

# HF10F

# MINIATURE HIGH POWER RELAY



File No.:E134517



### Features

- 10A switching capability
- Bridge transformation available, Multiple switching capability (2C, 3C type)
- Standard electrontube terminal, QC terminal
- With test button
- Blowout magnet type
- Sockets available
- Environmental friendly product (RoHS compliant)

### CONTACT DATA

Contact arrangement	QZ,2Z, 3Z
Contact resistance	≤100mΩ (1A 24VDC)
Contact material	AgSnO <sub>2</sub> , AgCdO
Contact rating (Res. load)	HF10F (Without blowout magnet type) : QZ/2Z: 10A 250VAC / 30VDC 3Z: (NO) 10A 250VAC / 30VDC (NC) 5A 250VAC / 30VDC HF10F-QV (Blowout magnet type) : QZ/2Z: 10A 250VAC / 30VDC QZ:(NO) 5A 220VDC QZ: (NC) 2A 220VDC 2Z: (NO) 5A 150VDC 2Z:(NC) 2A 150VDC
Max. switching voltage	250VAC / 220VDC
Max. switching current	10A
Max. switching power	2500VA / 300W
Mechanical endurance	HF10F (Without blowout magnet type) : 1 x 10 <sup>7</sup> OPS HF10F-QV (Blowout magnet type) : 5 x 10 <sup>6</sup> OPS
Electrical endurance	HF10F (Without blowout magnet type) : QZ/2Ztype: 1 x 10 <sup>5</sup> OPS (10A 250VAC/30VDC; Resistive load, Room temp., 1s on 9s off) 3Ztype:1 x 10 <sup>5</sup> OPS (NO:10A 250VAC/30VDC; NC: 5A 250VAC/30VDC; Resistive load, Room temp., 1s on 9s off) HF10F-QV (Blowout magnet type) : QZ/2Ztype: 1 x 10 <sup>5</sup> OPS (10A 250VAC/30VDC; Resistive load, Room temp., 1s on 9s off) QZtype: 1 x 10 <sup>4</sup> OPS (NO:5A 220VDC; NC: 2A 220VDC; Resistive load, Room temp., 1s on 9s off) 2Ztype: 1 x 10 <sup>5</sup> OPS (NO:5A 150VDC; NC: 2A 150VDC; Resistive load, Room temp., 1s on 9s off)

**Notes:** The data shown above are initial values.

### COIL

Coil power	DC type: Approx.1.4W; AC type: Approx. 3.0VA
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### CHARACTERISTICS

Insulation resistance	1000MΩ (500VDC)	
Dielectric strength	Between coil & contacts	2500VAC 1min
	Between open contacts	1500VAC 1min
	Between contact sets	2000VAC 1min
Operate time (at nomi. volt.)	≤30ms (DC)	
Release time (at nomi. volt.)	≤30ms (DC)	
Temperature rise (at nomi. volt.)	100K max	
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance	10Hz ~ 55Hz 1.5mm DA	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 55°C	
Termination	Standard electrontube terminal QC terminal	
Unit weight	Approx.90g	
Construction	Dust protected	

### COIL DATA

23°C

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. <sup>(2)</sup> Voltage VDC	Coil Resistance Ω
6	≤4.80	≥0.60	7.20	23.5 x (1±10%)
12	≤9.60	≥1.20	14.4	120x (1±10%)
24	≤19.2	≥2.40	28.8	470 x (1±10%)
48	≤38.4	≥4.80	57.6	1800 x (1±10%)
60	≤48.0	≥6.00	72.0	2790 x (1±10%)
100	≤80.0	≥10.0	120	7500 x (1±10%)
110	≤88.0	≥11.0	132	
120	≤96.0	≥12.0	144	
220	≤176	≥22.0	264	37000 x (1±10%)



HONGFA RELAY

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

2018 Rev. 1.00

## COIL DATA

23°C

Nominal Voltage VAC	Pick-up Voltage VAC max.	Drop-out Voltage VAC min.	Max. <sup>(2)</sup> Voltage VAC	Coil Resistance Ω
6	≤4.80	≥1.80	7.20	3.9 x (1±10%)
12	≤9.60	≥3.60	14.4	16.9 x (1±10%)
24	≤19.2	≥7.20	28.8	72 x (1±10%)
48	≤38.4	≥14.4	57.6	290x (1±10%)
110	≤88.0	≥33.0	132	1700 x (1±10%)
120	≤96.0	≥36.0	144	
110/120	≤88.0	≥36.0	132	
220	≤176	≥66.0	264	6500 x (1±10%)
230	≤184	≥69.0	276	
220/240	≤176	≥72.0	264	
240	≤192	≥72.0	288	

Notes: 1) All values unspecified are at room temperature.

2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

## SAFETY APPROVAL RATINGS

UL/CUL	Rating
HF10F (Without blowout magnet type)	10A 250VAC/30VDC 1/3HP 120VAC 1/3HP 240VAC 1/2HP 277VAC
HF10F-QV (Blowout magnet type)	10A 250VAC/30VDC QZ:(NO) 5A 220VDC QZ: (NC) 2A 220VDC 2Z: (NO) 5A 150VDC 2Z:(NC) 2A 150VDC

## ORDERING INFORMATION

Type	HF10F	F	-Q	V	/230	A	-2Z	D	T	G	(XXX)
Button Function	F: Standard type without button H: With test button type										
Terminal arrangement	Q: Square arrangement Nil: Round arrangement										
Arc blowout	V: Blowout magnet (NO 3Z type, only square arrangement) Nil: Without arc blowout function										
Coil voltage	DC: 6, 12, 24, 48, 60, 100, 110, 120, 220 AC: 6, 12, 24, 48, 110, 120, 110/120, 120, 220, 220/230, 240										
Coil voltage form	A: AC      D: DC										
Contact arrangement	QZ: Bridge transformation    2Z: 2 Form C 3Z: 3 Form C (Without blowout magnet type)										
Combined component code	D: With LED type DJ: With LED and diode type (only for DC type) Nil: Standard										
Contact material	T: AgSnO <sub>2</sub> Nil: AgCdO										
Contact plating	G: Gold plated      Nil: No gold plated										
Special code <sup>1)</sup>	XXX: Customer special requirement      Nil: Standard										

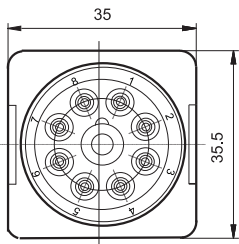
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

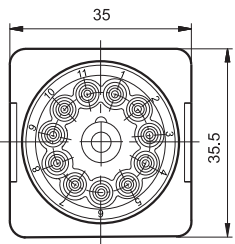
Unit: mm

Outline Dimensions  
(Bottom view)

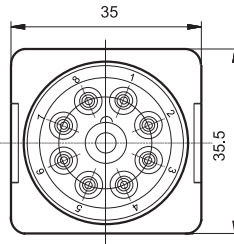
2Z(HF10FF)



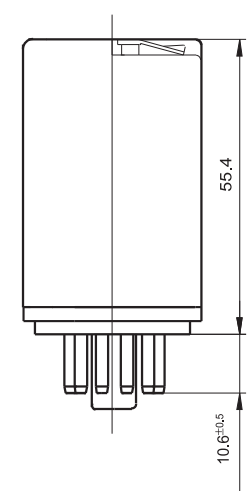
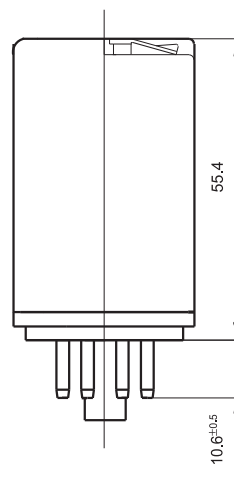
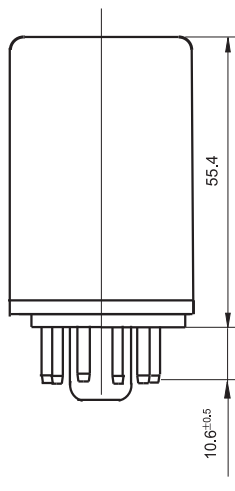
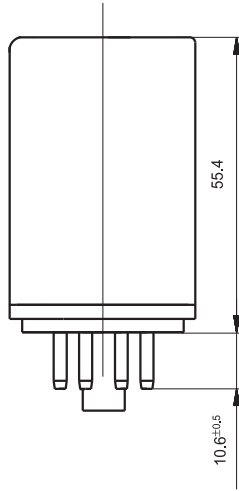
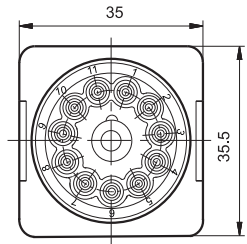
3Z(HF10FF)



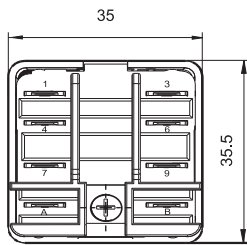
2Z(HF10FH)



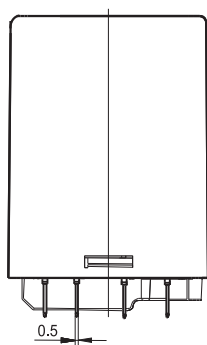
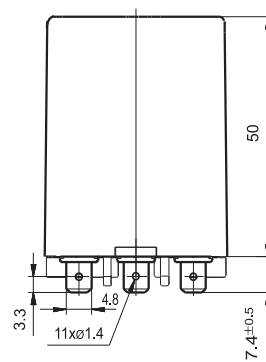
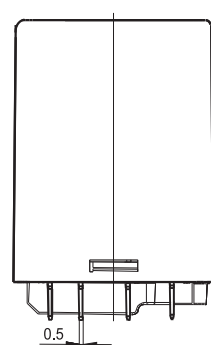
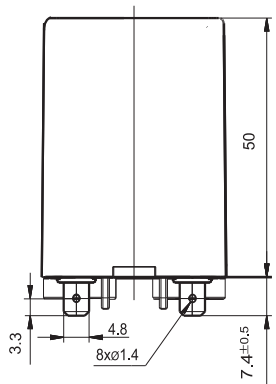
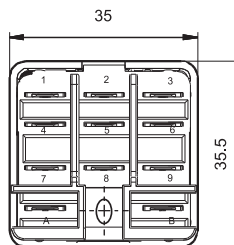
3Z(HF10FH)



QZ/2Z(HF10FF-Q/HF10FF-QV)



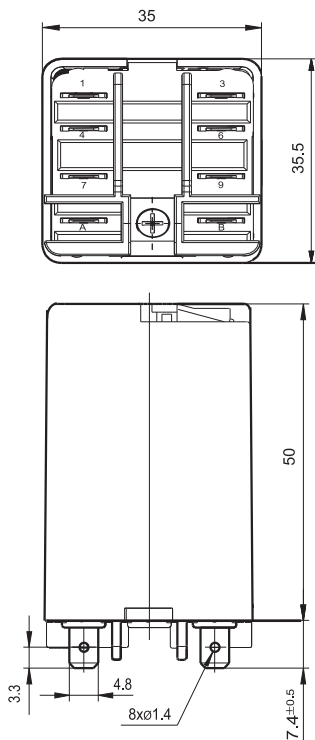
3Z(HF10FF-Q)



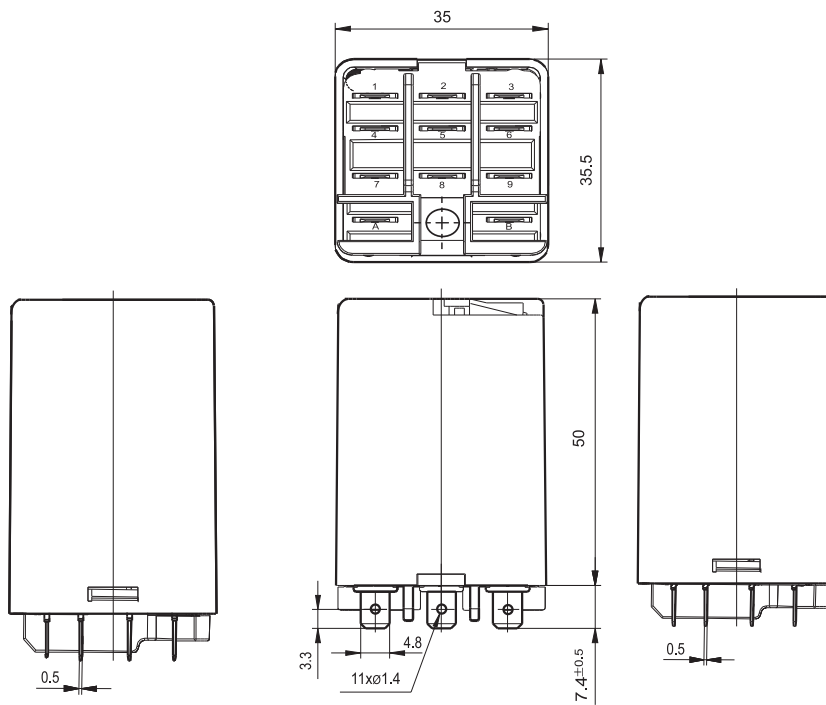
# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

QZ/2Z(HF10FH-Q/HF10FH-QV)

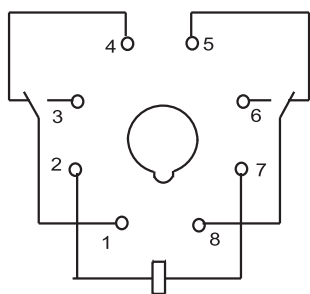


3Z(HF10FH-Q)

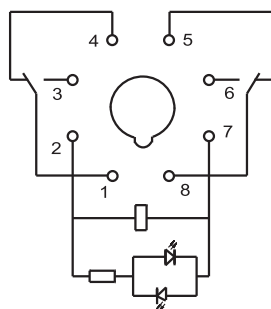


Remark: In case of no tolerance shown in outline dimension: outline dimension  $\leq 1$ mm, tolerance should be  $\pm 0.2$ mm; outline dimension  $> 1$ mm and  $\leq 5$ mm, tolerance should be  $\pm 0.3$ mm; outline dimension  $> 5$ mm, tolerance should be  $\pm 0.4$ mm.

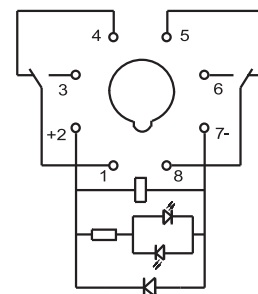
2Z(HF10FF/HF10FH)



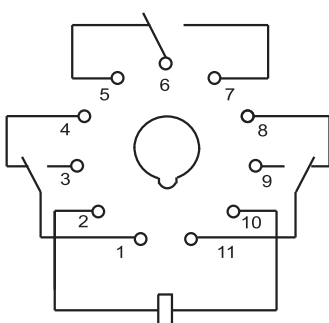
2Z(HF10FF/HF10FH With LED)



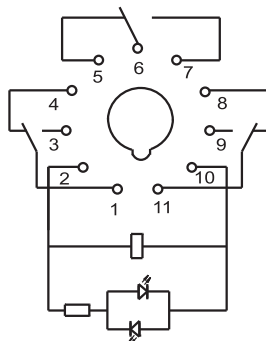
2Z(HF10FF/HF10FH With LED, With fly-wheel diode)



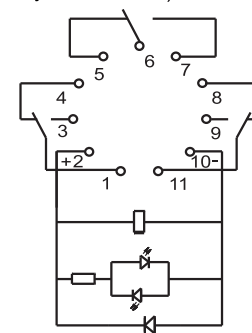
3Z(HF10FF/HF10FH)



3Z(HF10FF/HF10FH With LED)



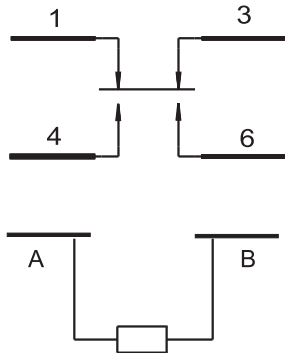
3Z(HF10FF/HF10FH With LED, With fly-wheel diode)



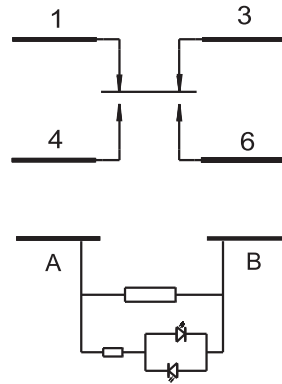
Wiring Diagram

(Bottom view)

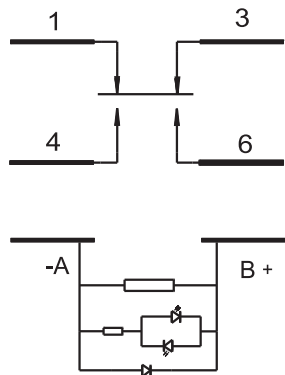
QZ(HF10FF-Q/HF10FF-QV/HF10FH-Q/HF10FH-QV)



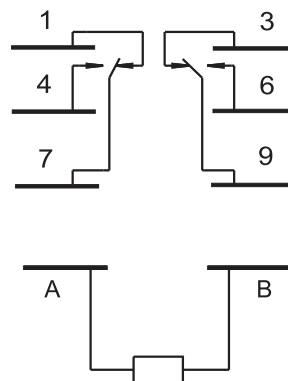
QZ(HF10FF-Q/HF10FF-QV/HF10FH-Q/HF10FH-QV  
With LED)



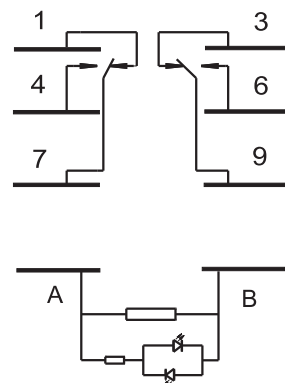
QZ(HF10FF-Q/HF10FF-QV/HF10FH-Q/HF10FH-QV  
With LED, With fly-wheel diode)



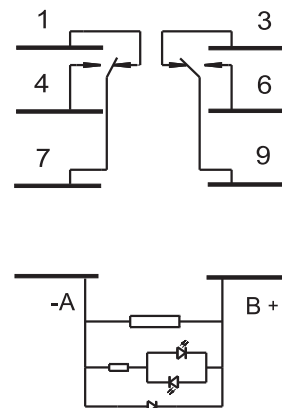
2Z(HF10FF-Q/HF10FF-QV/HF10FH-Q/HF10FH-QV)



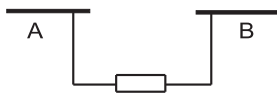
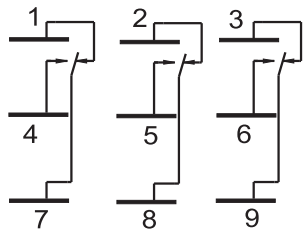
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With LED)



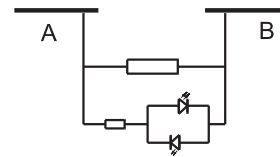
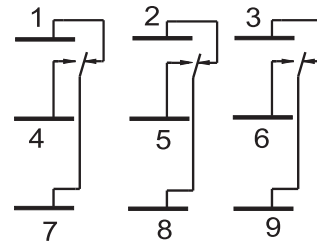
2Z(HF10FF-Q/HF10FF-QV/HF10FH-Q/HF10FH-QV  
With LED, With fly-wheel diode)



3Z(HF10FF-Q/HF10FH-Q)



3Z(HF10FF-Q/HF10FH-Q With LED)



3Z(HF10FF-Q/HF10FH-Q With LED, With fly-wheel diode)

