HF118F 1 pole MINIATURE HIGH POWER RELAY

c UL us
File No.: E134517

File No.: 40010480

File No.:CQC09002035071

Features

- 10A switching capability
- 5kV dielectric strength (between coil and contacts)
- Low height: 12.5 mm
- Creepage distance >8mm
- Meeting VDE 0700, 0631 reinforce insulation
- Product in accordance to IEC 60335-1 available
- 1 pole configurations available
- Sockets available
- Wash tight and flux proofed types available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (28.5 x 10.1 x 12.5) mm

CONTACT DATA

Contact arrangement	1A,1B,1C (specialties 1A5,1B6)
Contact material	See ordering info.
Contact resistance	100mΩ (at 1A 6VDC)
Contact rating (Res. load)	10A 250VAC/30VDC
Max. switching voltage	440VAC / 125VDC
Max. switching current	10A
Max. switching power	2500VA / 300W
Mechanical endurance	1 x 10^7OPS
Electrical endurance	1 x 10^5OPS (See approval reports for more details)

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 x 50μs)
Operate time (at nomi. vot.)		10ms max.
Release time (at nomi. vot.)		5ms max.
Temperature rise (at nomi. Volt.)		55K max.
Shock resistance *	Functional	NC: 49m/s^2 NO: 98m/s^2
	Destructive	980m/s^2
Vibration resistance *	NC (no coil voltage)	10Hz to 55Hz 0.8mm DA
	NO	10Hz to 55Hz 1.65mm DA
Ambient temperature		-40˚C to 85˚C
Humidity		35% to 85% RH
Termination		PCB
Unit weight		Approx. 8g
Construction		Wash tight, Flux proofed

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

COIL

Coil power	220 to 290mW

COIL DATA at 23˚C

Nominal Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Max. Allowable Voltage VDC	Coil Resistance Ω
5	3.50	0.5	11.8	113 x (1±10%)
6	4.20	0.6	14.1	164 x (1±10%)
9	6.30	0.9	21.2	360 x (1±10%)
12	8.40	1.2	28.2	620 x (1±10%)
18	12.70	1.8	42.3	1295 x (1±10%)
24	16.80	2.4	56.4	2350 x (1±15%)
48	33.60	4.8	112.8	8000 x (1±15%)
60	42.00	6.0	141.0	12500 x (1±15%)

Notes: The max. allowable voltage in the COIL DATA is coil overdrive voltage, it is the instantaneous max. voltage which the relay coil could endure in a very short time.

SAFETY APPROVAL RATINGS

UL&CUL (AgNi, $AgSnO_2$)	version 1,2,3,5,6	10A 250VAC 10A 30VDC B300 R300 1/2HP 240VAC $AgSnO_2$: 1/3HP 120VAC
VDE (AgNi, AgNi+Au)	1H (;S) (1;2;3;5.;7) (-;G)	8A 250VAC at 85˚C
	1D (;S) (1;2;3;6) (-;G)	8A 250VAC at 85˚C
	1Z (-;S) (1;2;3) (-;G)	8A 250VAC at 85˚C
VDE ($AgSnO_2$, $AgSnO_2$+Au)	1H (-;S) (1;2;3;5;7), T.(-;G)	8A 250VAC at 85˚C
	1D (-;S) (1;2;3;6), T.(-;G)	8A 250VAC at 85˚C
	1Z (-;S) (1;2;3), T.(-;G)	8A 250VAC at 85˚C
	1H (-;S) (1;2;3;5;7), T.(-;G)	AC-15 (Make: 30A 250VAC COS Ø=0.7 at 85˚C Break: 3A 250VAC COS Ø=0.4 at 85˚C)
	1Z (-;S) (1;2;3), T.(-;G)	NO: AC-15 (Make: 30A 250VAC COS Ø=0.7 at 85˚C Break: 3A 250VAC COS Ø=0.4 at 85˚C)

Notes: Only some typical ratings are listed above. If more details are required, please contact us.

ORDERING INFORMATION

HF118F /	012	-1H	S	1	G	(XXX)

Type

Coil voltage 5, 6, 9, 12, 18, 24, 48, 60VDC

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

Construction [1] **S:** Wash tight **Nil:** Flux proofed

Version (See Wiring Diagram below)
1: 3.2mm 1 pole 8A **2:** 3.2mm 1 pole 8A, mirror image to Version 1
3: 3.2mm 1 pole 10A, double pinning
5: 5mm 8A, only 1 Form A **6:** 5mm 8A, only 1 Form B

Contact material [2] **T:** $AgSnO_2$ **G:** AgNi+Au plated **TG:** $AgSnO_2$+Au plated **Nil:** AgNi

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

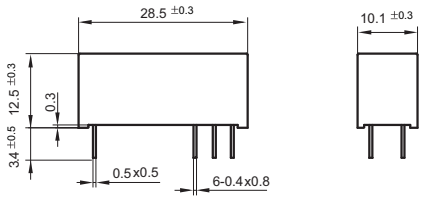
Notes: 1) We recommend flux proofed types for a clean environment (free from contaminations like H_2S, SO_2, NO_2, dust, etc.).
We suggest to choose wash tight types and validate it in real application for an unclean environment (with contaminations like H_2S, SO_2, NO_2, dust, etc).
If water cleaning 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 100mA 5VDC.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

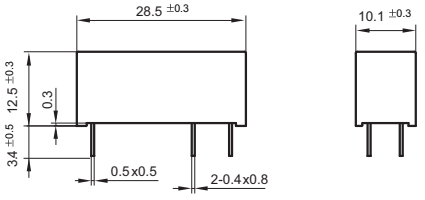
Unit: mm

Outline Dimensions

3.2mm pinning



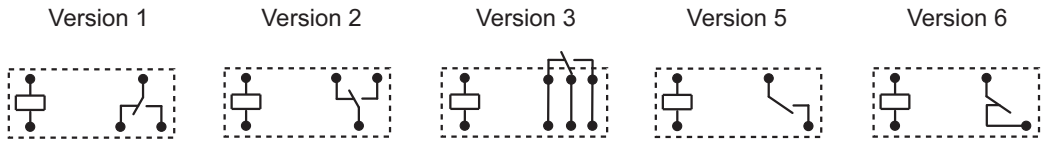
5mm pinning



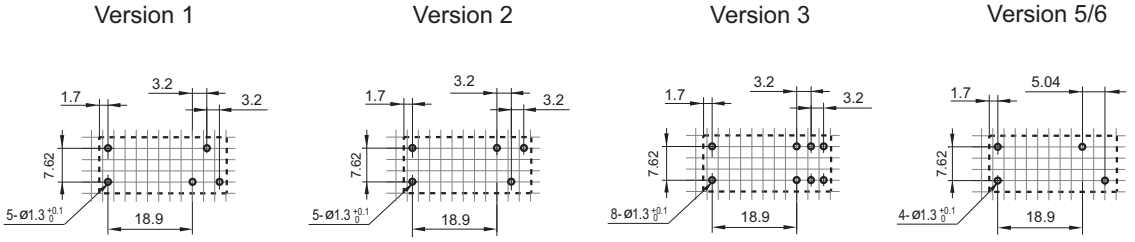
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Wiring Diagram (Bottom view)



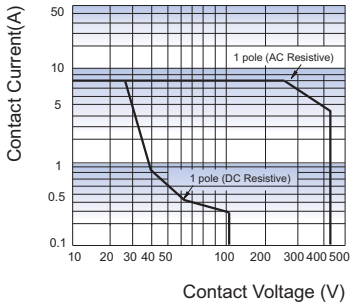
PCB Layout (Bottom view)



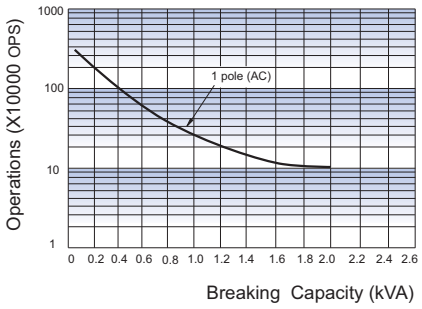
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The width of the gridding is 2.54mm.

CHARACTERISTIC CURVES

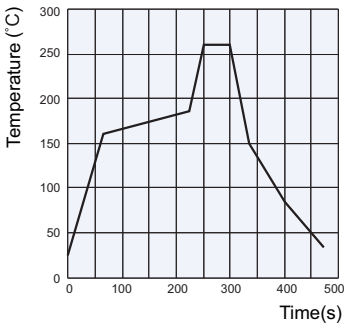
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



REFLOW WELDING TEMPERATURE
(Reflow soldering version)



Disclaimer

This datasheet is for the customers' reference. All the specifications are 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.