HF115FK MINIATURE HIGH POWER RELAY

File No.:E134517

File No.:116934

File No.:CQC17002176308

Features

- Low height: 15.7 mm
- 16A switching capability
- 5kV dielectric strength (between coil and contacts)
- Creepage distance: 10mm
- Meeting reinforce insulation
- Flux proofed type
- Product in accordance to IEC 60335-1 available
- UL insulation system: Class F
- Environmental friendly product (RoHS compliant)
- Outline Dimensions:29.0mm x 12.7mm x 15.7mm

CONTACT DATA

Contact arrangement	1A, 1C	2A, 2C
Contact resistance[1)]	100mΩ max.(at 1A 6VDC)	
Contact material	$AgSnO_2$	
Contact rating (Res. load)	12A/16A 250VAC	8A 250VAC
Max. switching voltage	400VAC	
Max. switching current	12A / 16A	10A
Max. switching power	3000VA / 4000VA	2000VA
Mechanical endurance	1×10^7 OPS	
Electrical endurance	H3(P)T type: 1×10^5 OPS (NO: 16A 277VAC, Resistive Load at 40°C, 1s on 9s off) Z3(P)T type: 5×10^4 OPS (NO: 16A 250VAC, Resistive Load at 85°C, 1s on 9s off) 2Z4(P)T type: 5×10^4 OPS (NO: 8A 250VAC, Resistive Load at 85°C, 1s on 9s off) Z33 type: 1×10^5 OPS (NO: 16A 277VAC, Resistive Load at 40°C, 1s on 9s off) 2Z43 type: 5×10^4 OPS (NO: 8A 277VAC, Resistive Load at 40°C, 1s on 9s off)	

Notes: 1) The data shown above are initial values.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	5000VAC 1min
	Between open contacts	1000VAC 1min
	Between contact sets	2500VAC 1min
Surge voltage (between coil & contacts)		10kV (1.2 x 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 150Hz 10g/5g
Humidity		5% to 85% RH
Ambient temperature		-40°C to 85°C
Termination		PCB
Unit weight		Approx. 13g
Construction		Flux proofed

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

COIL

Coil power	Approx. 400mW(Standard type)
	Approx. 530mW(high power consumption type)

COIL DATA at 23°C

Standard type

Nominal Voltage VDC	Pick-up Voltage VDC max.[1)]	Drop-out Voltage VDC min.[1)]	Max. Voltage VDC *[2)]	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	360 x (1±10%)
18	12.60	1.8	27	810 x (1±10%)
24	16.80	2.4	36	1440 x (1±10%)
48	33.60	4.8	72	5760 x (1±15%)

COIL DATA at 23°C

high power consumption type

Nominal Voltage VDC	Pick-up Voltage VDC max.[1)]	Drop-out Voltage VDC min.[1)]	Max. Voltage VDC *[2)]	Coil Resistance Ω
5	≤3.50	≥0.5	7.5	47 x (1±10%)
6	≤4.20	≥0.6	9.0	68 x (1±10%)
9	≤6.30	≥0.9	13.5	153 x (1±10%)
12	≤8.40	≥1.2	18	271 x (1±10%)
18	≤12.60	≥1.8	27	611 x (1±10%)
24	≤16.80	≥2.4	36	1086 x (1±10%)
48	≤33.60	≥4.8	72	4347 x (1±15%)

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

Standard type

UL/CUL	$AgSnO_2$	Z1T: 12A 250VAC at 85˚C Z2T：12A 250VAC at 85˚C Z3T：16A 250VAC at 85˚C 2Z4T： 8A 250VAC at 85˚C
	AgNi	Z13：12A 250VAC at 40˚C Z23：12A 250VAC at 40˚C Z33：16A 250VAC at 40˚C 2Z43： 8A 250VAC at 40˚C
VDE	$AgSnO_2$	Z1T：12A 250VAC at 85˚C Z2T：12A 250VAC at 85˚C Z3T：16A 250VAC at 85˚C 2Z4T： 8A 250VAC at 85˚C
	AgNi	Z13：12A 250VAC at 85˚C Z23：12A 250VAC at 85˚C Z33：16A 250VAC at 85˚C 2Z43： 8A 250VAC at 85˚C

SAFETY APPROVAL RATINGS

high power consumption type

UL/CUL	Z1PT：12A 277VAC 85˚C 16A 277VAC room temperature TV8 NO room temperature Z2PT：12A 277VAC 85˚C 6A 277VAC room temperature TV8 NO room temperature Z3PT：16A 277VAC 85˚C TV8 NO room temperature 2Z4PT： 8A 250VAC 85˚C
VDE	Z1PT：12A 277VAC 85˚C Z2PT：12A 277VAC 85˚C Z3PT：16A 277VAC 85˚C 2Z4PT： 8A 250VAC 85˚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

HF115FK /	12	-H	3	P	T	(XXX)

Type

Coil voltage 5, 6, 9, 12, 18, 24, 48 VDC

Contact arrangement **H:** 1 Form A **Z:** 1 Form C **2H:** 2 Form A **2Z:** 2 Form C

Version **1:** 3.5mm 1 pole 12A **2:** 5.0mm 1 pole 12A **3:** 5.0mm 1 pole 16A **4:** 5.0mm 2 pole 8A

Coil type **P:high power consumption type** **Nil:** Standard

Contact material [1] **T:** $AgSnO_2$ **3:** AgNi (Standard)

Special code[3] **XXX:** Customer special requirement **Nil:** Standard

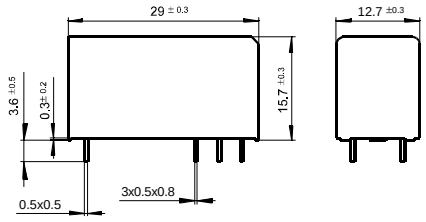
Notes:1) We recommend flux proofed types for a clean environment (free from contaminations like H_2S, SO_2, NO_2, dust, etc.).
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
3) The customer special requirement 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

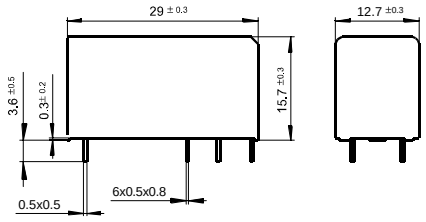
Unit: mm

Outline Dimensions

3.5mm Pinning (HF115FK/ □□□-1-□)



5mm Pinning (HF115FK/□□□-□-2/3/4-□)



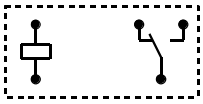
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Wiring Diagram (Bottom view)

3.5/5mm Pinning, 1 Pole, 12A, HF115FK/ □□□-1/2-□

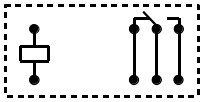
1 Form A



1 Form C

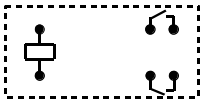
5mm Pinning, 1 Pole, 16A, HF115FK/ □□□-3-□

1 Form A

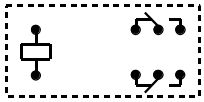


1 Form C

5mm Pinning, 2 Pole, 8A, HF115FK/ □□□-2□-4-□



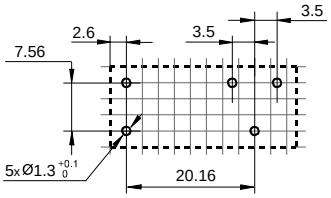
2 Form A



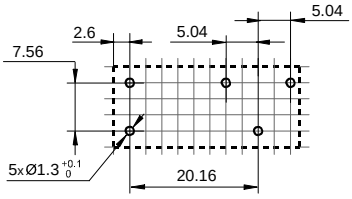
2 Form C

PCB Layout (Bottom view)

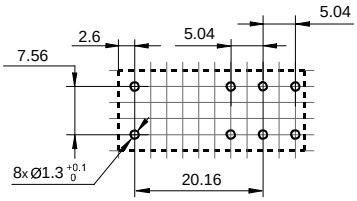
3.5mm 1Pole 12A



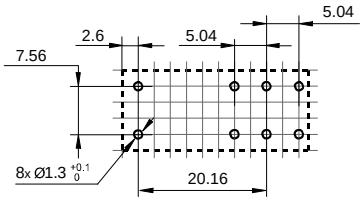
5mm 1Pole 12A



5mm 1Pole 16A



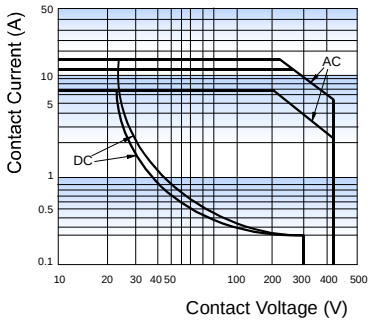
5mm 2Pole 8A



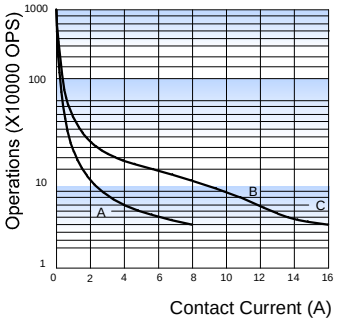
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The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

CHARACTERISTIC CURVES

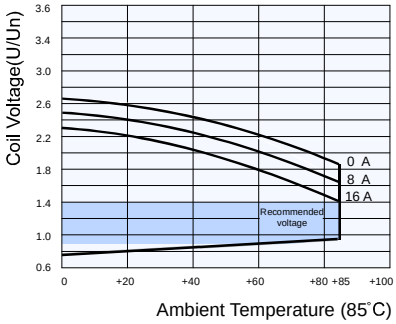
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL OPERATING RANGE (DC) *



Test conditions:

1) Curve A: 2Z4T type
   Curve B: Z2T type (or Z2T type)
   Curve C: Z3T type
2) Test conditions:
   NO, resistive load, 250VAC, flux proofed, at 85°C, 1s on 9s off

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.