HFK15-2QH AUTOMOTIVE RELAY

File No.: E133481

File No.: R50608985

Typical Applications

New energy charging system,PTC heating,
Electric motorcycle,Charging field,Energy storage field,
Iverter,UPS,BMS,OBS,Battery circuit breaker

Features

- Contact clearance above 6.0mm
- With auxiliary contact specifications
- DC specifications maximum breaking voltage 1500VDC
- Extended temp. Range up to 105℃
- Strong resistance ability to shock & vibration
- Reflow soldering version available
- RoHS, ELV compliant
- Electricity safety meets the requirements of IEC60664-1

CHARACTERISTICS[1)]

Contact arrangement		2QH
Contact votage drop		Typ.:30mV(at 10A) Max.:250mV(at 10A)
Main contact Max. continuous current[2)]		20A(at 105 Rated voltage) 30A(at 85℃ Rated voltage) 30A(at 105℃ 50%Rated voltage) 40A(at 85℃ 50%Rated voltage)
Main contact Max. switching current		DC: 20A(Resistive,1000VDC)
Main contact Max. switching voltage		DC: 1500VDC
Min.contact load	Main contact	1A 12VDC[3)]
	Aux.contact	100mA 12VDC[3)]
Electrical load		See “CONTACT DATA”
Mechanical endurance		3×10^{5}OPS
Insulation resistance (initial)		1000MΩ(at 500VDC)
Withstand voltage(initial)		3000VAC 1min(between contacts) 3000VAC 1min(main & aux.) 4000VAC 1min(coil & contacts)
Operate time		Typ.:7ms Max.:30ms
Release time[5)]		Typ.:5ms Max.:10ms

Ambient temperature	-40℃ to 105℃
Vibration resistance[5)]	Main contact: 10Hz to 55Hz,1.5mm DA
Shock resistance[5)]	Main contact: 100 m/s^2
Termination	PCB[6)]
Construction	Plastic sealed,Flux proofed
Unit weight	Appros.50g

Notes:1) Initial value
2) The test under the follow conditions:
a.The relay is mounted on a PCB board
b.The PCB is a double layer board,the thickness of the copper foil is4 oz(140μm),the width of each copper foil is 8.27×(1±5%)mm,the length of the copper foil is 50mm±1mm, and the Tg value of the PCB is 170℃ or above.
3) The min. contact load is a reference value,which is applicable to environments with normal temperature,normal humidity and the on-off frequency, environmental conditions and expected Therefore,please conduct a confirmation test with the actual normal pressure.This reference value will change according to load before use.
4) 1 min , leakage current less than 1mA.
5) The value is measured when voltage drops suddenly from nominal voltage to 0VDC and coil is not paralleled with suppression circuit.
6) Since it is an environmental friendly product,please select lead-free solder when welding.The recommended soldering temperature and time is (260±3)℃,(5±0.3)s.

CONTACT DATA[1)]

Load voltage	Load type	Contact arrangement	Load current Making[2)]	Load current Carrying[2)]	Load current Breaking[2)]	On/Off ratio		Electrical endurance OPS	Ambient temperature
			A	A	A	On s	Off s		
1500VDC	Resistive	DC product	5	5	5	0.6	5.4	3×10^3	23℃
1200VDC	Resistive	DC product	10	10	10	0.6	5.4	3×10^3	23℃
1000VDC	Resistive	DC product	10	10	10	1	9	2×10^4	23℃
1000VDC	Resistive	DC product	40	40	0	0.6	5.4	1×10^4	23℃
750VDC	Resistive	DC product	40	40	40	0.6	5.4	3×10^3	23℃
750VDC	Resistive	DC product	20	20	20	0.6	5.4	6×10^3	23℃

Notes:1) Load mentioned in this chart is for relays with no parallel diode or Zener Diode.For those with parallel diode,Zener Diode or other components,please contact Hongfa for more technical supports.Please also contact Hongfa if the actual application load is different from what mentioned above. All the rating are tested with opend vent hole.
2) 0.6s/5.4s Making 100ms,carrying400ms,breaking 100ms;1s/9sMaking 100ms,carrying800ms,breaking 100ms.
3) DC relay the mounting spacing is 20ms when mounting side by side,and the mounting spacing is 25ms when mounting in he same row.

COIL DATA

23℃

Nominal voltage VDC	Pick-up voltage VDC Max.	Holding voltage VDC	Drop-out voltage VDC Min.	Coil resistance ×(1±10%) Ω	Power consumption W
12	9.6	6	1.0	50	2.88
24	19.2	12	2.0	200	2.88
48	38.4	24	4.0	800	2.88

Notes:1) When the ambient temperature exceeds 85°C, the coil requires 120% of rated voltage excitation for 200ms, and after the relay is turned on and stabilized, the coil excitation voltage is reduced to 50% of rated voltage hold.

ORDERING INFORMATION

HFK15-T/ □ 12- 2QH 2B P S T (XXX)

Type	
Load type	**Nil**：DC
Coil voltage	**12:**12VDC **24:**24VDC **48:**48VDC
Contact arrangement	**2QH:**2 from X
Monitoring contact Form	**Nil**：No auxiliary contact **2B**：Auxiliary contact 2 from B
Termination	**P**：PCB
Construction	**Nil**：Flux proofed **S**：Plastic sealed
Contact material	**T**：$AgSnO_2$
Special code	**XXX:** Customer special requirement **Nil:** Standard

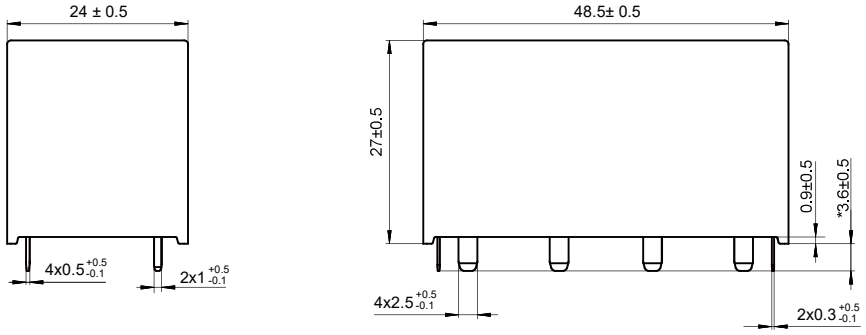
Notes:1) When the relay is installed on the PCB board for soldering, if you need to carry out the overall cleaning or surface treatment, please contact our company to agree on the appropriate soldering conditions and suitable product specifications.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

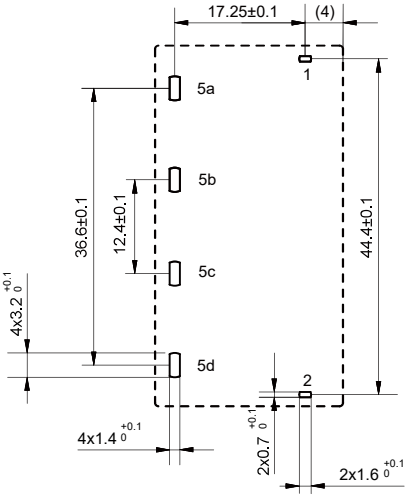
2QH

Outline Dimensions



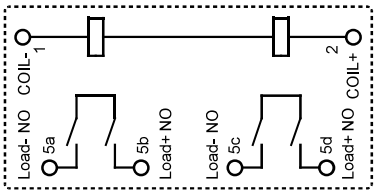
Notes:∗ The additional tin top is max. 1mm.

PCB Layout(Bottom view)



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 and ⩽30mm, tolerance should be ±0.4mm;outline dimension＞30 mm, tolerance should be ±0.6mm;
2) The tolerance without indicating for PCB layout is always ±0.1mm.

Wiring Diagram(Bottom view)



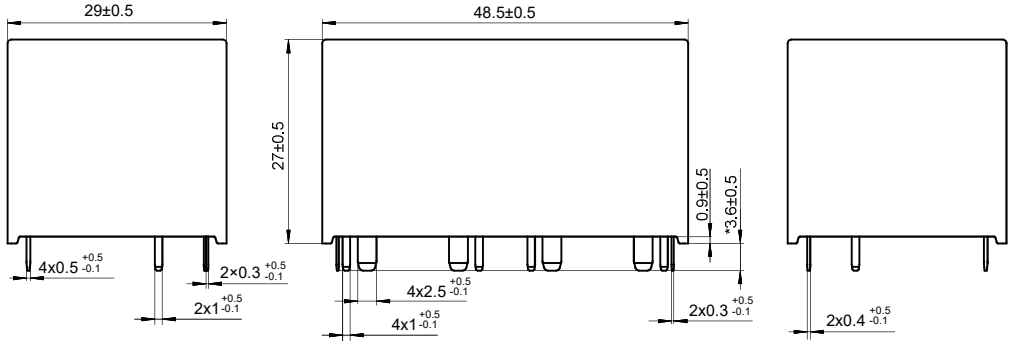
Notes: 1) DC type have polarity option on the loads and coil.If the loading polarity is connected reversedly, it will reduce loading switch performance, Please pay attention.
2) AC type have no polarity option on the loads and coil.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

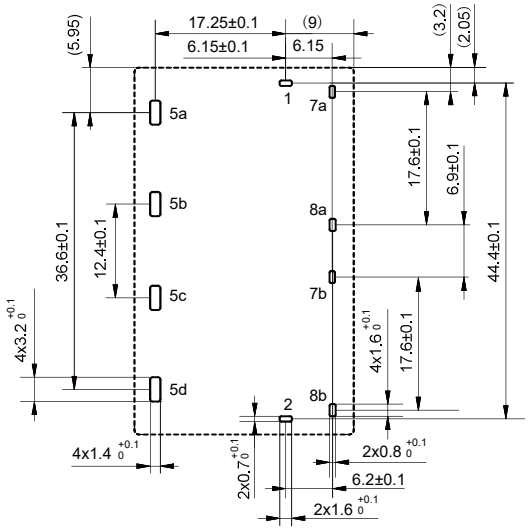
2QH2B

Outline Dimensions



Notes:∗ The additional tin top is max. 1mm.

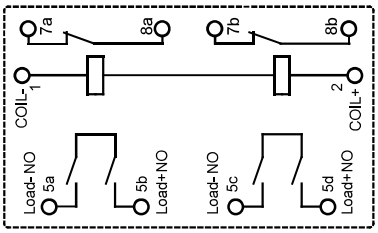
PCB Layout(Bottom view)



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 and ⩽30mm, tolerance should be ±0.4mm;outline dimension＞30 mm, tolerance should be ±0.6mm;

2) The tolerance without indicating for PCB layout is always ±0.1mm.

Wiring Diagram(Bottom view)



Notes: 1) DC type have polarity option on the loads and coil.If the loading polarity is connected reversedly, it will reduce loading switch performance, Please pay attention.

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.