

# HFKB (JQC-3FF-M)

# AUTOMOTIVE RELAY



### Typical Applications

Anti-theft lock, Central door lock

### Features

- 15A switching capability
- Subminiature, standard PCB layout
- 1 Form A & 1 Form C contact arrangement
- Wash tight and Flux proofed types available
- RoHS & ELV compliant

## CHARACTERISTICS

Contact arrangement	1A, 1C	Release time	Typ: 3ms Max.: 10ms <sup>3)</sup>
Voltage drop (initial) <sup>1)</sup>	Typ: 20mV (at 10A) Max.: 250mV (at 10A)	Ambient temperature	-40°C to 85°C
Max. switching current	15A	Storage temperature	-40°C to 155°C
Max. switching voltage	30VDC	Vibration resistance	10Hz to 55Hz 1.5mm DA
Min.contact load	1A 6VDC	Shock resistance	98m/s <sup>2</sup> (10g)
Electrical endurance	1×10 <sup>5</sup> OPS	Termination	PCB <sup>4)</sup>
Mechanical endurance	1×10 <sup>7</sup> OPS (300 OPS/min)	Construction	Wash tight, Flux proofed
Initial insulation resistance	100MΩ (at 500VDC)	Unit weight	Approx. 10g
Dielectric strength <sup>2)</sup>	Between coil & contacts: 1500VAC Between open contacts: 750VAC	<ol style="list-style-type: none"> <li>1) Equivalent to the max. initial contact resistance is 100mΩ (at 1A 6VDC).</li> <li>2) 1min, leakage current less than 1mA.</li> <li>3) The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.</li> <li>4) Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature and time is 240°C to 260°C, 2s to 5s.</li> </ol>	
Operate time	Typ: 5ms Max.: 10ms (at nomi. vol.)		

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

at 23°C

Load voltage	Load type		Load current A			On/Off ratio		Electrical endurance OPS	Contact material	Load wiring diagram
			1C		1A	On s	Off s			
			NO	NC	NO					
13.5VDC	Resistive	Make	15	5	15	5	5	1×10 <sup>5</sup>	AgSnO <sub>2</sub>	
		Break	15	5	15	5	5			

1) When the load requirement is different from content of the table above, please contact Hongfa for relay application support.



HONGFA RELAY

ISO9001、ISO/TS16949、ISO14001、OHSAS18001 CERTIFIED

2007 Rev. 1.10

## COIL DATA

at 23°C

	Nominal voltage VDC	Pick-up voltage VDC	Drop-out voltage VDC	Coil resistance x(1±10%)Ω	Power consumption W	Max. allowable overdrive voltage <sup>1)</sup> VDC	
						23°C	85°C
HFKB (JQC-3FF-M)	9	6.75	0.90	180	0.45	11.7	10.8
	12	9.00	1.20	320	0.45	15.6	14.4
	24	18.00	2.40	1280	0.45	31.2	28.8
HFKB-1 (JQC-3FF-M1)	9	5.85	0.65	126	0.64	11.3	10.3
	12	7.80	0.90	225	0.64	15.0	13.8
	24	15.6	1.80	900	0.64	30.0	27.6
HFKB-2 (JQC-3FF-M2)	9	4.95	0.60	100	0.80	10.8	9.9
	12	6.60	0.80	180	0.80	14.4	13.2
	24	13.20	1.60	720	0.80	28.8	26.4

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

## ORDERING INFORMATION

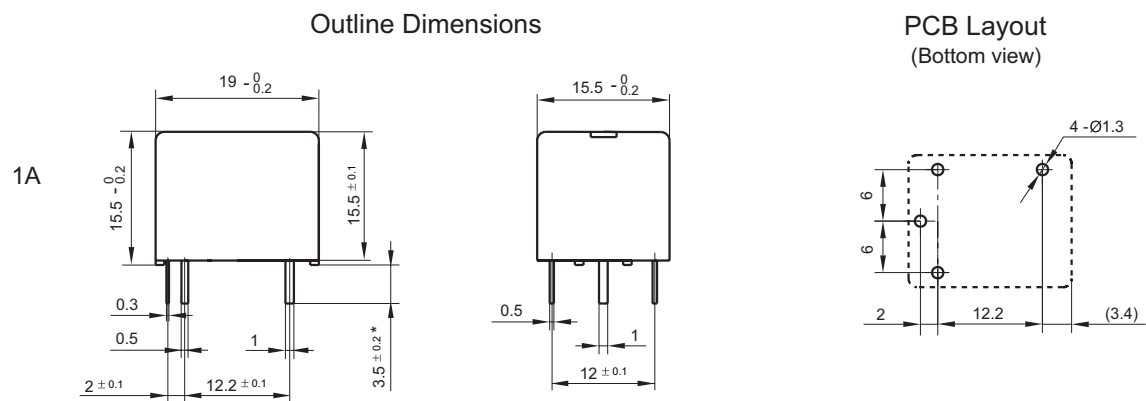
		<b>HFKB /</b>		<b>012</b>	<b>1H</b>	<b>S</b>	<b>(XXX)</b>
<b>Type <sup>1)</sup></b>	HFKB (Old type: JQC-3FF-M): 0.45W						
	HFKB-1 (Old type: JQC-3FF-M1): 0.64W						
	HFKB-2 (Old type: JQC-3FF-M2): 0.80W						
<b>Coil voltage</b>		<b>009: 9VDC</b>	<b>012: 12VDC</b>	<b>024: 24VDC</b>			
<b>Contact arrangement</b>		<b>1H: 1 Form A</b>	<b>1Z: 1 Form C</b>				
<b>Construction</b>		<b>S: Wash tight</b>	<b>Nil: Flux proofed</b>				
<b>Customer special code <sup>2)</sup></b> e.g. 555 stands for RoHS & ELV compliant							

1) We have now gradually updated our ordering information. We suggest new type should be selected. If necessary, old type can be kept for some period for the old customers.

2) HFKB(JQC-3FF-M) is an environmental friendly product, please mark special code (555) when order.

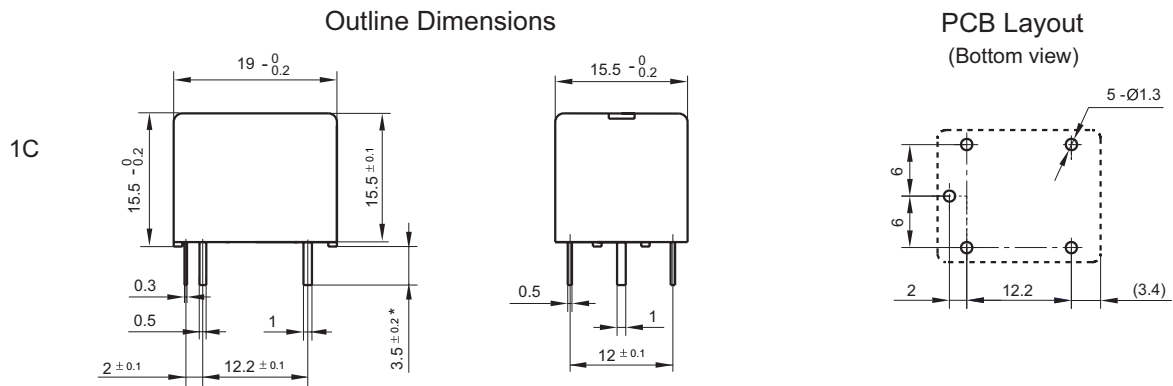
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm



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Unit: mm



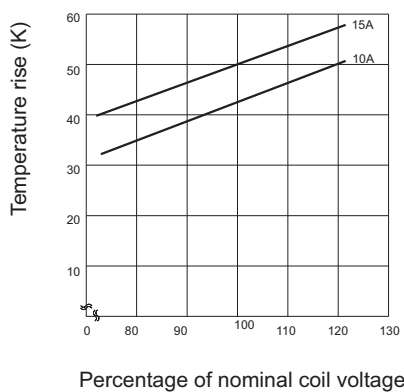
- Notes:**
- 1) \* The additional tin top is max. 1mm;
  - 2) The terminal vertical deviation tolerance is 0.2mm;
  - 3) The tolerance without indicating for PCB layout is always  $\pm 0.1$ mm.

## Wiring Diagram (Bottom view)

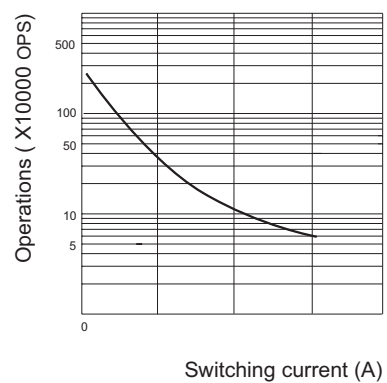


# CHARACTERISTIC CURVES

## 1. Coil temperature rise



## 2. Electrical endurance curve



## Disclaimer

This datasheet is for the customers' reference. All the specifications are 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.