



### Typical Applications

Power doors & windows, Door locking systems, Seat adjustment, Seatbelt prevention device, Immobilizers, Sunroof motor control

### Features

- Micro miniature
- Single & double contact version available
- Change-over contact version
- RoHS & ELV compliant

## CHARACTERISTICS

Contact arrangement	2C (Double)	Ambient temperature	-40°C to 85°C
Voltage drop (initial) <sup>1)</sup>	Typ.: 50mV (at 10A) Max.: 250mV (at 10A)	Vibration resistance <sup>6)</sup>	10Hz to 55Hz 1.5mm DA 55Hz to 200Hz 98m/s <sup>2</sup>
Max. continuous current <sup>2)</sup>	25A (at 85°C, 1h)	Shock resistance <sup>6)</sup>	294m/s <sup>2</sup>
Max. switching current	25A	Termination	PCB <sup>7)</sup>
Max. switching voltage <sup>3)</sup>	16VDC	Construction	Plastic sealed
Min. contact load	1A 6VDC	Unit weight	10g
Electrical endurance	See "CONTACT DATA"	1) Equivalent to the max. initial contact resistance is 100mΩ (at 1A 6VDC).	
Mechanical endurance	1x10 <sup>7</sup> OPS (300OPS/min)	2) For NO contacts, measured when applying 100% rated voltage on coil.	
Initial insulation resistance	100MΩ (at 500VDC)	3) See "Load limit curve" for details.	
Dielectric strength <sup>4)</sup>	between contacts: 500VAC	4) 1min, leakage current less 1mA.	
	between coil & contacts: 500VAC	5) The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.	
Operate time	Typ.: 3ms (at nomi. vol.)	6) When energized, opening time of NO contacts shall not exceed 1ms, when non-energized, opening time of NC contacts shall not exceed 1ms, meantime, NO contacts shall not be closed.	
	Max.: 10ms (at nomi. vol.)	7) 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.	
Release time <sup>5)</sup>	Typ.: 1.3ms		
	Max.: 10ms		

## CONTACT DATA <sup>4)</sup>

Load voltage	Load type		Load current A		On/Off ratio		Electrical endurance OPS	Contact material	Load wiring diagram <sup>3)</sup>	Ambient temp.
			2C		On s	Off s				
			NO	NC						
13.5VDC	Simulate motor operation	Make <sup>1)</sup>	25	---	0.02	3.6	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 1	at 85°C
		Transient1 <sup>1)</sup>	15	---						
		Transient2 <sup>1)</sup>	10	---						
		Break	6	---						
	Resistive	Make	20	---	1	3	2×10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 2	at 80°C
		Break	20	---						
	Lamp <sup>2)</sup>	Make	4 x21W	---	1	5	2×10 <sup>5</sup>	AgSnO <sub>2</sub>	See diagram 3	at 80°C
Break										



HONGFA RELAY

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

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- 1) Current of turn on transient 1, transient 2 is subsection simulation to that of motor start-up peak value.
- 2) The load in the table excludes flasher. When applied in flasher, a special silver alloy (AgSnO<sub>2</sub>) contact material should be used and the customer special code should be (170) as a suffix. Please heed the anode and cathode's request when wired, common terminal should connect with anode.
- 3) The load wiring diagrams are listed below:

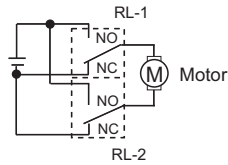


diagram 1

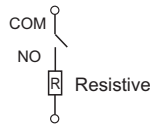


diagram 2

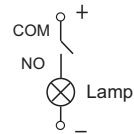


diagram 3

- 4) 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.

## 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 23°C	at 85°C
Standard	12	7.2	1.0	255	0.56	20	16
Low pick-up voltage	12	5.8	0.8	178	0.81	17	13.5

- 1) Max. allowable overdrive voltage is stated with no load applied.

## ORDERING INFORMATION

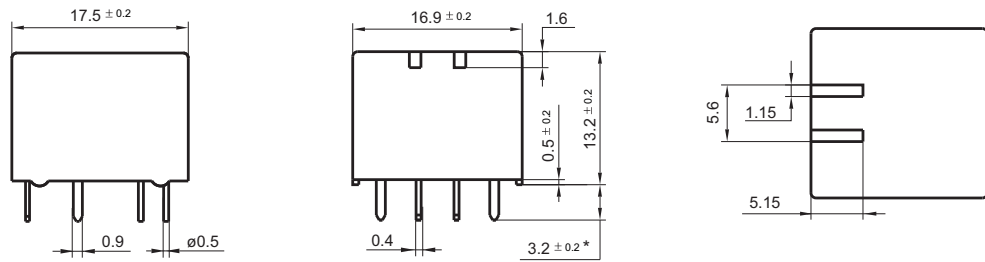
	<b>HFKD /</b>	<b>012</b>	<b>-2Z</b>	<b>S</b>	<b>P</b>	<b>T</b>	<b>(XXX)</b>
<b>Type</b>							
<b>Coil voltage</b>	<b>012: 12VDC</b>						
<b>Contact arrangement</b>	<b>2Z: 2 x 1 Form C (Double relay)</b>						
<b>Construction</b>	<b>S: Plastic sealed <sup>1)</sup></b>						
<b>Coil power</b>	<b>P: Low pick-up voltage    Nil: Standard</b>						
<b>Contact material</b>	<b>T: AgSnO<sub>2</sub></b>						
<b>Customer special code</b>	e.g. (170) stands for flasher load						

- 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

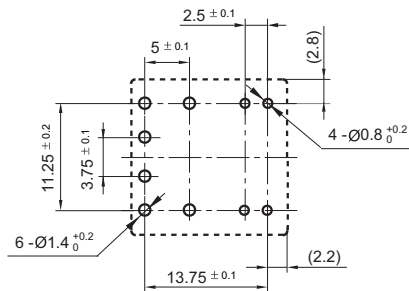
Unit: mm

### Outline Dimensions

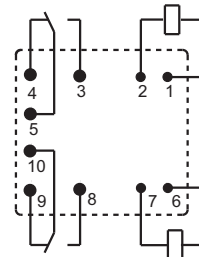


Remark: \* The additional tin top is max. 1mm.

### PCB Layout (Bottom view)

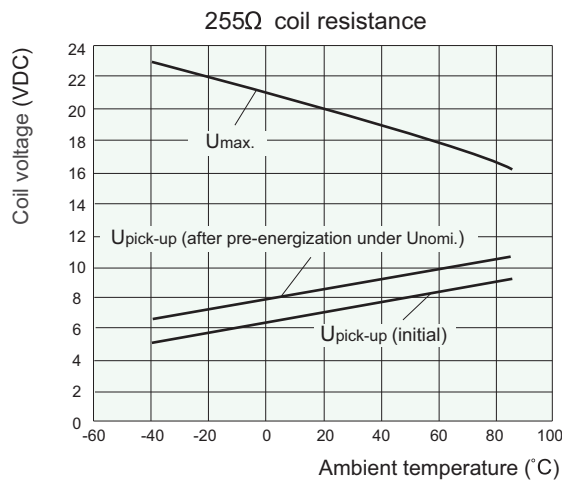


### Wiring Diagram (Bottom view)



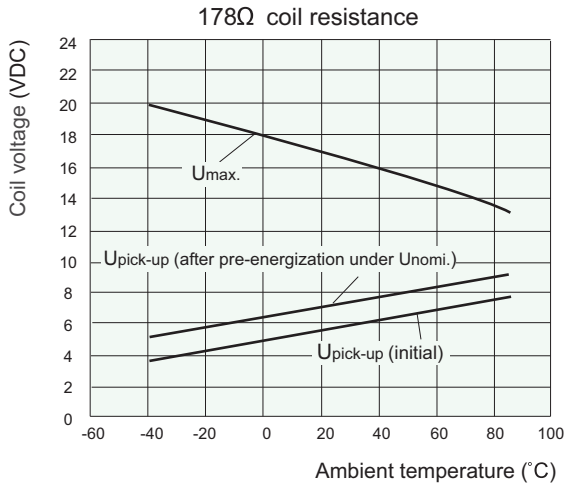
## CHARACTERISTIC CURVES

### 1. Coil operating voltage range



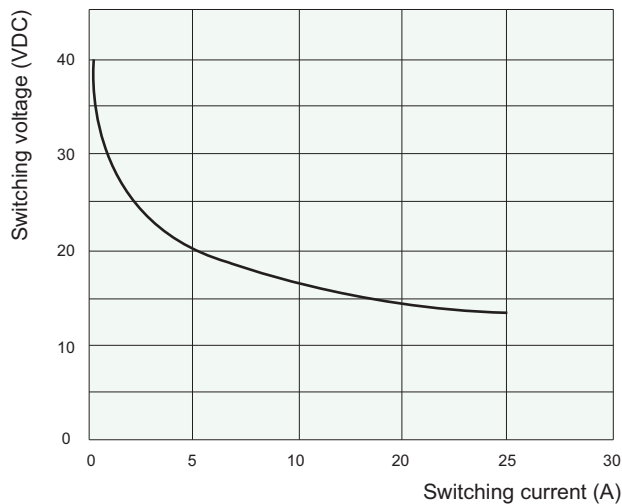
- 1) There should be no contact load applied when maximum continuous operation voltage is applied on coil.
- 2) The operating voltage is connected with coil pre-energized time and voltage. After pre-energized, the operating voltage will increase.
- 3) The maximum allowable coil temperature is 180°C. For the coil temperature rise which is measured by resistance is average value, we recommend the coil temperature should be below 170°C under the different application ambient, different coil voltage and different load etc.
- 4) If the actual operating coil voltage is out of the specified range, please contact Hongfa for further details.

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### 2. Load limit curve



- 1) This chart takes NO contact, resistive load as example.
- 2) The load and electrical endurance tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current, or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.

### 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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