HFK7-T AUTOMOTIVE RELAY

Features

- Max.continuous current 30A
- Max.making current 100A
- Extended temp. Range up to 125℃
- With highly established reliability
- Strong resistance ability to shock & vibration
- RoHS & ELV compliant

Typical Applications

Rear window defogger,Lamp control,
Seat heaters,Powered window,etc.

CHARACTERISTICS

Contact arrangement	1A,1C
Voltage drop[1)]	Typ.: 30mV (at 10A) Max.: 250mV max. (at 10A)
Max. continuous current[2)]	41A 30min/30A continuous (at 23℃) 38A 30min/20A continuous (at85℃) 35A 30min/15A continuous (at125℃)
Max. switching current	Make: 100A[3)] Break: 30A (Resistive, 14VDC)
Max. switching voltage	16VDC
Min. contact load[4)]	1A 12VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1 x 10^7OPS
Initial insulation resistance	100MΩ (at 500VDC)
Withstand voltage[5)]	500VAC
Operate time	Typ.: 4ms, Max.: 10ms
Release time[6)]	Typ.: 1ms Max.: 10ms

Ambient temperature	-40℃ to 125℃
Vibration resistance[7)]	10Hz to 100Hz, 44.1m/s^2
shock resistance[7)]	100m/s^2
Termination	PCB[8)]
Construction	Plastic sealed, Flux proofed
Unit weight	Approx.5g

1) Initial value
2) The test under the follow conditions:
   a.The relay is mounted on the PCB, the coil is applied with 100% rated voltage;
   b.The PCB is a double layer board,the thickness of the copper foil per layer is 4oz(140μm),The copper foil width corresponding to each load pin is 3.76×(1±5%)mm,the length of the copper foil is 50 mm±1 mm,and the Tg value of the PCB is 150℃ or above.
   c. It varies by connection conditions. Additionally, reliable performance under repeated power-on cannot be guaranteed. Verify based on actual operating conditions during use.
3) Inrush peak current under lamp load, at 14VDC.
4) Lower limit target for on-off operation at low load. This value varies by on-off frequency, environmental conditions and expected reliability level; verify with actual load during use;
5) 1 min, leakage current less than 1mA.
6) The value is measured when voltage drops suddenly from nominal voltage to 0VDC and coil is not paralleled with suppression circuit.
7) When non-energized,close time of NO contacts shall not exceed 10μs.
8) Since it is an environmental friendly product,please select lead-free solder when welding.The recommended soldering temperature and time is (260±3)℃,(5±0.5)s.

CONTACT DATA[1)]

Load voltage	Load type		Load current A 1A,1C NO	Load current A 1A,1C NC	On/Off ratio On s	On/Off ratio Off s	Electrical endurance[1)] OPS	Contact material	Ambient Temp.
14VDC	Resistive	Make	30	15	2	2	1x10^5	$AgSnO_2$	23℃
		Break	30	15					
	Inductive L=0.5mH	Make	40	—	2	2	1x10^5	$AgSnO_2$	-40℃ to 125℃
		Break	20	—					
	Lamp	Make	100	—	2	2	1x10^5	$AgSnO_2$	
		Break	10	—					
	Motor L=0.25mH	Make	32	—	0.5	9.5	1x10^5	$AgSnO_2$	23℃
		Break	32	—					

Notes: This table tests the data without paralleling the suppression components. When the actual use conditions do not match the table,please provide detailed conditions of use to Hongfa for more technical support.

COIL DATA

at 23˚C

Nominal voltage VDC	Contact arrangement	Pick-up voltage VDC max.			Drop-out voltage VDC min.			Coil resistance ×(1±10%) Ω	Power consumption W
		23˚C	85˚C	125˚C	23˚C	85˚C	125˚C	23˚C	23˚C
12	1A	7	8.7	9.8	1	1.2	1.4	300	0.48
	1C	7	8.7	9.8	1	1.2	1.4	260	0.55

Notes: Custom operating voltages available upon request.

ORDERING INFORMATION

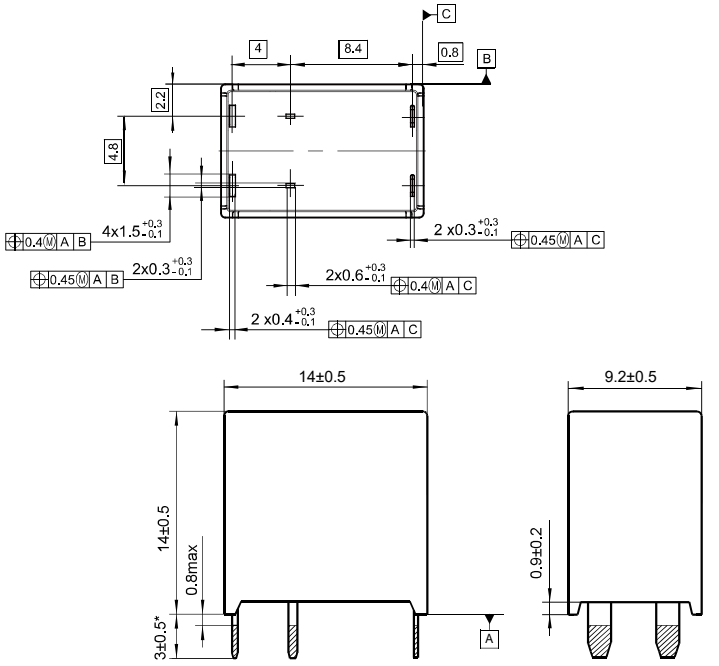
	HFK7-T /	12	-H	S	T	(XXX)
Type	Reflow soldering version or high heat-resistant version					
Coil voltage	**12**：12VDC					
Contact arrangement	**H**：1 Form A	**Z**：1 Form C				
Construction	**S**：Plastic sealed[1]	**Nil**：Flux proofed				
Contact material	**T**：$AgSnO_2$					
Special code[2]	**XXX**：Customer special requirement	**Nil**：Standard				

Notes: 1) Contact us for suitable soldering conditions and product specifications if post-soldering cleaning or surface treatment is required after the relays are soldered onto the PCB.
2) The performance parameters of products with characteristic numbers shall be subject to the specific specifications provided by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

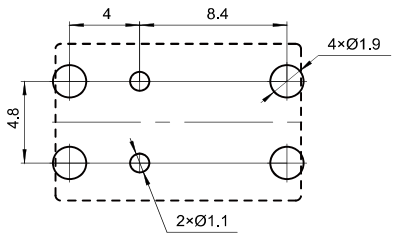


Notes: * The additional tin top is max. 1mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

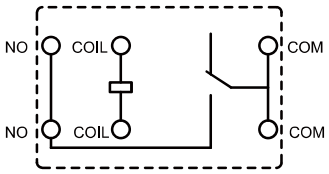
PCB Layout(Bottom view)



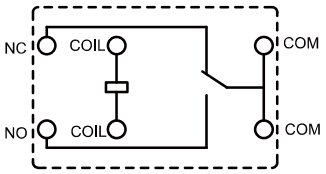
Notes:The tolerance without indicating for PCB layout is always ±0.1mm.

Wiring Diagram(Bottom view)

1 Form A

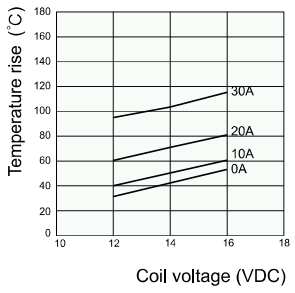


1 Form C

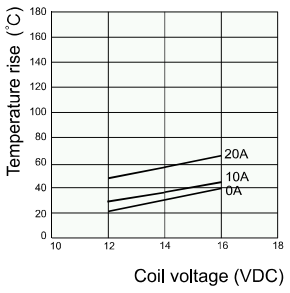


CHARACTERISTIC CURVES

1) Coil temperature rise (23℃)
Experiment:HFK7-T/12-HT
Amount：three
Carrying current：0A,10A,20A,30A
Ambient temp：23℃



2) Coil temperature rise (125℃)
Experiment:HFK7-T/12-HT
Amount：three
Carrying current：0A,10A,20A
Ambient temp：125℃



Remark: The coil temperature rise test requires the relay to be installed on the PCB. The PCB is double-layered. The thickness of the copper foil is 4oz (140μm), the width of each copper foil is 3.76x(1±5%)mm, the length of the copper foil is 50mm±mm, and the Tg value of the PCB board is 150℃.The installation spacing between relay samples is 100mm.