HF165F-50 MINIATURE HIGH POWER RELAY

c UL us
File No:E134517

File No:R 50463438

CQC
File No:CQC18002189685

Features

- 50A switching capability.
- 4kV dielectric strengh(between coil and contacts).
- UL insulation system：class F available.

RoHS compliant

CONTACT DATA

Contact arrangement	1A
Voltage drop 1)	100mV max.(at 10A 13.5VDC)
Contact material	$AgSnO_2$/AgNi
Contact rating (Res. load)	50A 250VAC
Max. switching voltage	250VAC
Max. switching current 2)	50A
Max. switching power	12500VA
Mechanical endurance	1 x 10^6 OPS
Electrical endurance	1x10^4OPS(50A 250VAC, Resistive load, at 65°C, 1s on 9s off,AgNi/$AgSnO_2$) 3x10^4OPS(40A 250VAC, Resistive load, at 85°C, 1s on 9s off,$AgSnO_2$)

Notes: 1)The data shown above are initial values.
2)The relay connections and wiring have to be designed with an adequate cross sections to ensure the current flow and heat dissipation.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1500VAC 1min
Surge voltage (between coil & contacts)		6kV (1.2/50μs)
Operate time (at rated. volt.)		15ms max.
Release time (at rated. volt.)		10ms max.
Temperature rise		90K max.(Contact load current 50A, rated voltage excitation, at 65°C)
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Ambient temperature		-40°C to 105°C
Humidity		5% to 85% RH
Termination		PCB
Unit weight		Approx.36g
Construction		Flux proofed

Notes: The data shown above are initial values.

COIL

Coil power	Standard type：Approx.1.2W Sensitive type：Approx.0.9W

COIL DATA at 23°C

Standard type

Nominal Voltage VDC 1)	Pick-up Voltage VDC max1)	Drop-out Voltage VDC min1)	Max. Voltage VDC *2)	Coil Resistance Ω
5	3.75	0.5	6.5	20.8 x (1±10%)
6	4.5	0.6	7.8	30 x (1±10%)
12	9	1.2	15.6	120 x (1±10%)
24	18	2.4	31.2	480 x (1±10%)
48	36	4.8	62.4	1920 x (1±10%)

Sensitive type

Nominal Voltage VDC 1)	Pick-up Voltage VDC max1)	Drop-out Voltage VDC min1)	Max. Voltage VDC *2)	Coil Resistance Ω
5	3.75	0.5	6.5	27.8 x (1±10%)
6	4.5	0.6	7.8	40 x (1±10%)
12	9	1.2	15.6	160 x (1±10%)
24	18	2.4	31.2	640 x (1±10%)
48	36	4.8	62.4	2560 x (1±10%)

Notes: 1)The data shown above are initial values.
2)*Maximun voltage refers to the maximun voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

UL/CUL TUV	Standard type	Resistance load 50A 250VAC 65℃ (AgNi/$AgSnO_2$) Resistance load 40A 250VAC 85℃ (AgNi/$AgSnO_2$) Resistance load 32A 250VAC 105℃ (AgNi/$AgSnO_2$) Resistance load Making 20A Carrying 60A Breaking 20A 60℃ (AgNi/$AgSnO_2$) Resistance load 24VDC 30A 85℃ (AgNi/$AgSnO_2$)
	Sensitive type	Resistance load Making 60A Breaking 20A 400VAC 85℃ (AgNi/$AgSnO_2$)
CQC	Standard type	32A 277VAC 105℃ (AgNi/$AgSnO_2$)
	Sensitive type	Resistance load Making 60A Breaking 20A 400VAC 85℃ (AgNi/$AgSnO_2$)

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

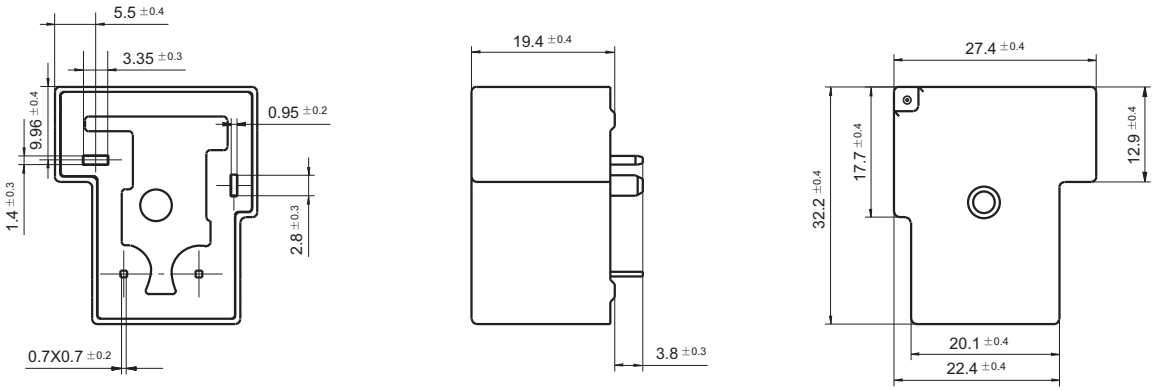
	HF165F-50 /	12	-H	L	T	(XXX)
Type						
Coil voltage	5, 6, 12, 24, 48VDC					
Contact arrangement	**H:** 1 Form A					
Coil power	**L:** Sensitive	**Nil:** Standard				
Contact matcrial[2)]	**T:** $AgSnO_2$	**3:** AgNi				
Special code[3)]	**XXX:** Customer special requirement		**Nil:** Standard			

Notes: 1) Please avoid using the relay in an environment containing organic silicon,otherwise the entry of organic silicon into the relay may acceleration contact failure.If there are harmful substances and elements such as water vapor,H_2S,SO_2,NO_2,Cl,P,etc.In the use of environmental gases,it may lead to increased contact resistance and poor contact during the use of relays.In the above situations,please control the materials or use plastic sealed type and arrange relevant tests to confirm..
2) When there is surge current in the load, it is recommended to use $AgSnO_2$ contact material and confirm it in actual use.
3)The customer special requirement express as special code after evaluating by Hongfa.(A21) indicates that the maximum current carrying capacity of the product is 60A.
4) Water cleaning or surface process is not suggested after the flux-proofed relays are assembled on PCB.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

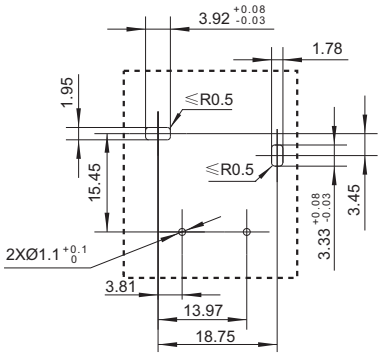
Outline Dimensions



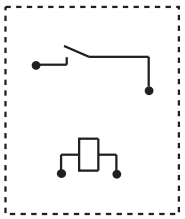
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout (Bottom view)



Wiring Diagram



Notes: 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.