HF115F-H

MINIATURE HIGH POWER RELAY
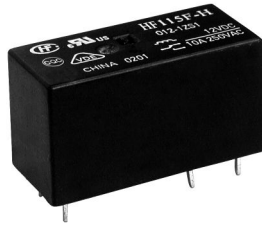
Features

● High sensitive: 0.25W
● Low height: 15.7 mm
● 5kV dielectric strength (between coil and contacts)
● Creepage distance: 10mm
● Meeting VDE 0700, 0631 reinforce insulation
● Product in accordance to IEC 60335-1 available
● Sockets available
● Plastic sealed and flux proofed types available
● UL insulation system: Class F available
● Environmental friendly product (RoHS compliant)
● Outline Dimensions: (29.0 x 12.7 x 15.7) mm

CONTACT DATA

Contact arrangement	1A, 1B, 1C
Contact resistance	100mΩ max.(at 1A 6VDC)
Contact material	See ordering info.
Contact rating (Sensitive coil)	10A 250VAC
Max. switching voltage	440VAC / 300VDC
Max. switching current	10A
Max. switching power	2500VA
Mechanical endurance	1 x 10^7OPS
Electrical endurance	1H3 type: 1 x 10^5OPS (10A 250VAC, Resistive load, at 85°C, 5s on 5s off)

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	5000VAC 1min
	Between open contacts	1000VAC 1min
Surge voltage (between coil & contacts)		10kV (1.2 / 50µs)
Operate time (at nomi. volt.)		15ms max.
Release time (at nomi. volt.)		8ms max.
Temperature rise (at nomi. volt.)		55K max.
Shock resistance *	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance *		10Hz to 150Hz 10g/5g
Humidity		5% to 85% RH
Ambient temperature		-40°C to 85°C
Termination		PCB
Unit weight		Approx. 13.5g
Construction		Plastic sealed, Flux proofed

Notes: 1) The data shown above are initial values.
2) * Index is not that of relay length direction.
3) UL insulation system: Class F, Class B.

COIL

Coil power	Approx. 250mW

COIL DATA   at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC[1]	Coil Resistance Ω
5	3.75	0.5	7.5	100 x (1±10%)
6	4.50	0.6	9.0	144 x (1±10%)
12	9.00	1.2	18	576 x (1±10%)
18	13.50	1.8	27	1296 x (1±10%)
24	18.00	2.4	36	2304 x (1±10%)
48[2]	36.00	4.8	72	9216 x (1±15%)
60[2]	45.00	6.0	90	12857 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).

SAFETY APPROVAL RATINGS

VDE

Contact Material	Specifications	Ratings
AgSnO$_2$	HF115F-H….1(H;Z)(S)(1;2;3)A(G)(F)	10A 250VAC at 85°C
AgCdO	HF115F-H….1(H;Z)(S)(1;2;3)(G)(F)	10A 250VAC at 85°C 6A 400VAC at 85°C

UL/CUL

Contact Material	Specifications	Ratings
AgCdO	HF115F-H….1(H;Z)(S)(1;2;3)(G)(F)	10A 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

$$\text{HF115F-H} \;/\; \text{012} \;\text{-1H}\; \text{S}\; \text{3}\; \text{A}\; \text{F}\; \text{(XXX)}$$

Type

Coil voltage   5, 6, 12, 18, 24, 48, 60VDC

Contact arrangement   **1H:** 1 Form A   **1D:** 1 Form B   **1Z:** 1 Form C

Construction[1) 2)]   **S:** Plastic sealed   **Nil:** Flux proofed

Version   **1:** 3.5mm 1 pole   **2:** 5.0mm 1 pole   **3:** 5.0mm 1 pole

Contact materia[3)]   **A:** AgSnO$_2$ **B:** AgNi   **Nil:** AgCdO   **G:** AgCdO+Au plated
AG: AgSnO$_2$+Au plated   **BG:** AgNi+Au plated

Insulation standard   **F:** Class F   **Nil:** Class B

Customer special code   e.g. (335) stands for product in accordance to IEC 60335-1 (GWT)

Notes: 1) We recommend flux proofed types for a clean environment (free from contaminations like H$_2$S, SO$_2$, NO$_2$, dust, etc.).
We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H$_2$S, SO$_2$, NO$_2$, dust, etc.).
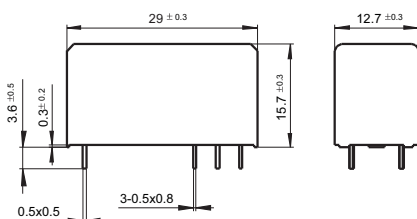2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
3) For gold plated type, the min. switching current and min. switching voltage is 10mA 5VDC.

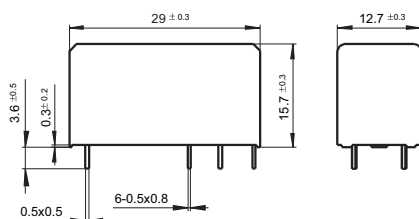## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT   Unit: mm

Outline Dimensions

3.5mm Pinning (HF115F-H/ □□□ -□□-1-□)
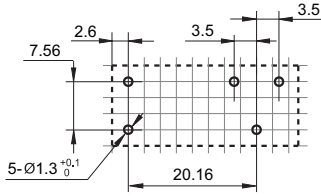

5mm Pinning (HF115F-H/ □□□ -□□-2/3-□)

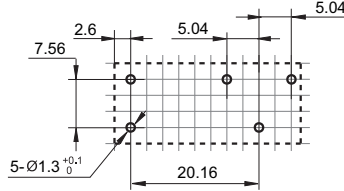## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

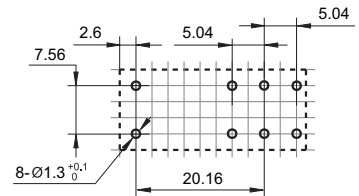Unit: mm

PCB Layout (Bottom view)

3.5mm Pinning, 1 Pole

2.6   3.5   3.5
7.56
5-Ø1.3 $^{+0.1}_{0}$ 20.16

5mm Pinning, 1 Pole

2.6   5.04   5.04
7.56
5-Ø1.3 $^{+0.1}_{0}$ 20.16

5mm Pinning, 1 Pole

2.6   5.04   5.04
7.56
8-Ø1.3 $^{+0.1}_{0}$ 20.16

Wiring Diagram (Bottom view)
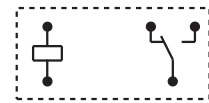
3.5/5mm Pinning, 1 Pole, 10A, HF115F-H/ ☐☐☐ -☐☐ -☐ -1/2 -☐

1 Form A   1 Form B   1 Form C

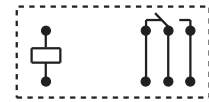5mm Pinning, 1 Pole, 10A, HF115F-H/ ☐☐☐ -☐☐ -☐ -3 -☐
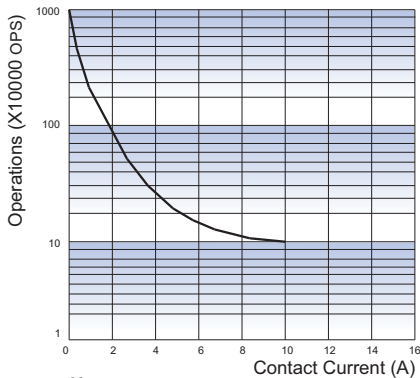
1 Form A   1 Form B   1 Form C

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 2.52mm.

CHARACTERISTIC CURVES

ENDURANCE CURVE
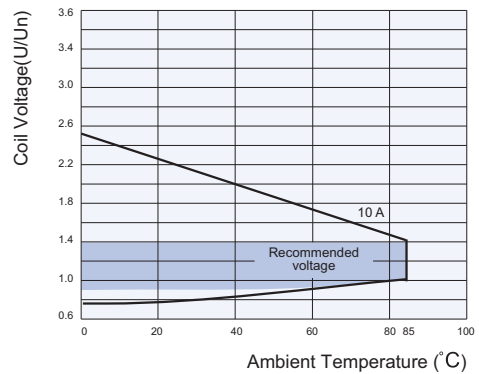
Operations (X10000 OPS)
1000
100
10
1
0 2 4 6 8 10 12 14 16
Contact Current (A)

Notes:
1) Curve : 1H3 type
2) Test conditions:
   NO, 250VAC, Resistive load,
   Flux proofed, at 85°C, 5s on 5s off.

COIL OPERATING RANGE (DC) *

Coil Voltage(U/Un)
3.6
3.4
3.0
2.6
2.2
1.8
1.4
1.0
0.6
0 20 40 60 80 85 100
Ambient Temperature (°C)

10 A
Recommended voltage

Notes: * The use of a relay with an energising voltage
other than the rated coil voltage may lead to
reduced electrical life.
An energising voltage over the abver range
may damage the insulation of relay coil.

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.