HF49FD MINIATURE POWER RELAY

c UL us
File No. : E133481

File No. : R50149334

CQC
File No.:CQC10002049162

Features

- 5A switching capability
- 3kV dielectric strength (between coil and contacts)
- Slim size (width 5mm, height 12.5mm)
- High sensitive: Min. 120mW
- Sockets available
- UL insulation system: Class F available
- 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)	1 x 10^5 OPS 3A 250VAC/30VDC 5 x 10^4 OPS 5A 250VAC/30VDC

Notes: 1) See approval reports for more details of electrical endurance test .

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	3000VAC 1min
	Between open contacts	1000VAC 1min
Operate time (at nomi.volt.)		10ms max.
Release time (at nomi.volt.)		5ms max.
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
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.
3) UL insulation system: Class F, Class B, Class A.

COIL

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

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 see ordering information for more details.

SAFETY APPROVAL RATINGS

UL/CUL	5A 30VDC L/R =0ms 3A 30VDC L/R =0ms 5A 250VAC COSØ=1 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.

ORDERING INFORMATION

HF49FD / 012 -1H 1 2 G T F L (XXX)

Type	
Coil voltage	5, 6, 9, 12,18, 24VDC
Contact arrangement	**1H:** 1 Form A
Contact version[1)]	**1:** Single contact **2:** Bifurcated contact
Space between terminals (See the following)	**1:** 5.08mm **2:** 7.62mm
Contact plating	**G:** Gold plated **Nil:** No gold plated (Only for single contact)
Contact material	**T:** $AgSnO_2$ (Only for single contact) **Nil:** AgNi
Insulation standard	**F:** Class F **B:** Class B **Nil:** Class A
Coil power	**L:** Sensitive **Nil:** Standard
Customer special code	

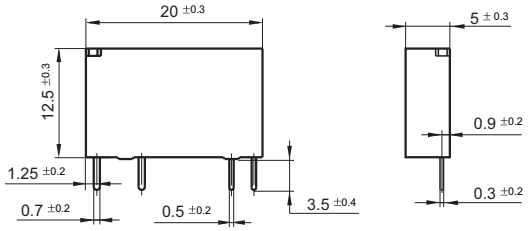
Notes: 1) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

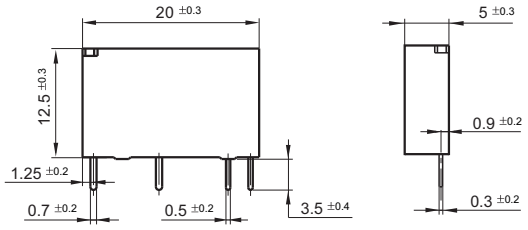
Unit: mm

Outline Dimensions

HF49FD/□□□-1H□1(XXX)



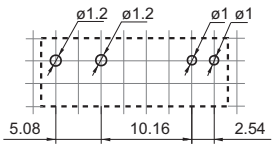
HF49FD/□□□-1H□2(XXX)



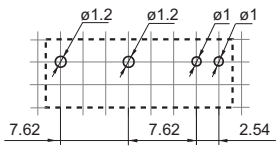
PCB Layout

(Bottom view)

HF49FD/□□□-1H□1(XXX)



HF49FD/□□□-1H□2(XXX)



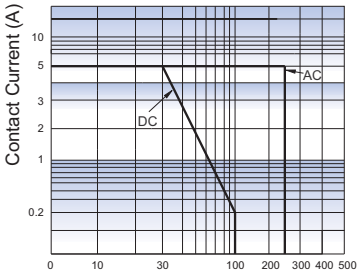
Wiring Diagram

(Bottom view)

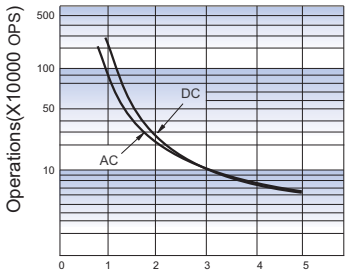
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The width of the gridding is 2.54mm.

CHARACTERISTIC CURVES

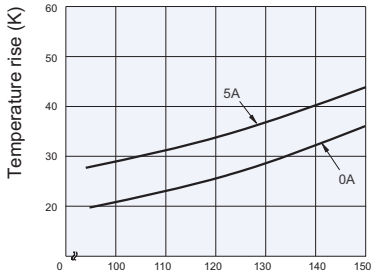
MAXIMUM SWITCHING POWER



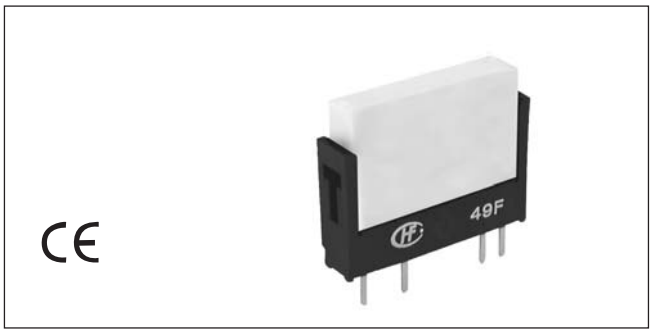
ENDURANCE CURVE



COIL TEMPERATURE RISE



Relay Sockets



Features

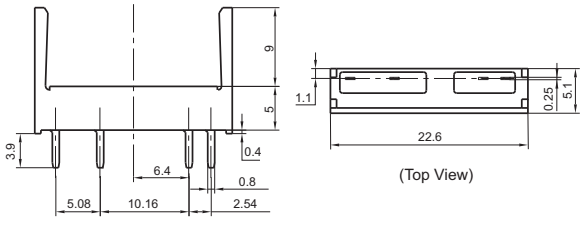
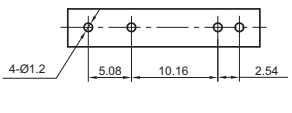
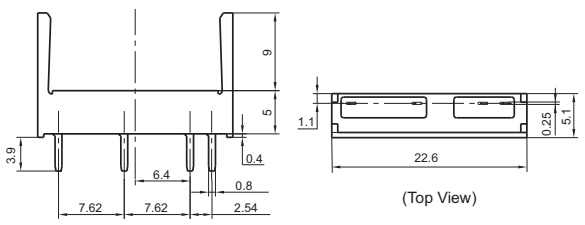
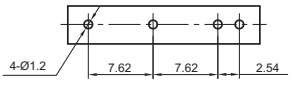
- The dielectric strength can reach 2000VAC and the insulation resistance is 1000MΩ
- Ensure secure retention of relays
- Components available: Removal tool
- Environmental friendly product (RoHS compliant)

CHARACTERISTICS

Type	Nominal Voltage	Nominal Current	Ambient Temperature	Dielectric Strength min.
49F/49FA	250VAC	7A	-40 ˚C to 70˚C	2000VAC

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

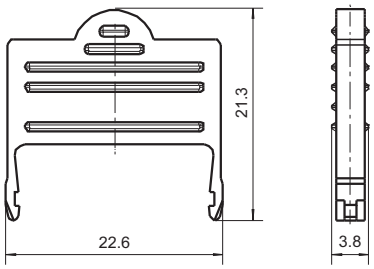
Socket	Outline Dimensions	PCB Layout	Components Available
49F  PCB terminal, PCB or Screw mounting Application for HF49FD/XXX-1HX1XXX			removal tool 49F-B
49FA  PCB terminal, PCB or Screw mounting Application for HF49FD/XXX-1HX2XXX			removal tool 49F-B

DIMENSION OF RELATED COMPONENT (AVAILABLE)

Unit: mm

Removal Tool

49F-B



Things to be noticed when selecting sockets:

1. Please choose suitable relay socket according to the actual mounting environment, relay contact poles and terminal layout. If there is any query on selection, please contact Hongfa for the technical service.
2. As for related components, they should be selected separately. Please do give clear indication of the types of relay sockets and related components you choose while placing order.
3. The above is only an example of typical socket and related component type which is suitable to HF49FD relay. If you have any special requirements, please contact us.

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.