HF115F-Q MINIATURE HIGH POWER RELAY

c UL us
File No.: E134517

VDE
File No.:116934

CQC
File No.: CQC08002028130

Features

- Ambient temperature up to 125 ˚C
- 5kV dielectric strength (between coil and contacts)
- Low height: 15.7mm
- Creepage distance >8mm
- Meeting VDE 0700, 0631 reinforce insulation
- UL94, V-0 flammability class
- Product in accordance to IEC 60335-1 available
- UL insulation system: Class F
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: Vertical: (41.0 x 12.7 x 15.7) mm
  Horizontal: (45.0 x 12.7 x 15.7) mm

CONTACT DATA

Contact arrangement	1A, 1B
Contact resistance	100mΩ max.(at 1A 6VDC)
Contact material	$AgSnO_2$, AgNi
Contact rating	20A 250VAC
Max. switching voltage	440VAC / 300VDC
Max. switching current	20A
Max. switching power	5000VA
Mechanical endurance	1 x 10^7OPS
Electrical endurance	1H type: 3 x 10^4OPS (20A 277VAC, Resistive load, Room temp., 1s on 9s 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 *		1A: 10Hz to150Hz 10g 1B: 10Hz to150Hz 5g
Humidity		5% to 85% RH
Ambient temperature		-40˚C to 125˚C
Termination		PCB & QC
Unit weight		Approx. 16g
Construction		Flux proofed

Notes: 1) The data shown above are initial values.
2) * Index is not that of relay length direction.

COIL

Coil power	Approx. 400mW

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	3.50	0.5	7.5	62 x (1±10%)
6	4.20	0.6	9.0	90 x (1±10%)
9	6.30	0.9	13.5	202 x (1±10%)
12	8.40	1.2	18.0	360 x (1±10%)
18	12.6	1.8	27.0	810 x (1±10%)
24	16.8	2.4	36.0	1440 x (1±10%)
48 2)	33.6	4.8	72.0	5760 x (1±15%)
60 2)	42.0	6.0	90.0	7500 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	AgNi	1 Form A	18A 250VAC at 105˚C 16A 250VAC at 125˚C 12A 400VAC at 105˚C
		1 Form B	16A 250VAC at 125˚C 12A 400VAC at 105˚C
UL/CUL	AgNi	1 Form A 1 Form B	20A 277VAC

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

	HF115F-Q /	012	-1H	3	T	(XXX)
Type						
Coil voltage	5, 6, 9, 12, 18, 24, 48, 60VDC					
Contact arrangement	**1H:** 1 Form A **1D:** 1 Form B					
Terminals	**3:** Quick connect terminals horizontal **Nil:** Quick connect terminals vertical					
Contact material	**T:** $AgSnO_2$ **Nil:** AgNi					
Special code[3]	**XXX:** Customer special requirement **Nil:** Standard					

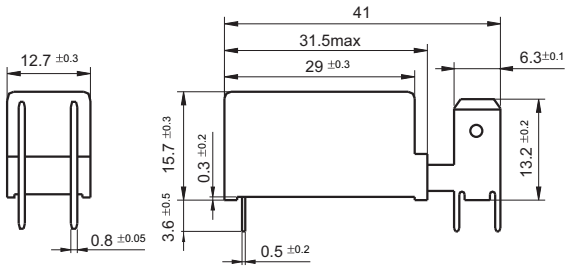
Notes: 1) Flux-proofed relays can not be used in the environment with pollutants like H_2S, SO_2, NO_2, dust, etc.
2) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB.
3) The customer special requirement express as special code after evaluating by Hongfa. e.g.(335) stands for product in accordance to IEC 60335-1 (GWT).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

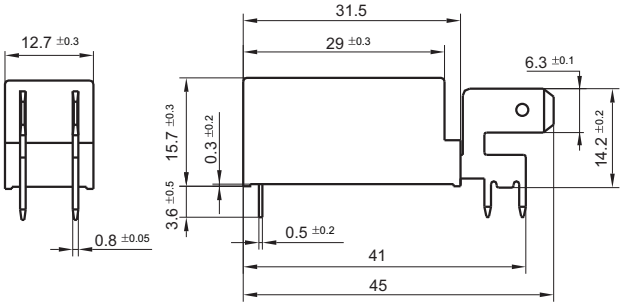
Unit: mm

Outline Dimensions

Quick connect terminals vertical



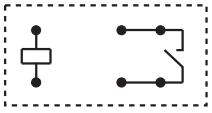
Quick connect terminals horizontal



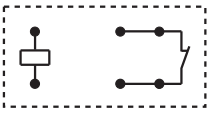
Wiring Diagram

(Bottom view)

1 Form A

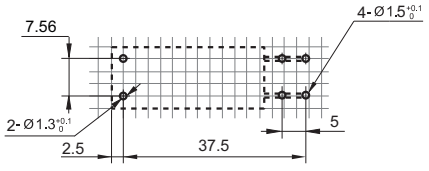


1 Form B



PCB Layout

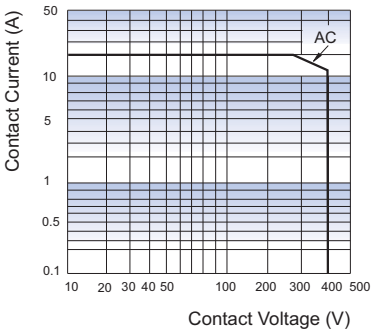
(Bottom view)



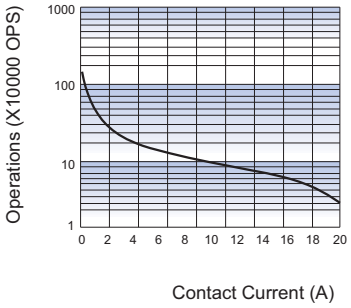
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The width of the gridding is 2.52mm.

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



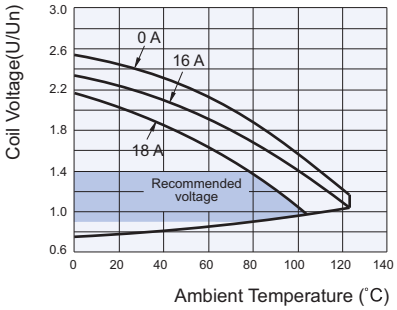
ENDURANCE CURVE



Notes:

1) Curve: 1H type
2) Test conditions:
   NO, 250VAC, Resistive load, Flux proofed,
   Room temp., 1s on 9s off.

COIL OPERATING RANGE (DC) *



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.