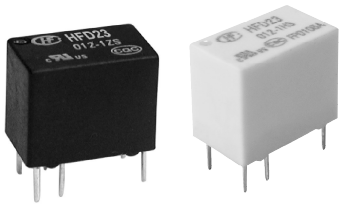
HFD23 SUBMINIATURE SIGNAL RELAY

File No.:E133481

File No.:R50306254

File No.:CQC09002035070



Features

- Max.4A switching capability
- High sensitive: 150mW
- 1 Form C configuration
- Gold plated contact
- Subminiature
- Plastic sealed type available
- 90˚C high temperature specifical for selection

RoHS compliant

CONTACT DATA

Contact arrangement	1A	1C
Contact resistance	100mΩ max. (at 10mA 30mVDC)	
Contact material	AgNi +Au plated	
Contact rating (Res. load)	1A 125VAC/2A 30VDC	0.5A 125VAC/1A 30VDC
Max. switching voltage	125VAC / 60VDC	
Max. switching current	4A	2A
Max. switching power	125VA / 60W	62.5VA / 30W
Min. applicable load 1)	1mA 5V	
Mechanical endurance	1 x 10^7OPS	
Electrical endurance 2)	9 x 10^4OPS (1H:1A 125VAC; 1Z:0.5A 125VAC, Resistive load., Room temp., 1s on 9s off)	

Notes: 1) Min. applicable load is reference value. Please perform the confirmation test with the actual load before production since reference value may change according to switching frequencies, environmental conditions and expected contact resistance and reliability.
2) Electric endurance data are collected in the NO or NC contact test.

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	1000VAC 1min
	Between open contacts	500VAC 1min
Operate time (at rated. volt.)		5ms max.
Release time (at rated. volt.)		5ms max.
Temperature rise (at rated.volt.)		65K max.
Vibration resistance		10Hz to 55Hz 3.3mm DA
Shock resistance	Functional	196m/s²
	Destructive	980m/s²
Humidity		5% to 98% RH
Ambient temperature		-40˚C to 70˚C -40˚C to 90˚C(high temperature)
Unit weight		Approx. 2.2g
Termination		PCB (DIP)
Construction		Plastic sealed

Notes: 1) The data shown above are initial values.
2) UL insulation system: Class A

COIL

Coil power	Sensitive: Approx. 150mW; Standard: Approx. 200mW

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
1.5	1.20	0.15	2.25	11.3 x (1±10%)
2.4	1.92	0.24	3.6	28.8 x (1±10%)
3	2.40	0.30	4.5	45 x (1±10%)
3.5	3.60	0.45	5.75	101.3 x (1±10%)
5	4.00	0.50	7.5	125 x (1±10%)
6	4.80	0.60	9.0	180 x (1±10%)
9	7.20	0.90	13.5	405 x (1±10%)
12	9.60	1.20	18.0	720 x (1±10%)
24	19.20	2.40	36.0	2880 x (1±15%)

Sensitive type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC	Coil Resistance Ω
1.5	1.20	0.15	2.25	15 x (1±10%)
2.4	1.90	0.24	3.6	38.4 x (1±10%)
3	2.40	0.30	4.5	60 x (1±10%)
4.5	3.60	0.45	5.75	135 x (1±10%)
5	4.00	0.50	7.5	167 x (1±10%)
6	4.80	0.60	9.0	240 x (1±10%)
9	7.20	0.90	13.5	540 x (1±10%)
12	9.60	1.20	18.0	960 x (1±10%)
24	19.20	2.40	36.0	3840 x (1±15%)

Notes: 1) When user's requirements can't be found in the above table, special order allowed.
2) In case 5V of transistor drive circuit, it is recommended to use 4.5V type relay, and 3V to use 2.4V type relay.

SAFETY APPROVAL RATINGS

UL/CUL	1H type: 2A 30VDC 40 ˚C 1A 125VAC 40 ˚C 1A 30VDC 90 ˚C 0.5A 125VAC 90 ˚C	1Z type: 1A 30VDC 70 ˚C 0.5A 48VDC 70 ˚C 0.5A 125VAC 70 ˚C 1A 30VDC 90 ˚C 0.5A 125VAC 90 ˚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

	HFD23 /	012	-1Z	S	(XXX)
Type					
Coil voltage	1.5, 2.4, 3, 4.5, 5, 6, 9, 12, 24VDC				
Contact arrangement	**1H**: 1 Form A **1Z:** 1 Form C				
Coil power	**S:** Sensitive type **P:** Standard type				
Special code[2)]	**XXX:** Customer special requirement **Nil:** Standard **866:**High temperature type				

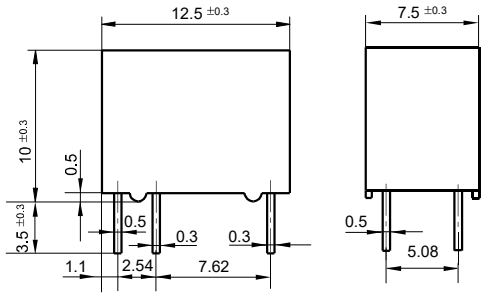
Notes: 1) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
2) The customer special requirement express as special code after evaluating by Hongfa.
3) The high temperature type indicates the maximum ambient temperature 90˚C and the high temperature type is 866. It is only suitable for sensitive specifications.
4)Standard tube packing length is 265mm. Any special requirement needed, please contact us for more details.
5) For products that should meet the explosion-proof requirements of "IEC 60079 series",please note [Ex] after the specification while placing orders.Not all products have explosion-proof certification,so please contact us if necessary, in order to select the suitable products.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

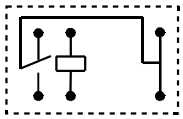
Unit: mm

Outline Dimensions

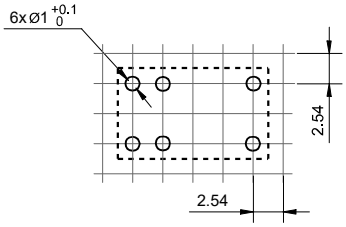
HFD23/1Z type



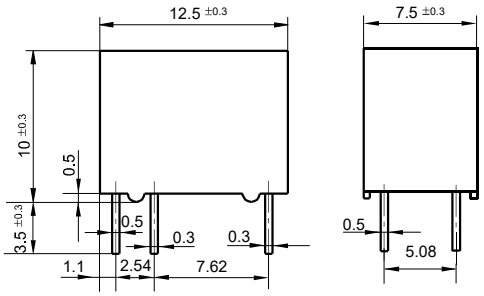
Wiring Diagram
(Bottom view)

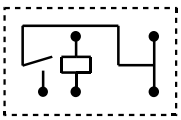


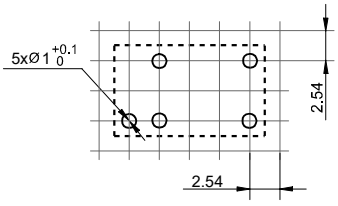
PCB Layout
(Bottom view)



HFD23/1H type



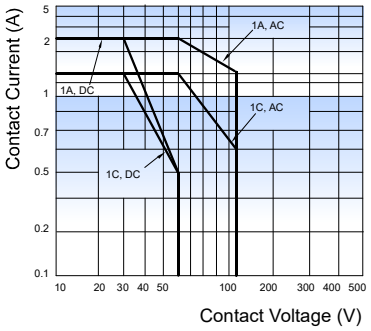




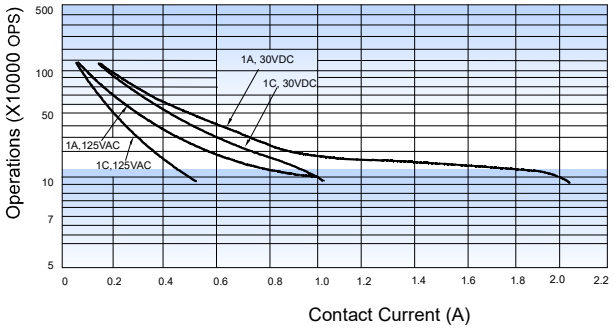
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The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

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



ENDURANCE CURVE



Test conditions:
Resistive load, Room temp., 1s on 9s off.

Notice

1) To avoid using relays under strong magnetic field which will change the parameters of relays such as pick-up voltage and drop-out voltage.
2) The relay may be damaged because of falling or when shocking conditions exceed the requirement.
3) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.
4) Regarding the plastic sealed relay, we should leave it cooling naturally untill below 40°C after welding, then clean it and deal with coating, remarkably the temperature of solvents should also be controlled below 40°C.Please avoid cleaning the relay by ultrasonic, avoid using the solvents like gasoline, Freon, and so on, which would affect the configuration of relay or influence the environment.
5) When relays is taking continuous current, the insulation material of the coil will be aged due to the heat. Thus please don't ground connect the coil of the relay to reduce the risk of corrosion.At the same time, please design protection circuit to prevent loss caused by disconnection.
6) When relays is taking continuous current, the insulation material of the coil will be aged due to the heat. Thus please don't ground connect the coil of the relay to reduce the risk of corrosion.At the same time, please design protection circuit to prevent loss caused by disconnection.
7) About preferable condition of operation, storage and transportation, please refer to "Explanation to terminology and guidetines of relay".