HF14FW MINIATURE HIGH POWER RELAY

File No.:E134517

File No.:40023508

File No.:CQC10002046170

Features

- 20A switching capability
- 4kV dielectric strength (between coil and contacts)
- Meeting VDE 0700, 0631 reinforce insulation
- 1 Form A, 1 Form B and 1 Form C configurations
- 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 13.0 x 26.5) mm

CONTACT DATA

Contact arrangement	1A, 1B, 1C
Contact resistance	50mΩ max.(at 1A 24VDC)
Contact material	$AgSnO_2$, AgCdO
Contact rating	Resistive: 16A 240VAC/24VDC 1HP 240VAC TV-8 125VAC (NO contact
Max. switching voltage	277VAC / 30VDC
Max. switching current	20A
Max. switching power	5540VA / 480W
Mechanical endurance	1 x 10^7OPS
Electrical endurance	1 x 10^5OPS (NO or NC, 16A 240VAC, Resistive load, Room temp., 1s on 9s off) 5 x 10^4OPS (NO or NC, 16A 24VDC, Resistive load, Room temp., 1s on 9s off)

Notes: For plastic sealed type, the venting-hole should be excised in electrical endurance test.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1000VAC 1min
Operate time (at nomi. volt.)		15ms max.
Release time (at nomi. volt.)		5ms max.
Ambient temperature		-40˚C to 85˚C
Humidity		5% to 85% RH
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Termination		PCB
Unit weight		Approx. 18.5g
Construction		Plastic sealed, Flux proofed

Notes: 1) The data shown above are initial values.
2) Please find coil temperature curve in the characteristic curves below.
3) UL insulation system: Class F, Class B.

COIL

Coil power	Standard: Approx.720mW Sensitive: Approx.530mW

COIL DATA at 23˚C

Standard type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC*	Coil Resistance Ω
5	3.6	0.5	5.5	36 x (1±10%)
6	4.3	0.6	6.6	50 x (1±10%)
9	6.5	0.9	9.9	115 x (1±10%)
12	8.6	1.2	13.2	200 x (1±10%)
18	13.0	1.8	19.8	460 x (1±10%)
24	17.3	2.4	26.4	820 x (1±10%)
48	34.6	4.8	52.8	3300 x (1±10%)
60	43.2	6.0	66.0	5100 x (1±10%)

Sensitive type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC*	Coil Resistance Ω
5	3.60	0.5	7.0	47 x (1±10%)
6	4.30	0.6	8.4	68 x (1±10%)
9	6.50	0.9	12.6	160 x (1±10%)
12	8.60	1.2	16.8	275 x (1±10%)
18	13.0	1.8	25.2	620 x (1±10%)
24	17.3	2.4	33.6	1100 x (1±10%)
48	34.6	4.8	67.2	4170 x (1±10%)
60	43.2	6.0	84.0	7000 x (1±10%)

Notes: 1) When requiring pick-up voltage < 72% of nominal voltage, special order allowed.
2) Suggesting to use the sensitive type.
3) *Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.
4) Under ambient temperature, applying more than 80% of rating voltage to coil, relay will take action accordingly. But in order to meet the stated product performance, please apply rated voltage to coli.

SAFETY APPROVAL RATINGS

UL/CUL	Standard, Sensitive	$AgSnO_2$	20A/16A/12A 277VAC Resistive 1HP (8 FLA) 240VAC TV-8 125VAC 16A 240VAC General Use 20A/16A/12A 24VDC 10FLA 60LRA 250VAC
		AgCdO	20A/16A/12A 277VAC Resistive 1HP (8 FLA) 240VAC 16A 240VAC General Use 20A/16A/12A 24VDC 20A 125VAC General Use
	(136)	$AgSnO_2$	20A 125VAC Resistive 20A 277VAC/250VAC/125VAC General Use 16A 277VAC/250VAC/125VAC Resistive 20A 30VDC Resistive 1/2HP 250VAC/125VAC TV-10 125VAC 10FLA 60LRA 250VAC
VDE (Coil power is 530mW)	$AgSnO_2$	1 Form A	20A 250VAC at 70℃ 16A 30VDC at 70℃
		1 Form C	16A 250VAC at 70℃ 16A 30VDC at 70℃ NO:20A 250VAC at 70℃

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

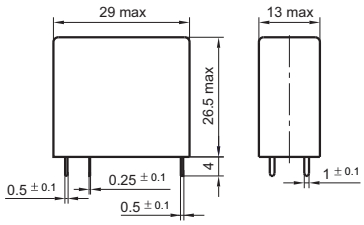
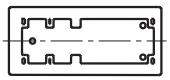
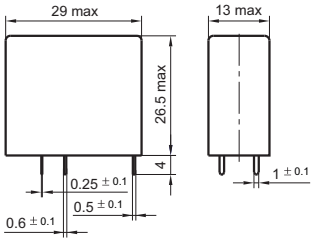
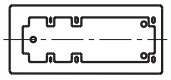
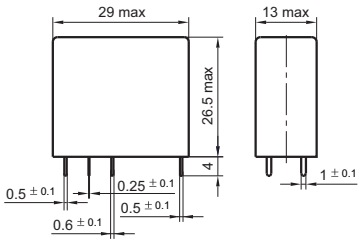
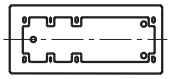
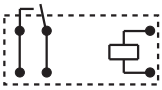
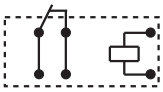
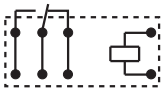
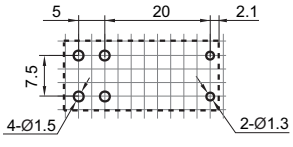
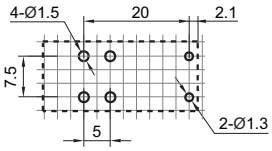
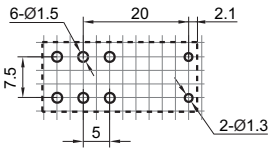
HF14FW / 012 -H S P T F (XXX)

Type		
Coil voltage	5, 6, 9, 12, 18, 24, 48, 60VDC	
Contact arrangement	**H:** 1Form A **D:** 1 Form B **Z:** 1 Form C	
Construction[1]	**S:** Plastic sealed(No smoky-gray cover)	**Nil:** Flux proofed
Coil power	**P:** Standard	**Nil:** Sensitive
Contact material	**T:** $AgSnO_2$	**Nil:** AgCdO
Insulation standard	**F:** Class F	**Nil:** Class B
Special code[4]	**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.).
We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with 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 standard type is made of black cover. If smoky-gray cover is required, please add a special suffix (611) when ordering. Please take note that smoky-gray cover is only availabe for flux proofed.
4) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

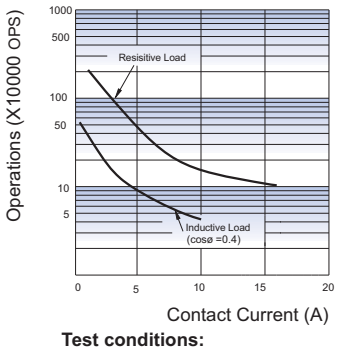
Unit: mm

	1 Form A	1 Form B	1 Form C
Outline Dimensions	  (Bottom view)	  (Bottom view)	  (Bottom view)
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 2.5mm.

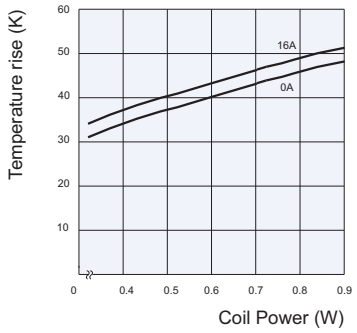
CHARACTERISTIC CURVES

ENDURANCE CURVE



Test conditions:
No contact, Resistive load,
Flux proofed, Room temp., 1s on 9s off.

COIL TEMPERATURE RISE



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.