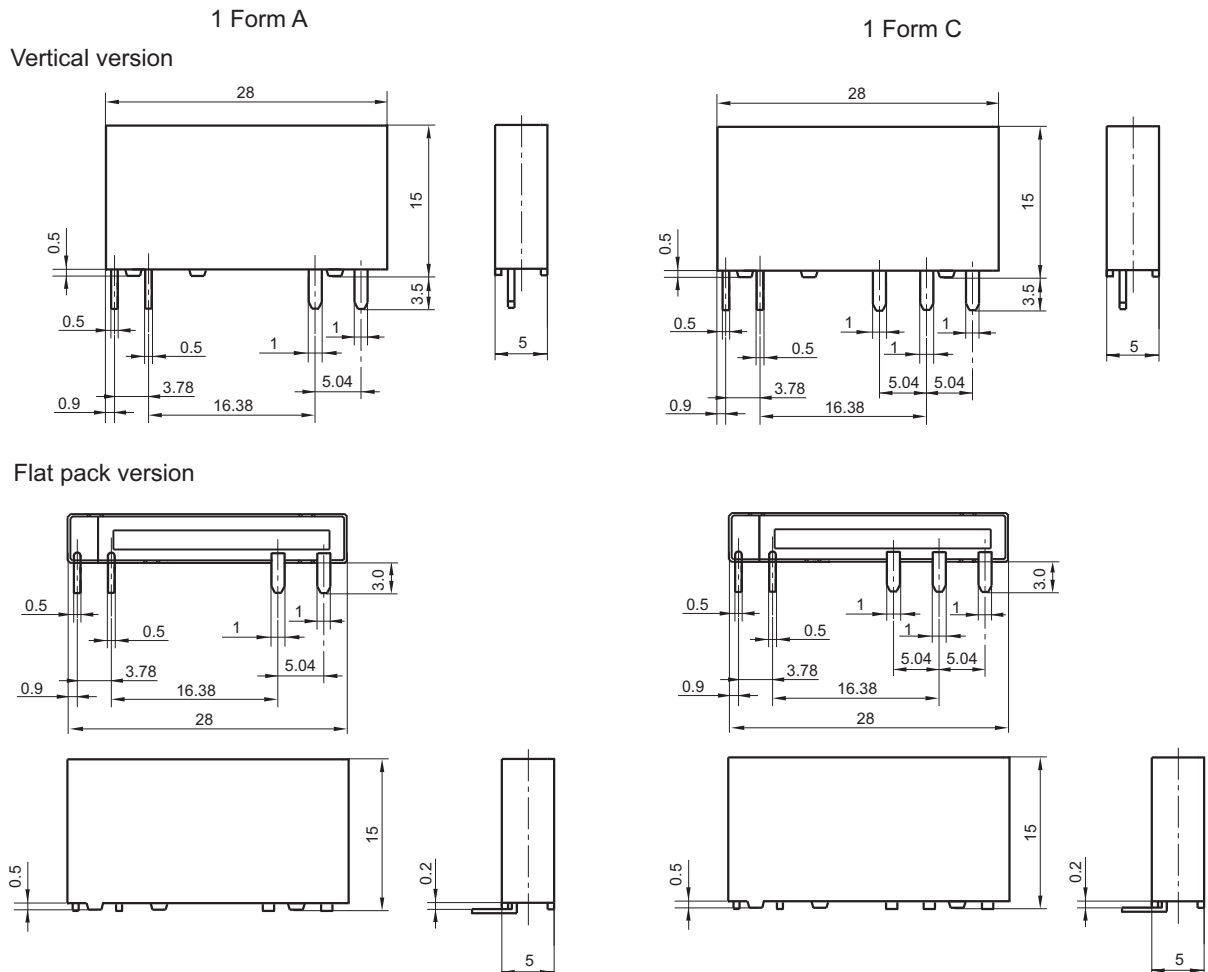
We suggest to choose plastic sealed types and validate it in real application for an unclear environment (with contaminations like H₂S, SO₂, NO₂, dust, etc.).

If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

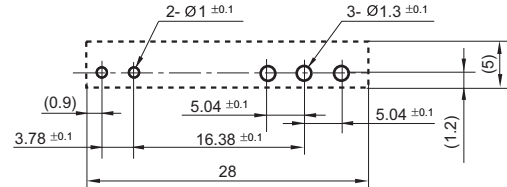
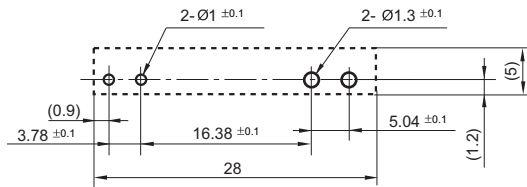
Unit: mm

PCB Layout (Bottom view)

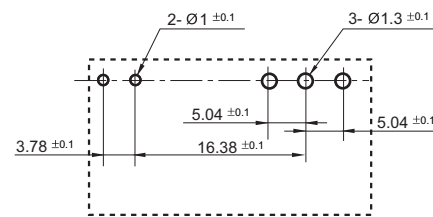
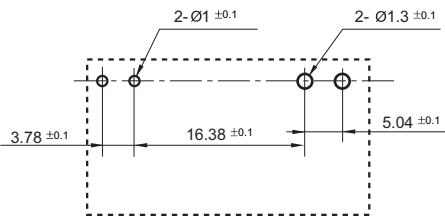
1 Form A

1 Form C

Vertical version



Flat pack version



Wiring Diagram (Bottom view)

1 Form A

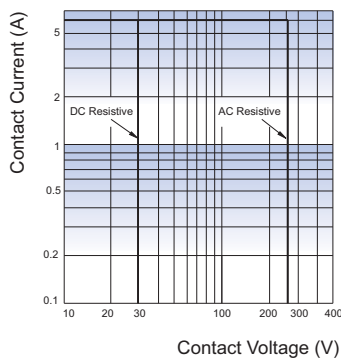
1 Form C



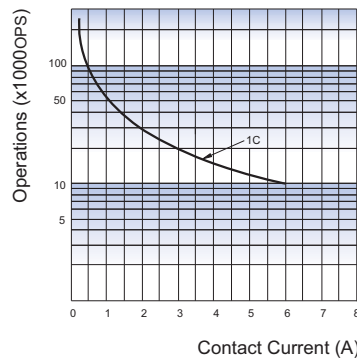
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.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

CHARACTERISTIC CURVES

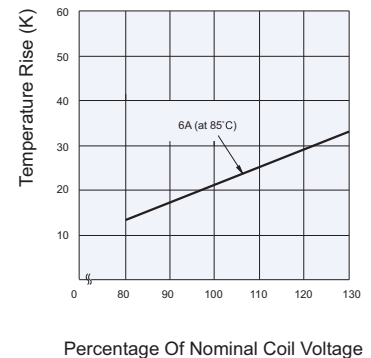
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



Disclaimer

This datasheet is for the customers' reference. All the specifications are 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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HF49F/HF49FA

MINIATURE POWER RELAY



File No.:E133481



File No.:R50149334



File No.:CQC10002049162



Features

- 5A switching capability
- 2kV dielectric strength (between coil and contacts)
- Slim size (width 5mm, height 12.5mm)
- High sensitive: Min. 120mW
- Sockets available
- Class F, Class B and Class A insulation system
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (20.0 x 5.0 x 12.5) mm

CONTACT DATA

Contact arrangement	1A
Contact Resistance	100mΩ max.(at 1A 6VDC)
Contact material	AgSnO ₂ , AgNi
Contact rating (Res. load)	5A 250VAC/30VDC
Max. switching voltage	250VAC /30VDC
Max. switching current	5A
Max. switching power	1250VA / 150W
Mechanical endurance	2 x 10 ⁷ OPS
Electrical endurance	1 x 10 ⁵ OPS (See approval reports for more details)

CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	2000VAC 1min
	Between open contacts	1000VAC 1min
Operate time (at nomi.volt.)	10ms max.	
Release time (at nomi.volt.)	5ms max.	
Shock resistance	Functional	98m/s ²
	Destructive	980m/s ²
Vibration resistance	10Hz to 55Hz 1.5mm DA	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 85°C	
Termination	PCB	
Unit weight	Approx. 3g	
Construction	Plastic sealed	

Notes: 1) The data shown above are initial values.
2) Please find coil temperature curve in the characteristic curves below.

COIL

Coil power	Approx. 120mW(at 5VDC to 18VDC) Approx. 180mW(at 24VDC)
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COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC at 85°C	Coil Resistance Ω
5	3.50	0.25	6.0	208 x (1±10%)
6	4.20	0.30	7.2	300 x (1±10%)
9	6.30	0.45	10.8	675 x (1±10%)
12	8.40	0.60	14.4	1200 x (1±10%)
18	12.6	0.90	21.6	2700 x (1±15%)
24	16.8	1.20	28.8	3200 x (1±15%)

Notes: 1) All above data are tested when the relays terminals are downward position. Other positions of the terminals, the pick-up and drop-out voltages will have ±5% tolerance. For example, when the relay terminals are transverse position, the max. pick-up voltage change is 75% of nominal voltage.
2) The max. allowable voltage in the COIL DATA is coil overdrive voltage, it is the instantaneous max. voltage which the relay coil could endure in a very short time.
3) 24VDC 120mW type are also available, please consult us.

SAFETY APPROVAL RATINGS

UL/CUL	Single contact	5A 30VDC L/R =0ms 5A 250VAC COSØ=1
	Bifurcated contact	3A 30VDC L/R =0ms 3A 250VAC COSØ=1
TÜV		5A 250VAC COSØ=1 5A 30VDC L/R=0ms

Notes: Only some typical ratings are listed above. If more details are required, please contact us.



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2012 Rev. 1.00

ORDERING INFORMATION

Type	HF49F / HF49FA						012	-1H	1	T	F	(XXX)
Coil voltage	5, 6, 9, 12, 18, 24VDC											
Contact arrangement	1H: 1 Form A											
Contact version ¹⁾	1: Single contact, no gold plated 1G: Single contact, gold plated 2G: Bifurcated contact, gold plated											
Contact material	T: AgSnO ₂ (Only for single contact)						Nil: AgNi					
Insulation standard	B: Class B			F: Class F			Nil: Class A					
Customer special code												

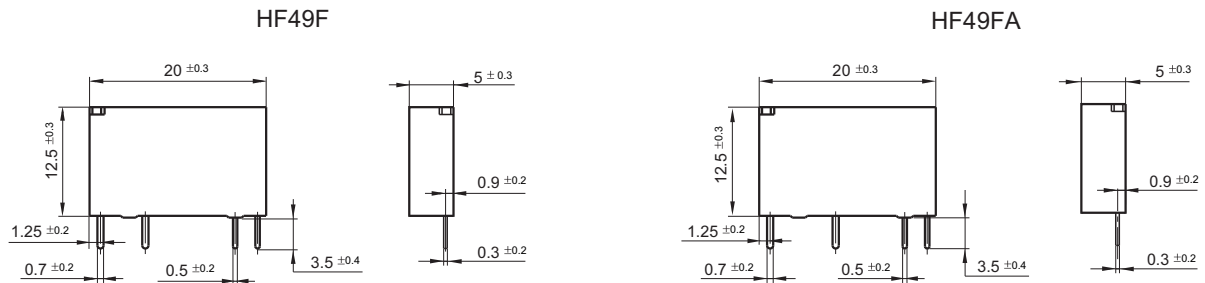
Notes: 1) The 1 type and 1G type is suitable for application such as home appliance, equipment, automatic control. 2G type is suitable for application like PLC control.

2) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

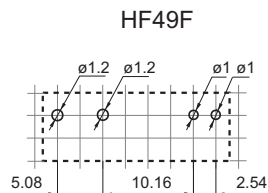
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

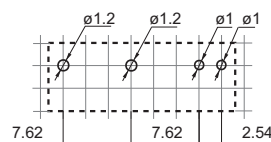
Outline Dimensions



PCB Layout (Bottom view)



HF49FA



Wiring Diagram (Bottom view)



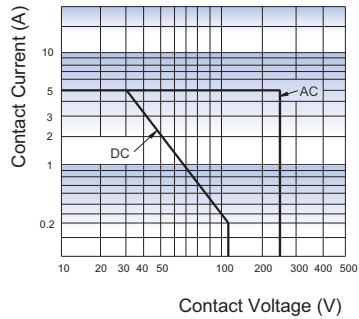
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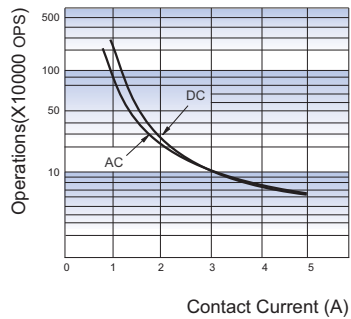
3) The width of the gridding is 2.54mm.

CHARACTERISTIC CURVES

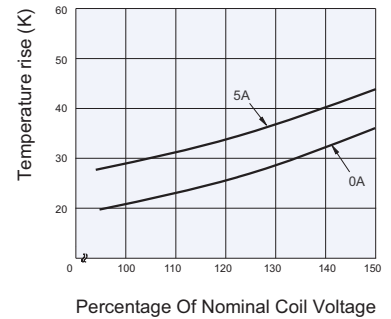
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