HFK8-T AUTOMOTIVE RELAY



Features

- Max.continuous current 40A
- Max.making current 120A
- Extended temp. Range up to 125℃
- With highly established reliability
- Strong resistance ability to shock & vibration
- Reflow soldering version available
- RoHS & ELV compliant

Typical Applications

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

CHARACTERISTICS

Contact arrangement	1U(Double NO contacts),1C
Voltage drop[1)]	Typ.: 40mV (at 10A) Max.: 250mV max. (at 10A)
Max. continuous current[2)]	**1U:** 54A 30min/40A continuous(at 23℃) 50A 30min/30A continuous(at 85℃) 47A 30min/20A continuous(at 125℃) **1C:** 41A 30min/30A continuous(at 23℃) 37.7A 30min/25A continuous(at 85℃) 35.2A 30min/15A continuous(at 125℃)
Max. switching current	**1U:** Make: 120A[3)] Break: 60A (Resistive, 14VDC)[5)] **1C:** Make: 100A[3)] Break: 60A (Resistive, 14VDC)[5)]
Max. switching voltage	16VDC
Min. contact load[4)]	1A 12VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	5 x 10^6OPS
Initial insulation resistance	100MΩ (at 500VDC)
Withstand voltage[6)]	500VAC
Operate time	Typ.: 4ms, Max.: 10ms
Release time[7)]	Typ.: 1ms, Max.: 10ms
Ambient temperature	-40℃ to 125℃

Vibration resistance[8)]	Functional	10Hz to 300Hz, 44.1m/s²
	Destructive	10Hz to 500Hz, 44.1m/s²
Shock resistance[8)]	Functional	100m/s²
	Destructive	1000m/s²
Termination		PCB[9)]
Construction		Plastic sealed, Flux proofed
Unit weight		Approx.6.5g

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.Testing PCB dimensions:
   SH: Board thickness 1.6mm, double-layer board, copper foil thickness 4oz (140μm), copper foil width of each load pin 7.52mm, Tg above 150℃;
   Z: Board thickness 1.6mm, double-layer board, copper foil thickness 4oz (140μm), copper foil width of NO terminal and COM terminal 7.52mm, copper foil width of NC terminal 3.76mm, Tg above 150℃;
   c.The installation spacing between relay samples is 100mm;
   d. 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) 23℃, measured at 14VDC (100 operating cycles, resistive load).
6) 1 min, leakage current less than 1mA.
7) The value is measured when voltage drops suddenly from nominal voltage to 0VDC and coil is not paralleled with suppression circuit.
8) When non-energized,close time of NO contacts shall not exceed 10μs, when energized,opening time of closed NO contact shall not exceed 10μs.
9) 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			On/Off ratio		Electrical endurance OPS	Contact material	Ambient temperature
			1Z		SH	On s	Off s			
			NO	NC						
14VDC	Resistive	Make	40	20	40	2	2	1x10^5	$AgSnO_2$	23℃
		Break	40	20	40					
	Lamp	Make	—	—	120	2	2	1x10^5	$AgSnO_2$	
		Break	—	—	14					
	Capacitive	Make	—	—	90	0.4	4.6	1x10^5	$AgSnO_2$	
		Break	—	—	20					
	Inductive L=1mH	Make	—	—	45	2	2	3.5x10^5	$AgSnO_2$	-40℃ to 125℃
		Break	—	—	11.5					
	Motor L=0.5mH	Make	30	—	—	0.5	9.5	1x10^5	$AgSnO_2$	23℃
		Break	30	—	—					

CONTACT DATA[1)]

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.
2) When the load voltage is 24VDC or higher, or the application conditions are different from the table above, please submit the detailed application conditions to Hongfa to get more 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	85°C	125°C	23°C
12	1U	6.5	8.1	9.1	1	1.2	1.4	225	279	314	0.64
	1U	7	8.7	9.8	1	1.2	1.4	240	298	335	0.6
	1C	7	8.7	9.8	1	1.2	1.4	225	279	314	0.64

Notes: Custom operating voltages available upon request.

ORDERING INFORMATION

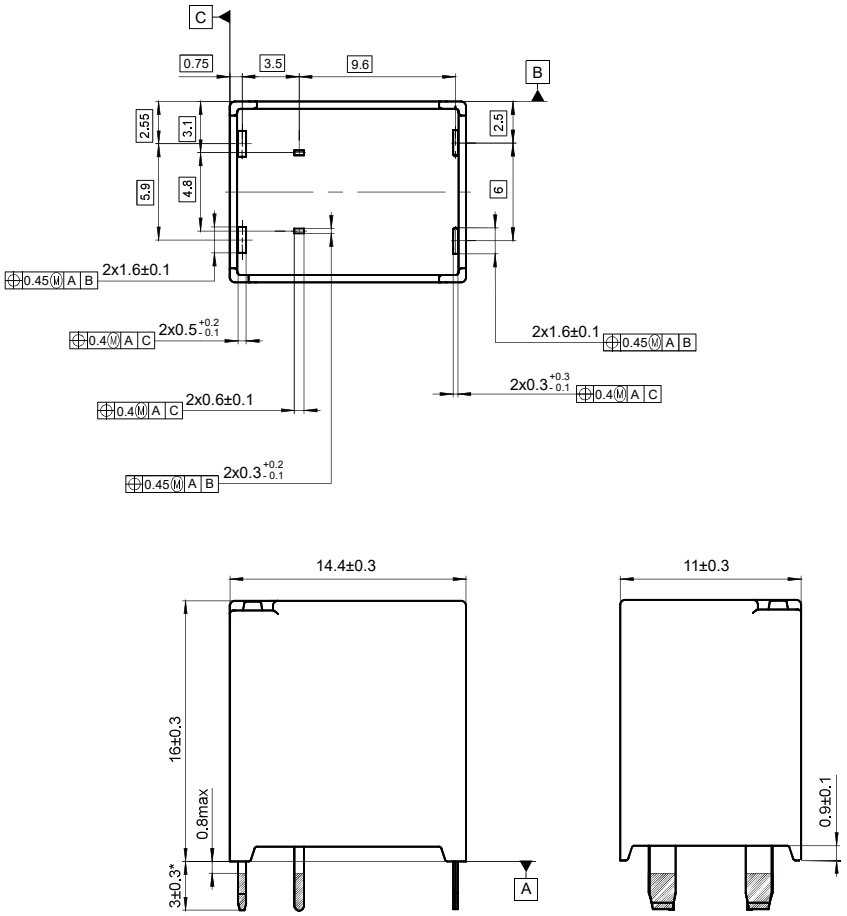
	HFK8-T /	12	-SH	S	P	T	(XXX)
Type	Reflow soldering version/ high heat-resistant version						
Coil voltage	**12**：12VDC						
Contact arrangement	**SH**：1 Form U **Z**：1 Form C						
Construction	**S**：Plastic sealed[1)] **Nil**：Flux proofed						
Coil power	**P**：0.64W **Nil**：0.6W						
Contact material	**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

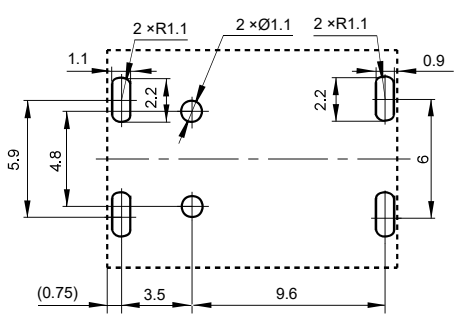
Unit: mm

Outline Dimensions

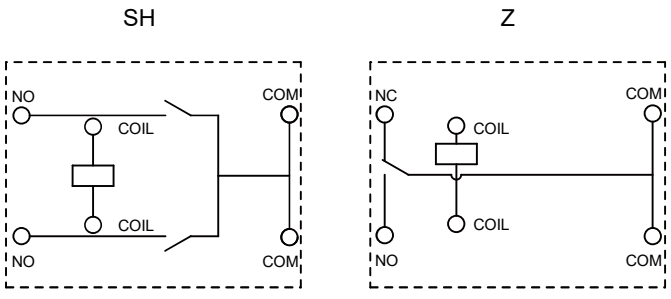


Notes: * The additional tin top is max. 1mm.

PCB Layout(Bottom view)



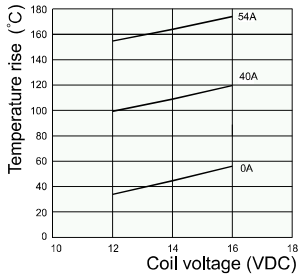
Wiring Diagram(Bottom view)



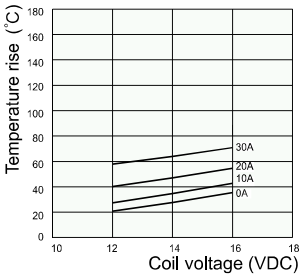
Notes: The tolerance without indicating for PCB layout is always ±0.1mm.

CHARACTERISTIC CURVES

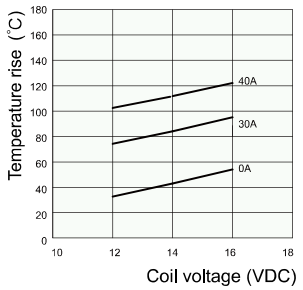
1) Coil temperature rise (23℃)
Experiment:HFK8-T/12-SHSPT
Amount：three
Carrying current：0A,10A,20A,30A
Ambient temp：23℃



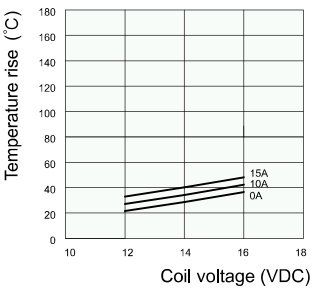
2) Coil temperature rise (125℃)
Experiment:HFK8-T/12-SHSPT
Amount：three
Carrying current：0A,10A,20A
Ambient temp：125℃



3) Coil temperature rise (23℃)
Experiment:HFK8-T/12-ZSPT
Amount：three
Carrying current：0A,30A,40A
Ambient temp：23℃



4) Coil temperature rise (125℃)
Experiment:HFK8-T/12-ZSPT
Amount：three
Carrying current：0A,10A,15A
Ambient temp：125℃



Remark: 1) **SH type**: The PCB is a double-layer board with a thickness of 1.6mm and a copper foil thickness of 4oz (140μm). Each copper foil has a width of 7.52mm; the Tg value of the PCB is 150℃.
2) **Z type:** The PCB is a double-layer board with a thickness of 1.6mm and a copper foil thickness of 4oz (140μm). The copper foil width of NO terminal and COM terminal is 7.52mm, and the copper foil width of NC terminal is 3.76mm; the Tg value of the PCB is 150℃.

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.

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