

HFKT-L/HFKT-LT

AUTOMOTIVE RELAY



Typical Applications

Energy management, engine control, ignition, main switch/supply relay, preheating system, quiescent current management

Features

- Max. continuous current 50A
- Max. making current 200A
- Extended temp. range up to 125°C
- With highly established reliability
- Strong resistance ability to shock & vibration
- No change of switching state version at breakdown of battery voltage
- Reflow soldering version available
- RoHS & ELV compliant

CHARACTERISTICS

| | | | |
|---------------------------------------|---|--|---|
| Contact arrangement | 1A | Release time | Typ.: 1.5ms Max.: 5ms |
| Voltage drop (initial) ¹⁾ | Typ.: 30mV (at 10A) Max.: 300mV (at 10A) | Ambient temperature | -40°C to 125°C |
| Max. continuous current ²⁾ | 50A (at 23°C) 40A (at 85°C) 30A (at 125°C) | Vibration resistance | 30Hz to 440Hz, 196m/s ² |
| Max. switching current | Make: 200A ³⁾ Break: 40A (Resistive, 13.5VDC) | Shock resistance | 294m/s ² , close time of NO contacts 100µs Max. 980m/s ² , release time of closed NO contacts 100µs Max. |
| Max. switching voltage | 16VDC | Termination | PCB ⁵⁾ |
| Min. contact load | 1A 6VDC | Construction | Plastic sealed, Flux proofed |
| Electrical endurance | See "CONTACT DATA" | Unit weight | Approx. 11g |
| Mechanical endurance | 2 x 10 ⁶ OPS | ¹⁾ Initial value. ²⁾ To energize an impulse for 10ms to 100ms at coil terminals so that contacts switch. ³⁾ Inrush peak current under lamp load, at 13.5VDC. ⁴⁾ 1min, leakage current less than 1mA. ⁵⁾ Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature and time is (250±3)°C , (5±0.3)s. | |
| Initial insulation resistance | 100MΩ (at 500VDC) | | |
| Dielectric strength ⁴⁾ | 500VAC | | |
| Operate time | Typ.: 1.5ms, Max.: 10ms | | |

CONTACT DATA

| Load voltage | Load type | | Load current | On/Off ratio | | Electrical endurance OPS | Contact material | Ambient temp. |
|--------------|----------------------|-------|--------------|--------------|----------|--------------------------|--------------------|-------------------------|
| | | | 1A NO | On s | Off s | | | |
| 13.5VDC | Resistive | Make | 40 | 0.5 | 4.5 | 1×10 ⁵ | AgSnO ₂ | See Ambient Temp. Curve |
| | | Break | 40 | | | | | |
| | Inductive L=0.5mH | Make | 60 | 0.5 | 4.5 | 1×10 ⁵ | AgSnO ₂ | |
| | | Break | 35 | | | | | |
| | Lamp | Make | 200 | 0.5 | 4.5 | 1×10 ⁵ | AgSnO ₂ | |
| | | Break | 20 | | | | | |



HONGFA RELAY

ISO9001、ISO/TS16949、ISO14001、OHSAS18001、IECQ QC 080000 CERTIFIED

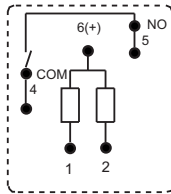
2015 Rev. 1.00

COIL DATA

at 23°C

| Nominal voltage VDC | Set voltage ¹⁾ VDC max. | Reset voltage ¹⁾ VDC max. | Set coil resistance (Between pin 1 & 6) x(1±10%)Ω | Reset coil resistance (Between pin 2 & 6) x(1±10%)Ω | Max. allowable overdrive voltage ²⁾ VDC |
|---------------------|------------------------------------|--------------------------------------|---|---|--|
| 12 | 6.9 | 6.9 | 20 | 19 | 18 |

1) The impulse width should be 10ms to 100ms. Energizing voltage mode should be acted as per the diagram below.



| Polarity for set/reset energization | Set | Reset |
|-------------------------------------|------------------|------------------|
| | Pin1(-), pin6(+) | Pin2(-), pin6(+) |

2) Max. allowable overdrive voltage is stated with no load applied and minimum coil resistance. Max. allowed inlfiction time is 1s.

ORDERING INFORMATION

| | | | | | | |
|----------------------------------|---|-----------|---------------|----------|----------|--------------|
| HFKT-L / | | 12 | -H | S | T | (XXX) |
| Type | HFKT-L: Latching(sealed) HFKT-LT: Latching, Reflow soldering version ¹⁾ | | | | | |
| Coil voltage | 12: 12VDC | | | | | |
| Contact arrangement | H: 1 Form A | | | | | |
| Construction | S: Plastic sealed ²⁾ Nil: Flux proofed (Reflow soldering version) | | | | | |
| Contact Material | T: AgSnO ₂ | | | | | |
| Special code³⁾ | XXX: Customer special requirement | | Nil: Standard | | | |

Notes: 1) The structure of HFKT-LT is only flux proof, the open vent hole is on the top of the relay;

2) If washing or surface treatment is required after the relay is assembled on PCB, please provide with the conditions in details for our confirmation or our recommendation with suitable products.

3) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

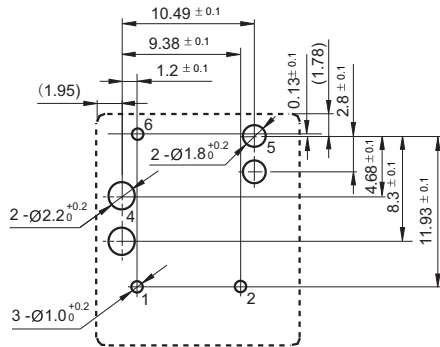


Remark: * The additional tin top is max. 1mm.

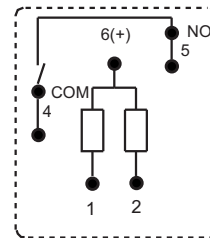
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout (Bottom view)



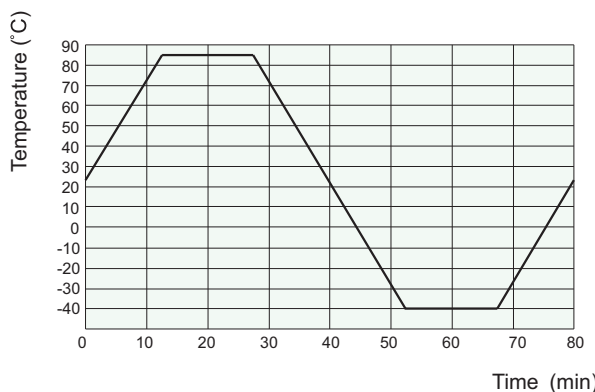
Wiring Diagram(Bottom view)



CHARACTERISTIC CURVES

Ambient temperature curve of the electrical endurance test

Ambient temp. curve (one cycle)



- 1) The minimum temperature is -40°C .
- 2) The maximum temperature is 85°C .

Notice

- 1) Relay is on the "reset" status when being released from stock, with the consideration of shock risen from transit and relay mounting, it should be changed to "set" status when application (connecting the power supply), please reset the relay to "set" or "reset" status on request.
- 2) In order to maintain "set" or "reset" status, energized voltage to coil should reach the rated voltage, impulse width should be 10ms to 100ms. Do not energize voltage to "set" coil and "reset" coil simultaneously. And also long energized time (more than 1 min) should be avoided.
- 3) To avoid using relays under strong magnetic field which will change the parameters of relays such as pick-up voltage and drop-out voltage.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.

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.

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