



### Features

- 20A switching capability
- Ambient temp.: -40°C to 85°C
- 1 Form A and 1 Form C contact arrangement
- Plastic sealed and Flux proofed types available
- RoHS & ELV compliant

### Typical Applications

Power doors & windows, Indicator lamp control, Wiper control

## CHARACTERISTICS

Contact arrangement	1A, 1C
Voltage drop (initial) <sup>1)</sup>	Typ.: 100mV (at 10A) Max.: 250mV (at 10A)
Max. switching current <sup>2)</sup>	20A
Max. switching voltage	14VDC
Min. contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1 x 10 <sup>7</sup> OPS (300 OPS/min)
Initial insulation resistance	100MΩ (at 500VDC)
Dielectric strength <sup>3)</sup>	between contacts:750VAC between coil & contacts:1500VAC
Operate time <sup>4)</sup>	Typ.:5ms Max.: 10ms

Release time <sup>4)</sup>	Typ.: 5ms Max.: 10ms
Ambient temperature	-40°C to 85°C
Vibration resistance <sup>5)</sup>	10Hz to 500Hz 1.5mm DA
Shock resistance <sup>5)</sup>	98m/s <sup>2</sup>
Termination	PCB <sup>6)</sup>
Construction	Plastic sealed, Flux proofed
Unit weight	Approx. 15g

- 1) Equivalent to the max. initial contact resistance is 100mΩ (at 1A 6VDC).
- 2) For NO contacts, at 23°C, 13.5VDC, resistive load (100 cycles).
- 3) 1min, leakage current less than 1mA.
- 4) The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.
- 5) When energized, opening time of NO contacts shall not exceed 100μs, when non-energized, opening time of NC contacts shall not exceed 1ms, meantime, NO contacts shall not be closed.
- 6) 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.

## CONTACT DATA <sup>1)</sup>

at 23°C

Load voltage	Load type		Load current A			On/Off ratio		Electrical endurance OPS	Contact material
			1C		1A	On s	Off s		
			NO	NC	NO				
13.5VDC	Resistive	Make	15	12	20	1.5	1.5	1×10 <sup>5</sup>	AgNi
		Break	15	12	20	1.5	1.5		

1) When the load voltage is at 24VDC or higher, or the applications conditions are different from the table above, please submit the detailed application conditions to Hongfa to get more support.



HONGFA RELAY

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

2014 Rev. 1.00

## COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance $\times(1\pm 10\%)\Omega$	Power consumption W	Max. allowable overdrive voltage <sup>1)</sup> VDC, at 20°C
3	1.8	0.3	14	0.64	3.6
5	3.0	0.5	39	0.64	6.0
6	3.6	0.6	56	0.64	7.2
9	5.4	0.9	127	0.64	10.8
12	7.2	1.2	225	0.64	14.4
18	10.8	1.8	506	0.64	21.6
24	14.4	2.4	900	0.64	28.8
48	28.8	4.8	3600	0.64	57.6

1) Max. allowable overdrive voltage is stated with no load applied and minimum coil resistance.

## ORDERING INFORMATION

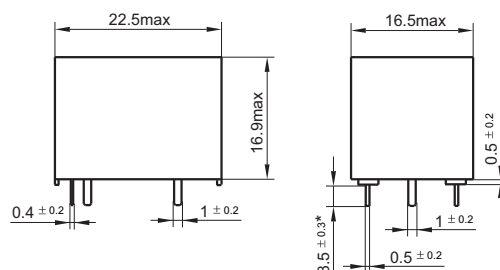
Type	HFKE /	012	-1H	S	(XXX)
Coil voltage	3, 5, 6, 9, 12, 18, 24, 48VDC				
Contact arrangement	H: 1 Form A		Z: 1 Form C		
Construction	S: Plastic sealed <sup>1)</sup>		Nil: Flux proofed		
Customer special code					

Notes: 1) 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.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

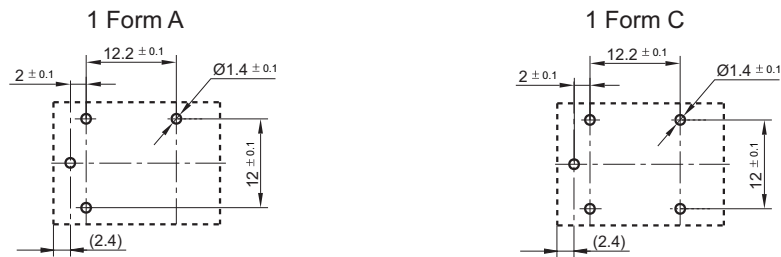
Outline Dimensions (1 Form A / 1 Form C)



Wiring Diagram (Bottom view)



PCB Layout (Bottom view)



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

**Disclaimer**

This datasheet is for the customers' reference. All the specifications are subject to change without notice. Before referring to this datasheet, please make sure that you have read and understood "Explanation to Terminology and Guidelines of Automotive Relay & Module" in our catalogue of Automotive Relay & Module.

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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