HF152FD SUBMINIATURE HIGH POWER RELAY

c UL us
File No.: E134517

VDE
File No.: 40031203

CQC
File No.: CQC16002150629

Features

- 20A switching capability
- Ambient temperature meets 105°C
- High temperature load: 17A 277VAC at 105°C (Long endurance type)
- 1 Form C and 1 Form A configurations available
- Double pins and Single pin terminal available, effectively reduce terminal temperature rise
- Product in accordance to EN 60335-1 available

CONTACT DATA

Contact arrangement	1A	1C
Contact resistance[1)]	100mΩ max. (at 1A 24VDC)	
Contact material	$AgSnO_2$, AgNi	
Contact rating (Res. load)	20A 125VAC 17A 277VAC(Q type) 7A 400VAC	NO:17A277VAC(Q type) NC:10A 277VAC
Max. switching voltage	400VAC	400VAC (NO)
Max. switching current	20A	17A
Max. switching power	4700VA	4700VA
Mechanical endurance	1 x 10^7OPS	
Electrical endurance	1H type: 5 x 10^4OPS (16A 277VAC, Resistive load, AgNi, at 85°C, 1s on 9s off) 1HT type: 1 x 10^5OPS (12A 277VAC, Resistive load, $AgSO_2$, at 105°C, 1s on 9s off)	

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

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	2500VAC 1min
	Between open contacts	1000VAC 1min
Operate time (at rated. volt.)		10ms max.
Release time (at rated. 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 105°C
Termination		PCB
Unit weight		Approx.14g
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) UL insulation system: Class F, Class B.

COIL

Coil power	Approx. 360mW

COIL DATA at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC max.[1)]	Drop-out Voltage VDC min.[1)]	Max. Voltage VDC*[2)]	Coil Resistance Ω
3	2.25	0.3	3.9	25 x (1±10%)
5	3.75	0.5	6.5	70 x (1±10%)
6	4.50	0.6	7.8	100 x (1±10%)
9	6.75	0.9	11.7	225 x (1±10%)
12	9.00	1.2	15.6	400 x (1±10%)
18	13.5	1.8	23.4	900 x (1±10%)
24	18.0	2.4	31.2	1600 x (1±10%)
48	36.0	4.8	62.4	6400 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.

SAFETY APPROVAL RATINGS

UL/ CUL	NO, Standard Type	AgNi $AgSnO_2$	20A 125VAC Resistive at 40°C
		AgNi	17A 125VAC Resistive at 85°C 16A 277VAC Resistive at 85°C 10A 277VAC Resistive at 105°C
		$AgSnO_2$	12A 277VAC General Use at 105°C 1/2HP 125VAC at 40°C 1HP 250VAC at 40°C TV-8 125VAC at 40°C
	NO, Q Type	AgNi	17A 277VAC Resistive at 105°C 10A 277VAC Resistive at 105°C
	NC	AgNi $AgSnO_2$	20A 125VAC Resistive at 40°C 10A 277VAC Resistive at 85°C
		AgNi	7A 277VAC Resistive at 105°C
VDE	1 Form A, Standard Type	AgNi	16A 250VAC Resistive at 85°C 7A 400VAC Resistive at 105°C
		$AgSnO_2$	8A 250VAC COSØ =0.4 at 85°C 10(4)A 250VAC Resistive at 105°C (EN60730-1)
	1 Form A, Q Type	AgNi	17A 250VAC at 23°C 2h/ at 105°C 2h 10A 250VAC at 23°C 2h/ at 105°C 2h
	1 Form C	AgNi	NO/NC:10A/7A 250VAC at 105°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.

ORDERING INFORMATION

	HF152FD /	12	-1Z	P	S	T	F	Q	(XXX)
Type									
Coil voltage	3, 5, 6, 9, 12, 18, 24, 48VDC								
Contact arrangement	**1H**: 1 Form A		**1Z**: 1 Form C						
Pin version	**P**: Double pins		**Nil**: Single pin						
Construction [1)]	**S**: Plastic sealed		**Nil**: Flux proofed						
Contact material	**T**: $AgSnO_2$		**Nil**: AgNi						
Insulation standard	**F**: Class F								
Contact endurance	**Q**: Long endurance type (Only for AgNi type)				**Nil**: Standard type				
Special code[4)]	**XXX:** Customer special requirement				**Nil:** Standard				

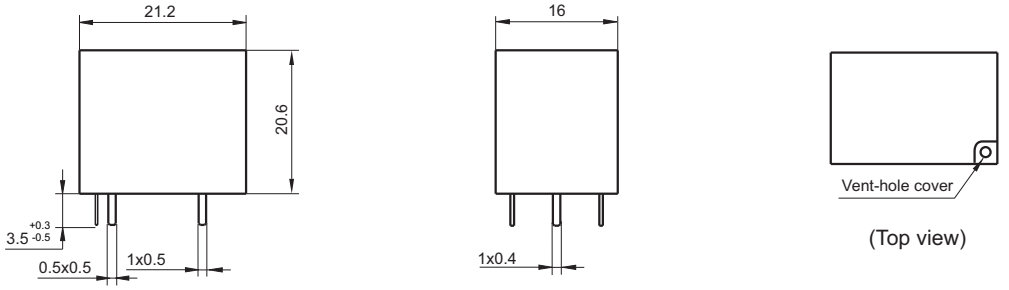
Notes: 1) Under the ambience with dangerous gas like H_2S, SO_2 or NO_2, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, flux proofed type is preferentially recommended.
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
3) If plastic sealed type is selected for cleaning purpose, the vent-hole cover should be excised after cleaning.
4) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

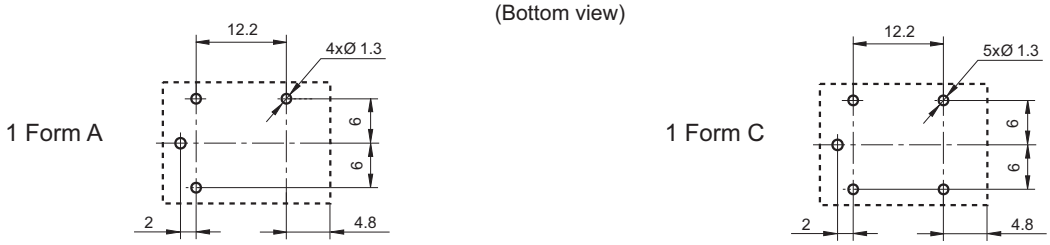
Single pin version

Outline Dimensions



Wiring Diagram
(Bottom view)

PCB Layout
(Bottom view)

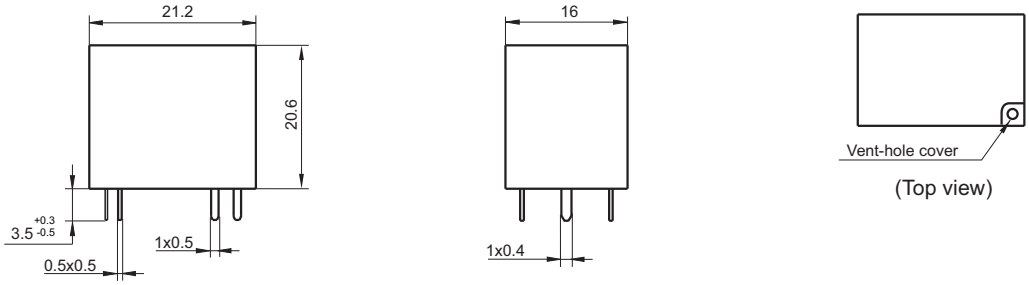


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Double pin version

Outline Dimensions



Wiring Diagram

(Bottom view)

PCB Layout

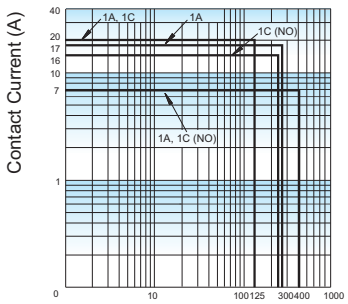
(Bottom view)

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.

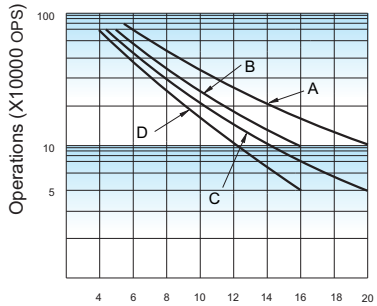
2) The tolerance without indicating for PCB layout is always ±0.1mm.

CHARACTERISTIC CURVES

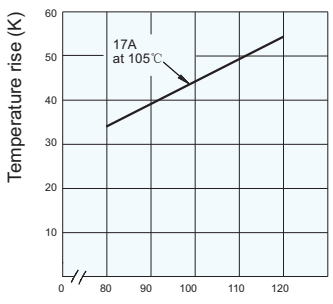
MAX. SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



Notes:

1. Curve A:1H type, Curve B:1H type, Curve C:1Z type, Curve D:1Z type
2. Test conditions:
   Curve A: 20A 125VAC, Resistive load, Room temp., 1s on 9s off
   Curve B: 16A 250VAC, Resistive load, at 85℃, 1s on 9s off
   Curve C: NO, 20A 125VAC, Resistive load, Room temp., 1s on 9s off
   Curve D: NO, 16A 250VAC, Resistive load, at 85℃, 1s on 9s off

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.