HFA2

SAFETY RELAY
(RELAY WITH FORCIBLY GUIDED CONTACTS)

c UL us
File No.:E134517

TÜV
File No.:B120753286005

Features

- Multi contact arrangements: 2 Form C (2Z type), 1NO+1NC (HD1 type), 1NO+1NC (HD2 type)
- Forcibly guided contacts according to EN50205
- 8A switching capability
- High insulation capability (1.2 / 50μs):10kV surge voltage between coil & contacts and 6kV between contact sets
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (29 x12.6 x25.5) mm

CONTACT DATA

Contact arrangement	2 Form C (2Z type) 1NO+1NC (HD1 type) 1NO+1NC (HD2 type)
Forcibly guided contacts Type (according to EN50205)	HD1, HD2 type: Type A 2Z type: Type B
Contact resistance	100mΩ max. (at 1A 6VDC)
Contact material	$AgSnO_2$
Contact rating (Res. load)	6A 250VAC / 30VDC
Max. switching voltage	400VAC / 30VDC
Max. switching current	8A
Max. switching power	1500VA / 180W
Mechanical endurance	1 x 10^7OPS
Electrical endurance[1)]	1 x 10^5OPS (1NO: 6A 250VAC/30VDC, Resistive load, at 70℃, 1s on 9s off) 5 x 10^4OPS (1NC: 6A 250VAC/30VDC, Resistive load, at 70℃, 1s on 9s off)

Notes: 1) Only 1 NO or NC is loaded in the test.

COIL DATA

at 23℃

Nominal Voltage VDC	Pick-up Voltage VDC Max.	Drop-out Voltage VDC Min.	Max. Voltage VDC[1)]	Coil resistance Ω
5	3.80	0.5	7.5	35.7 x (1±10%)
6	4.50	0.6	9.0	51 x (1±10%)
9	6.80	0.9	13.5	116 x (1±10%)
12	9.00	1.2	18	206 x (1±10%)
15	11.3	1.5	22.5	321 x (1±10%)
18	13.5	1.8	27	483 x (1±10%)
21	15.8	2.1	31.5	630 x (1±10%)
24	18.0	2.4	36	823 x (1±10%)
36	27.0	3.6	54	1851 x (1±10%)
40	30.0	4.0	60	2286 x (1±10%)
48 [2)]	36.0	4.8	72	3291 x (1±15%)
60 [2)]	45.0	6.0	90	5142 x (1±15%)
80 [2)]	64.0	8.0	120	9143 x (1±15%)
110[2)]	82.5	11.0	165	17285 x (1±15%)

Notes: 1) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.
2) For products with rated voltage ⩾ 48V, measures should be taken to prevent coil overvoltage in order to protect coil in test and application (eg. Connect diodes in parallel).

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1 min
	Between open contacts	1500VAC 1 min
	Between contact sets	3000VAC 1 min
Surge voltage	Between coil & contacts	10kV (1.2 / 50μs)
	Between open contacts	2.5kV (1.2 / 50μs)
	Between contact sets	6.0kV (1.2 / 50μs)
Operate time (at rated voltage)		15ms max.
Release time (at rated voltage)		10ms max.
Vibration resistance		NO:10Hz to 55Hz 1.6mm DA 55Hz to 200Hz, 98m/s^2 NC:10Hz to 55Hz 0.4mm DA
Shock resistance	Functional	NO:98m/s^2 NC: 49m/s^2
	Destructive	980m/s^2
Creepage distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Clearance distance	Between coil & contacts	8mm
	Between contacts	5.5mm
Humidity		5% to 85% RH
Ambient temperature		-40℃ to 70℃
Termination		PCB
Unit weight		Approx. 20g
Construction		Plastic sealed

Notes: 1) The data shown above are initial values.
2) UL insulation system: Class F, Class B.

COIL

Coil power	Approx. 700mW

SAFETY APPROVAL RATINGS

UL/CUL	6A 250VAC / 277VAC / 30VDC at 70℃ NO: Pilot duty A300, at 70℃ NC: Pilot duty B300, at 70℃
TÜV	NO: 8A 250VAC at 85℃ NC: 6A 250VAC at 85℃ NO: 3A 240VAC(AC-15) at 55℃ NC: 1.5A 240VAC(AC-15) at 55℃

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

	HFA2 /	12	-2Z	S	T	F	G	(XXX)
Type								
Coil voltage	5, 6, 9,12,15,18,21, 24, 36, 40, 48, 60, 80, 110VDC							
Contact arrangement			**2Z:** 2 Form C **HD1:** 1NO+1NC (Type 1) **HD2:** 1NO+1NC (Type 2)					
Construction[1)]				**S:** Plastic sealed				
Contact material					**T:** $AgSnO_2$			
Insulation class						**F:** Class F	**Nil:** Class B	
Contact plating							**G:** Gold plated[2)]	**Nil:** No gold plated
Special code[3)]								**XXX:** Customer special requirement **Nil:** Standard

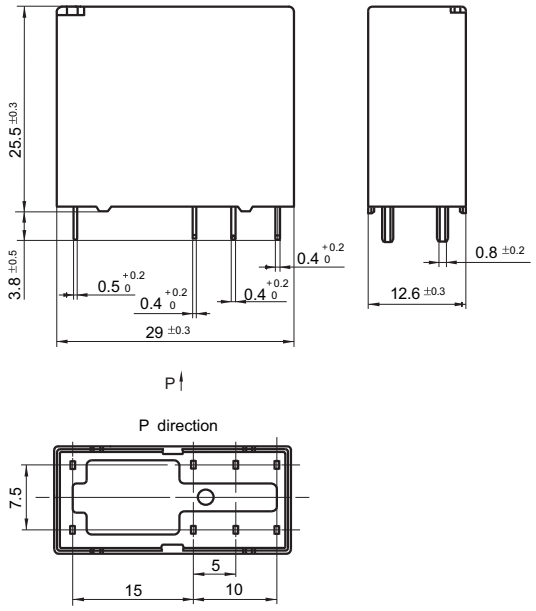
Notes: 1) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.
2) For gold plated type, the min. switching current and min. switching voltage is 10mA 5VDC.if customers have special requirment of load. please contact us for suggestion about suitable parts.
3) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

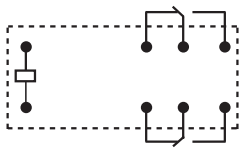
Unit: mm

HFA2/□□-2Z□T□(□□□)

Outline Dimensions

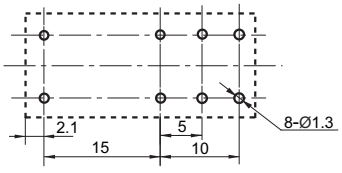


Wiring Diagram



PCB Layout

(Bottom view)

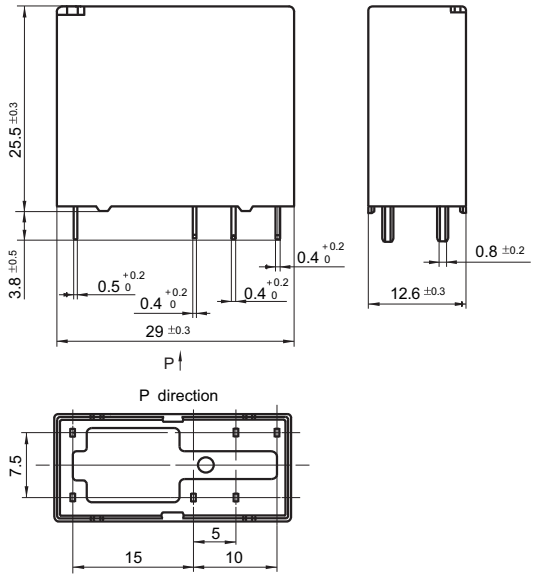


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

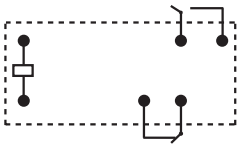
Unit: mm

HFA2/□□-HD1□T□(□□□)

Outline Dimensions

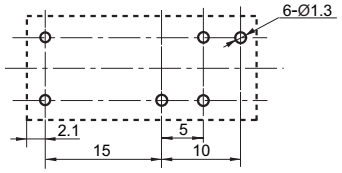


Wiring Diagram



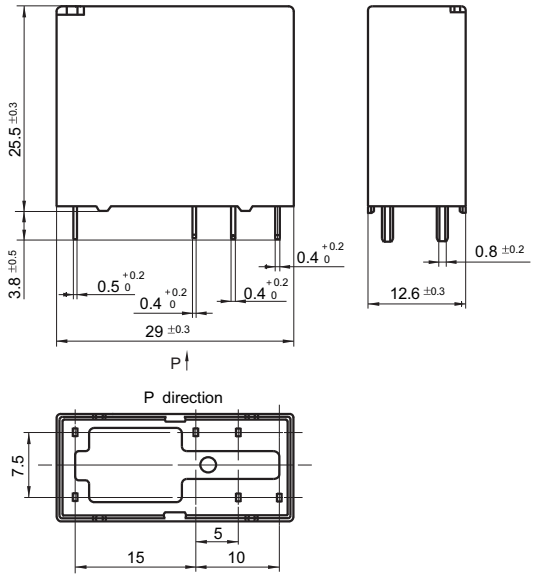
PCB Layout

(Bottom view)

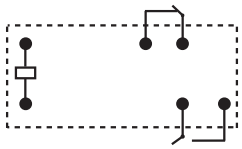


HFA2/□□-HD2□T□(□□□)

Outline Dimensions

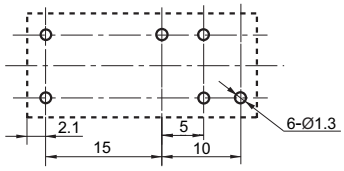


Wiring Diagram



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.

Relay Sockets

CE

cULus

File No.: E253370

Features

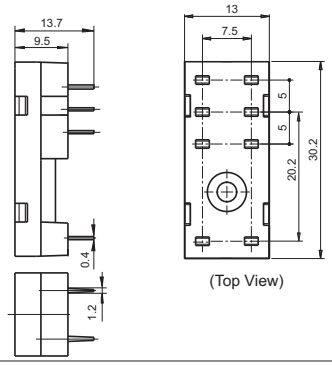
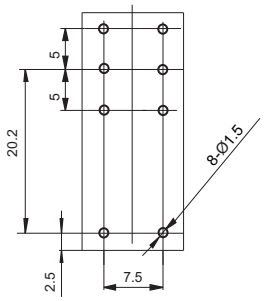
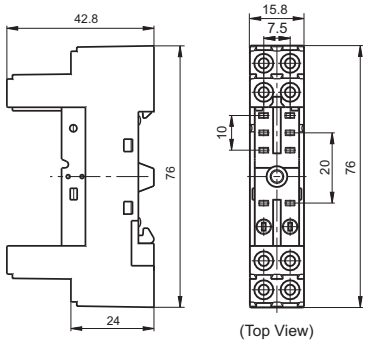
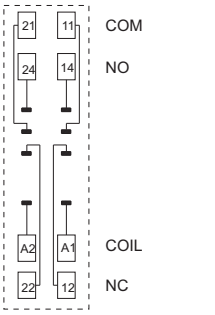
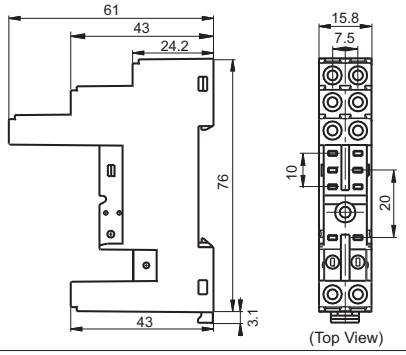
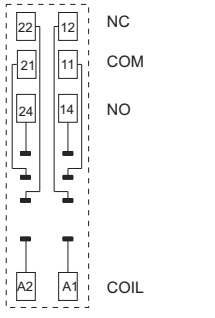
- The dielectric strength can reach 5000VAC(I/O) and the insulation resistance is 1000MΩ
- Three mounting types are available: PCB, screw mounting and DIN rail mounting
- With finger protection device
- Many kinds of plug-in modules are available with the function of energizing indication and wiring protection
- Environmental friendly product (RoHS compliant)

CHARACTERISTICS

Type	Nominal Voltage	Nominal Current	Ambient Temperature	Dielectric Strength min.	Screw Torque	Wire Strip Length
14FF-2Z-A1	250VAC	10A	-40 ˚C to 70˚C	5000VAC	—	—
14FF-2Z-C2	250VAC	10A	-40 ˚C to 70˚C	5000VAC	0.6N · m	7mm
14FF-2Z-C3	250VAC	10A	-40 ˚C to 70˚C	5000VAC	0.6N · m	7mm
14FF-2Z-C4	250VAC	10A	-40 ˚C to 70˚C	5000VAC	—	7mm

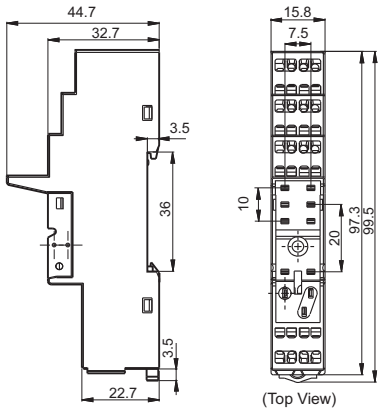
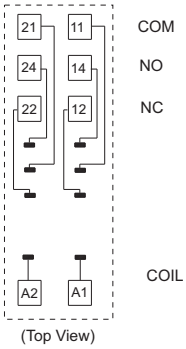
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	Wiring Diagram / PCB Layout	Components Available
14FF-2Z-A1  PCB terminal, PCB or Screw mounting	 (Top View)	 (Top View)	metallic retainer 14FF-H3
14FF-2Z-C2  Screw terminal DIN rail or Screw mounting With finger protection device	 (Top View)	 (Top View)	plastic retainer 14FF-H6 marker 14FF-M1 jumper 14FF-J1 plug-in module HFAA to HFHU*
14FF-2Z-C3  Screw terminal DIN rail or Screw mounting With finger protection device	 (Top View)	 (Top View)	plastic retainer 14FF-H6 marker 14FF-M1 jumper 14FF-J1 plug-in module HFAA to HFHU*

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	Wiring Diagram / PCB Layout	Components Available
14FF-2Z-C4  Spring-loaded terminal DIN rail mounting With finger protection device			plastic retainer 14FF-H6 marker 14FF-M1 plug-in module HFAA to HFHU*

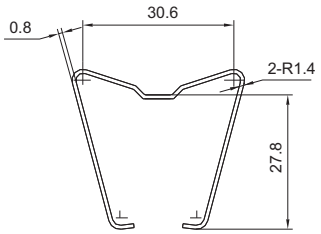
Notes: * Please refer to the product datasheet if plug-in module is required.

DIMENSION OF RELATED COMPOENT (AVAILABLE)

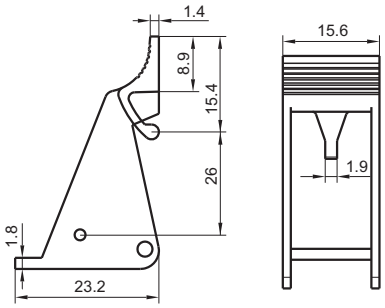
Unit: mm

Retainer

14FF-H3 (Metallic retainer)

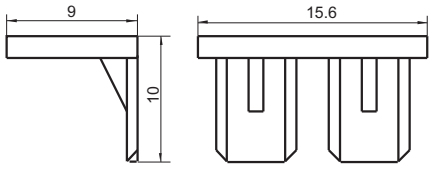


14FF-H6 (Plastic retainer)



Marker

14FF-M1

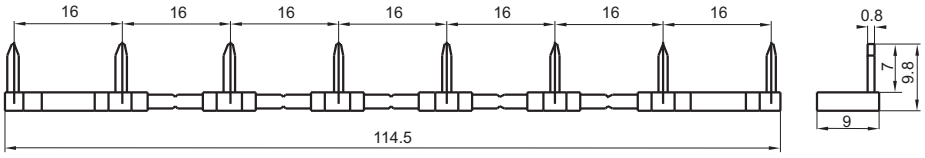


DIMENSION OF RELATED COMPOENT (AVAILABLE)

Unit: mm

Jumper

14FF-J1



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. Socket which can be mounted with markers is furnished with a marker; as for other 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 HF115FP relay. If you have any special requirements, please contact us.
4. Main outline dimension(L, W, H) ⩾50mm, tolerance should be ±1mm; outline dimension ＞20mm and ＜50mm, tolerance should be ±0.5mm; outline dimension ⩽20mm, tolerance should be ±0.3mm.