HF152F SUBMINIATURE HIGH POWER RELAY

c UL us
File No.: E134517

VDE
File No.: 40017837

CQC
File No.: CQC09002034520

Features

- 20A switching capability
- TV-8 125VAC
- Surge voltage up to 6kV (between coil and contacts)
- Thermal class F: standard type (at 85˚C)
- Ambient temperature meets 105˚C
- Product in accordance to IEC 60335-1 available
- 1 Form C and 1 Form A configurations available
- Plastic sealed and dust protected types available
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (21.0 x 16.0 x 20.6) mm

CONTACT DATA

Contact arrangement	1A	1C
Contact resistance	100mΩ max.(at 1A 24VDC)	
Contact material	$AgSnO_2$, AgNi	
Contact rating (Res. load)	20A 125VAC 17A 277VAC 7A 400VAC	16A 250VAC 7A 400VAC (NO)
Max. switching voltage	400VAC	400VAC (NO)
Max. switching current	20A	16A
Max. switching power	4700VA	4000VA
Mechanical endurance	1×10^7 OPS	
Electrical endurance	1×10^5 OPS (16A 250VAC, Resistive load, at 85˚C, 1s on 9s off) 5×10^4 OPS (NO, 16A 250VAC, Resistive load, Room temp., 1s on 9s off) 5×10^4 OPS (NC, 10A 250VAC, Resistive load, Room temp., 1s on 9s off)	

CHARACTERISTICS

Insulation resistance		100MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	2500VAC 1min
	Between open contacts	1000VAC 1min
Surge voltage(between coil & contacts)		6kV (1.2 / 50μs)
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		HF152F: -40˚C to 85˚C HF152F-T: -40˚C to 105˚C
Termination		PCB
Unit weight		Approx.14g
Construction		Plastic sealed, Dust protected

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

COIL

Coil power	Approx. 360mW

COIL DATA at 23˚C

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC*	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: *Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

UL/CUL		20A 125VAC TV-8 125VAC NO/NC: 17A/15A 277VAC NO: 1HP 250VAC NC: 1/2HP 277VAC
VDE ($AgSnO_2$)	1 Form A	16A 250VAC 7A 400VAC
	1 Form C	NO: 16A 250VAC NC: 7A 250VAC

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

	HF152F	/	012	-1Z	P	S	T	G	Q	(XXX)

Type	HF152F: 85°C, HF152F-T: 105°C	
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**: Dust protected
Contact material	**T**: $AgSnO_2$	**Nil**: AgNi
Contact plating	**G**: Gold plated	**Nil**: No gold plated
Contact capacity	**Q:** High capacity type 16A 250VAC, at 105°C (Only for HF152F-T)	**Nil:** Standard type
Customer special code		

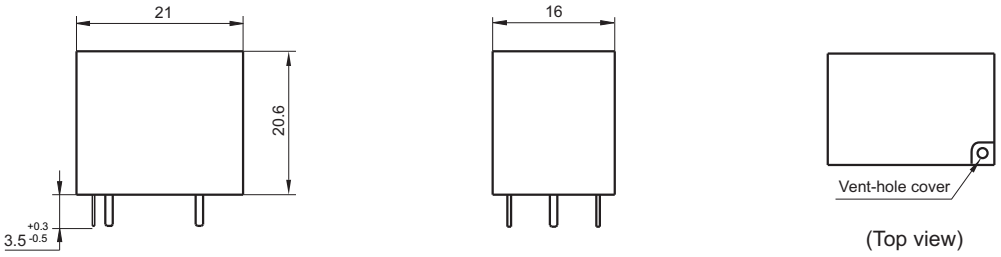
Notes: 1) Under the ambience with dangerous gas like H_2S, SO_2 or NO_2, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, flux proofed type is preferentially recommended.
2) Contact is recommended for suitable condition and specifications if water 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.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

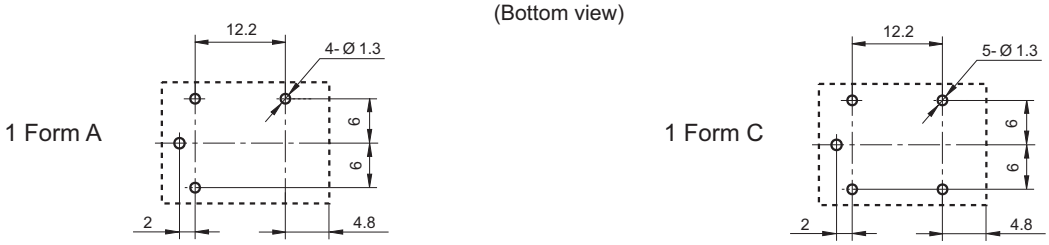
Single pin version

Outline Dimensions



Wiring Diagram
(Bottom view)

PCB Layout
(Bottom view)

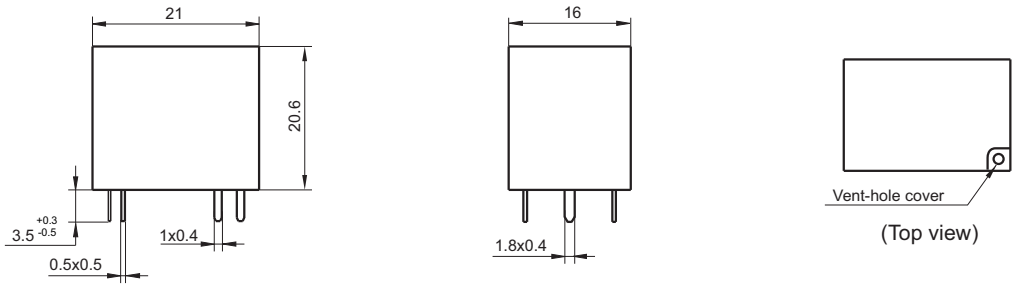


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Double pin version

Outline Dimensions



Wiring Diagram

(Bottom view)

PCB Layout

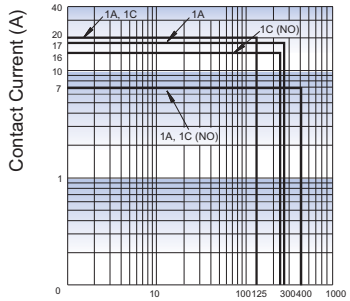
(Bottom view)

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.

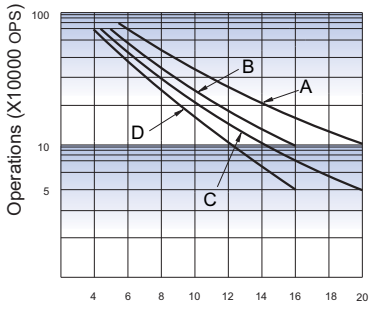
2) The tolerance without indicating for PCB layout is always ±0.1mm.

CHARACTERISTIC CURVES

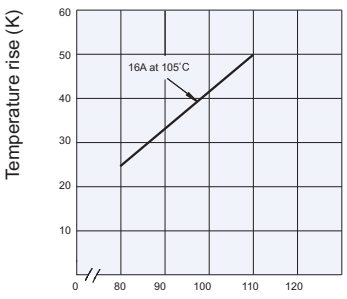
MAX. SWITCHING POWER



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.