

HF2110/HF2120

MINIATURE HIGH POWER RELAY



File No.:E134517



File No.:CQC08002027546



Features

- 30A switching capability
- PCB coil terminals, ideal for heavy duty load
- 2.5kV dielectric strength (between coil and contacts)
- Unenclosed type available
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (HF2110)(28.4 x 23.5 x 15.3) mm

| CONTACT DATA                  |                                                                                  |                |                |                |
|-------------------------------|----------------------------------------------------------------------------------|----------------|----------------|----------------|
| Contact arrangement           | 1A                                                                               | 1B             | 1C(NO)         | 1C(NC)         |
| Contact resistance            | 50mΩ max.(at 1A 24VDC)                                                           |                |                |                |
| Contact material              | AgCdO                                                                            |                |                |                |
| Contact rating<br>(Res. load) | 30A 240VAC                                                                       | 15A 240VAC     | 20A 240VAC     | 10A 240VAC     |
|                               | 20A 30VDC                                                                        | 10A 30VDC      | 20A 30VDC      | 10A 30VDC      |
| Max. switching power          | 7200VA<br>600W                                                                   | 3600VA<br>300W | 4800VA<br>600W | 2400VA<br>300W |
| Max. switching voltage        | 277VAC / 30VDC                                                                   |                |                |                |
| Max. switching current        | 40A                                                                              | 15A            | 20A            | 10A            |
| Mechanical endurance          | 1 x 10 <sup>7</sup> OPS                                                          |                |                |                |
| Electrical endurance          | 1 x 10 <sup>5</sup> OPS <sup>1)</sup><br>(See approval reports for more details) |                |                |                |

| CHARACTERISTICS               |                         |                                                            |
|-------------------------------|-------------------------|------------------------------------------------------------|
| Insulation resistance         |                         | 1000MΩ (at 500VDC)                                         |
| Dielectric strength           | Between coil & contacts | HF2110/HF2120: 2500VAC 1min<br>HF2111/HF2121: 2000VAC 1min |
|                               | Between open contacts   | 1500VAC 1min                                               |
| Operate time (at nomi. volt.) |                         | 15ms max.                                                  |
| Release time (at nomi. volt.) |                         | 10ms max.                                                  |
| Ambient temperature           |                         | -55°C to 85°C                                              |
| Shock resistance              | Functional              | 98m/s <sup>2</sup>                                         |
|                               | Destructive             | 980m/s <sup>2</sup>                                        |
| Vibration resistance          |                         | 10Hz to 55Hz 1mm DA                                        |
| Humidity                      |                         | 5% to 85% RH                                               |
| Termination                   |                         | HF2110/2111: PCB<br>HF2120/2121: PCB & QC                  |
| Unit weight                   |                         | Approx. 35g                                                |
| Construction                  |                         | Unenclosed                                                 |

**Notes:** 1) Typical electrical load & endurance: at 30A 240VAC, Resistive, at room temperature, 100,000 OPS, for NO contact.  
2) The data shown above are initial values.  
3) Please find coil temperature curve in the characteristic curves below.  
4) UL insulation system: Class F, Class B.

| COIL       |               |
|------------|---------------|
| Coil power | Approx. 900mW |

| COIL DATA at 23°C   |                          |                           |                            |                   |
|---------------------|--------------------------|---------------------------|----------------------------|-------------------|
| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Allowable Voltage VDC | Coil Resistance Ω |
| 5                   | 3.75                     | 0.5                       | 6.5                        | 27 x (1±10%)      |
| 6                   | 4.50                     | 0.6                       | 7.8                        | 40 x (1±10%)      |
| 9                   | 6.75                     | 0.9                       | 11.7                       | 97 x (1±10%)      |
| 12                  | 9.00                     | 1.2                       | 15.6                       | 155 x (1±10%)     |
| 15                  | 11.25                    | 1.5                       | 19.5                       | 256 x (1±10%)     |
| 18                  | 13.50                    | 1.8                       | 23.4                       | 380 x (1±10%)     |
| 24                  | 18.00                    | 2.4                       | 31.2                       | 660 x (1±10%)     |
| 48                  | 36.00                    | 4.8                       | 62.4                       | 2560 x (1±10%)    |
| 70                  | 52.50                    | 7.0                       | 91.0                       | 5500 x (1±10%)    |
| 110                 | 82.50                    | 11.0                      | 143.0                      | 13450 x (1±10%)   |

SAFETY APPROVAL RATINGS

| UL/CUL                                                    |                |                  |              |                  |               |
|-----------------------------------------------------------|----------------|------------------|--------------|------------------|---------------|
| Load type                                                 | Volts          | 1 Form A         | 1 Form B     | 1 Form C (NO)    | 1 Form C (NC) |
| General purpose                                           | 125/240VAC     | 30A              | 15A          | 30A              | 15A           |
|                                                           | 277VAC         | 30A              | 30A          | 30A              | 30A           |
| Resistive                                                 | 125/240VAC     | 30A              | 15A          | --               | --            |
|                                                           | 30VDC          | 20A              | 10A          | 20A              | 10A           |
|                                                           | 277VAC         | 20A              | --           | --               | --            |
|                                                           | 240VAC         | 15A              | --           | --               | --            |
|                                                           | 250VAC         | 40A              | --           | 40A              | --            |
| Ballast                                                   | 125/240/277VAC | 6A               | 3A           | 6A               | 3A            |
| Pilot duty                                                | 125VAC         | 800VA            | 290VA        | 800VA            | 290VA         |
|                                                           | 125VAC         | 690VA            | --           | 690VA            | --            |
|                                                           | 125VAC         | 800VA            | --           | 800VA            | --            |
|                                                           | 240VAC         | 1152VA           | 768VA        | 1152VA           | 768VA         |
|                                                           | 277VAC         | 764VA            | --           | 764VA            | --            |
| Motor load                                                | 125VAC         | 1HP              | 1/4HP        | 1HP              | 1/4HP         |
|                                                           | 240VAC         | 2HP              | 1HP          | 2HP              | 1HP           |
|                                                           | 125VAC         | 1HP              | --           | 1HP              | --            |
|                                                           | 125/277VAC     | 3/4HP            | --           | 3/4HP            | --            |
| Definite purpose<br>(LRA-loaded rotor)<br>(FLA-full load) | 120VAC         | 82.8LRA, 13.8FLA | --           | 82.8LRA, 13.8FLA | --            |
|                                                           | 125VAC         | 96LRA, 30FLA     | 33LRA, 10FLA | 60LRA, 20FLA     | 33LRA, 10FLA  |
|                                                           | 125VAC         | 60LRA, 20FLA     | 30LRA, 12FLA | 60LRA, 20FLA     | 30LRA, 12FLA  |
|                                                           | 125VAC         | 82.8LRA, 27FLA   | --           | 82.8LRA, 27FLA   | --            |
|                                                           | 240VAC         | 80LRA, 30FLA     | 33LRA, 10FLA | 60LRA, 20FLA     | 33LRA, 10FLA  |
|                                                           | 240VAC         | 41.4LRA, 6.9FLA  | --           | 41.4LRA, 6.9FLA  | --            |
|                                                           | 277VAC         | 60LRA, 20FLA     | --           | 60LRA, 20FLA     | --            |
| Tungsten                                                  | 125VAC         | 15A              | --           | 15A              | --            |
|                                                           | 240VAC         | 5A               | --           | 5A               | 3A            |
|                                                           | 120VAC         | --               | 3A           | --               | --            |
|                                                           | 240VAC         | --               | 3A           | --               | --            |

Notes: Only some typical ratings are listed above. If more details are required, please contact us.

ORDERING INFORMATION

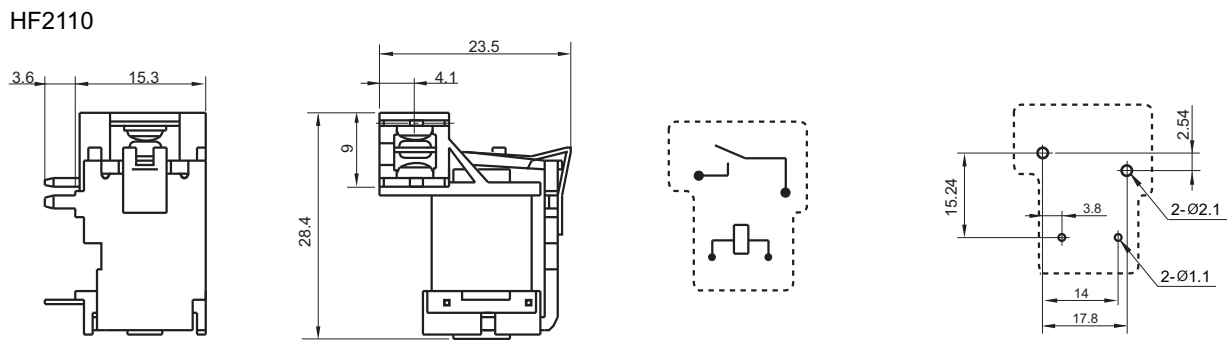
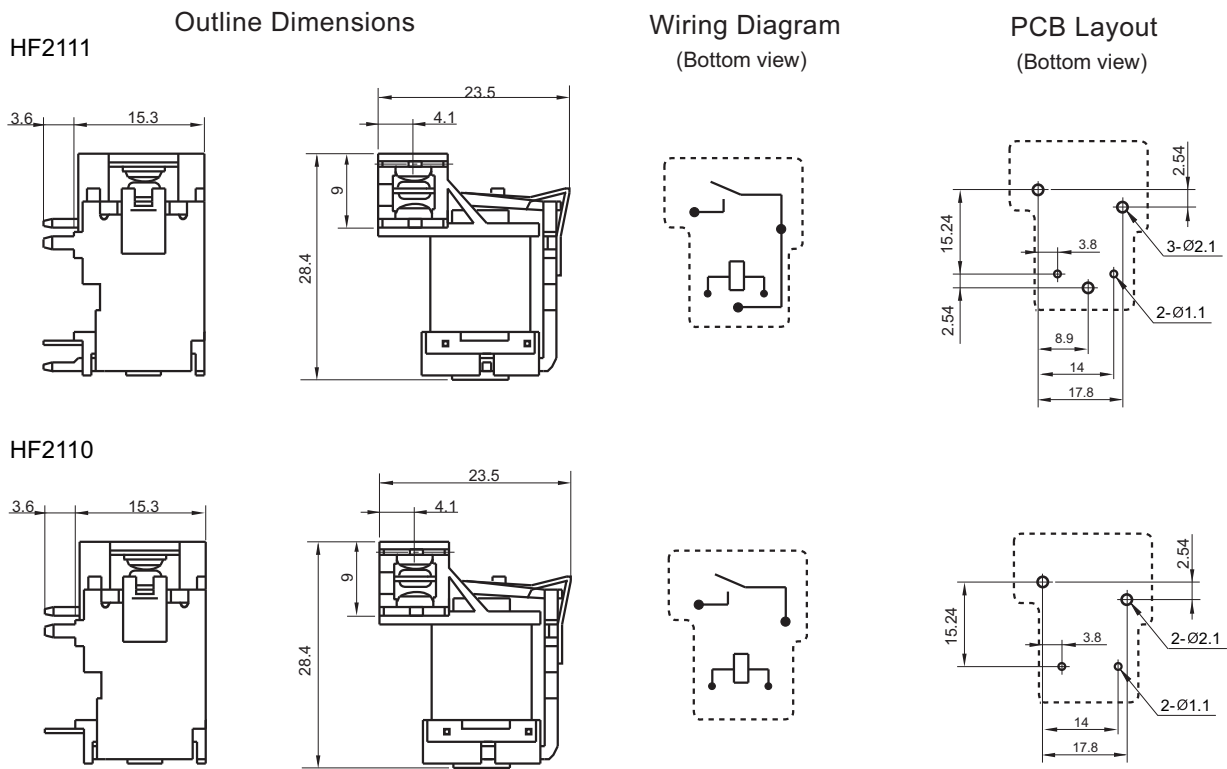
|                       |                                              |     |      |   |       |
|-----------------------|----------------------------------------------|-----|------|---|-------|
| Type                  | HF2110<br>HF2120                             | -1A | -12D | F | (XXX) |
| Contact arrangement   | 1A: 1 Form A    1B: 1 Form B<br>1C: 1 Form C |     |      |   |       |
| Coil voltage          | 5, 6, 9, 12, 15, 18, 24, 48, 70, 110VDC      |     |      |   |       |
| Insulation standard   | F: Class F    Nil: Class B                   |     |      |   |       |
| Customer special code |                                              |     |      |   |       |

Notes: 1) To avoid using relays under strong magnetic field which will change the parameters of relays such as pick-up voltage and drop-out voltage.  
2) Relays may be damaged because of falling or when shocking conditions exceed the requirement.  
3) About preferable condition of operation, storage and transportation, please refer to "Explanation to terminology and guidetines of relay".  
4) For unenclosed type, beacause there is no cover protection, the products may be contaminate by particles during transportation assembly or usage, which may cause relay failure, so the produces should be effectively protected at customer side, Hongfa suggest to use plastic sealed type, if no other special requirement.

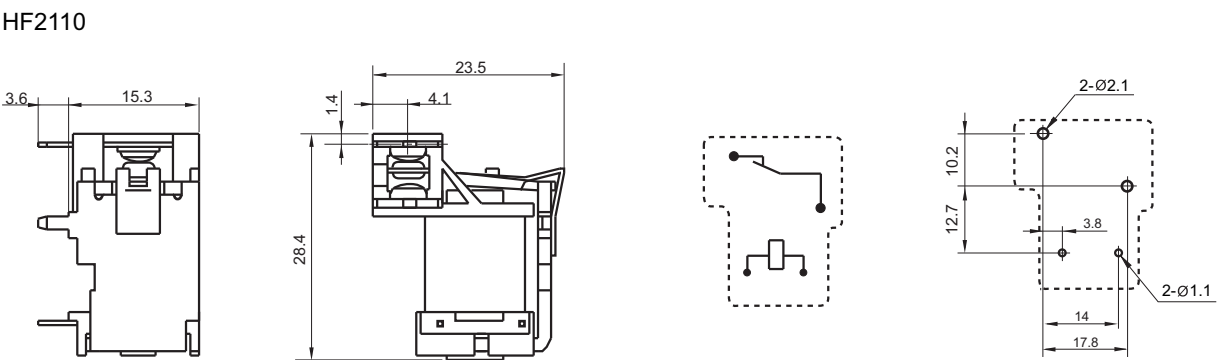
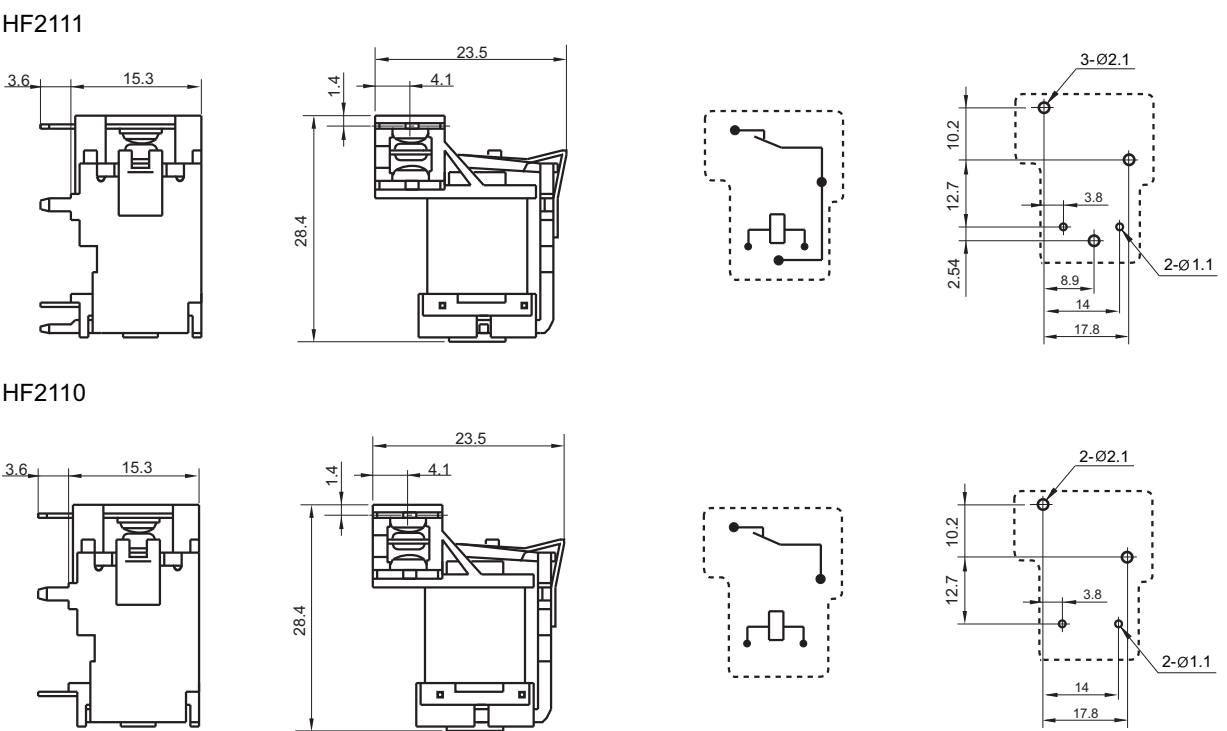
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

1 Form A



1 Form B



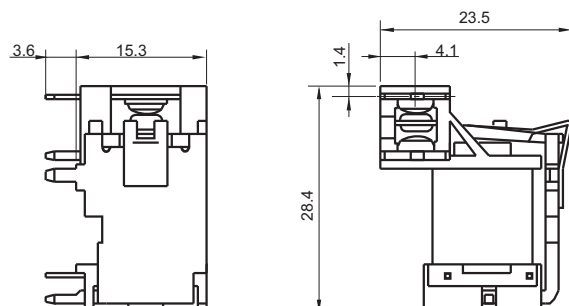
# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

## 1 Form C

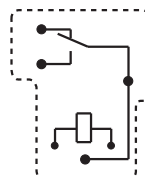
### Outline Dimensions

HF2111



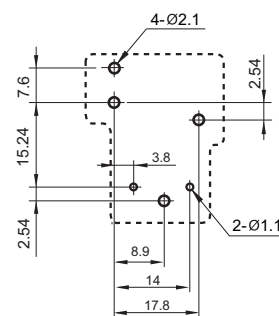
### Wiring Diagram

(Bottom view)

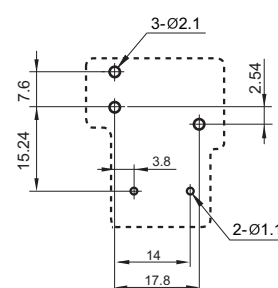
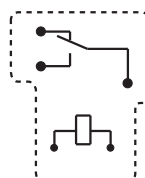
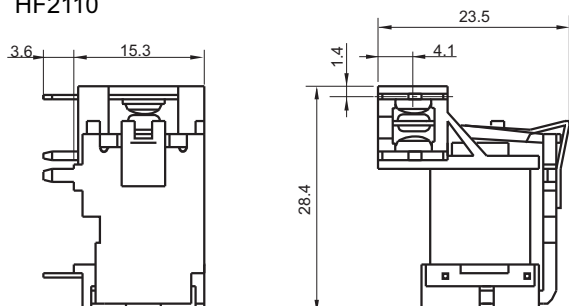


### PCB Layout

(Bottom view)

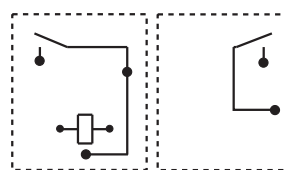
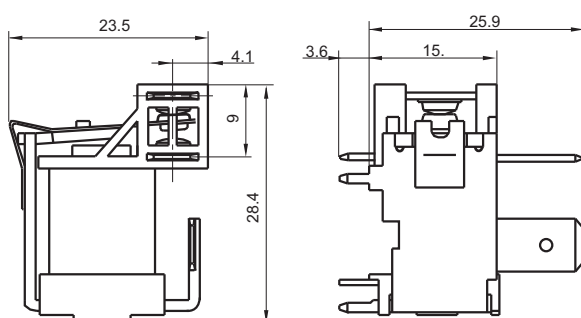


HF2110

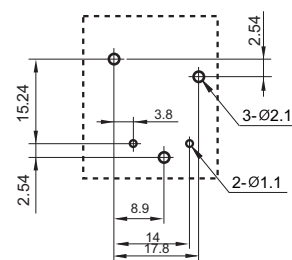


## 1 Form A

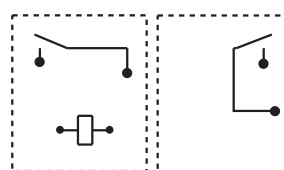
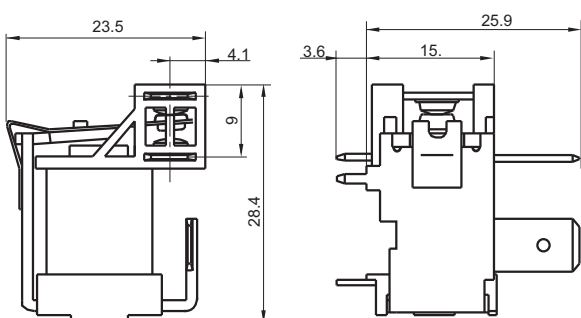
HF2121



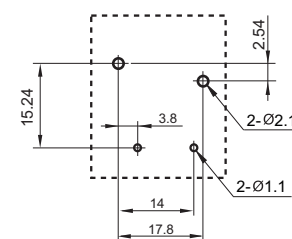
(Bottom view) (Top view)



HF2120



(Bottom view) (Top view)



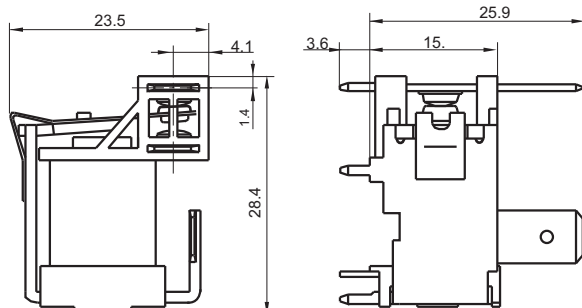
# OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

## 1 Form B

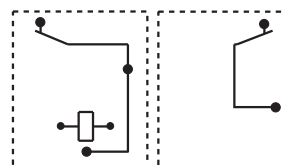
### Outline Dimensions

HF2121



### Wiring Diagram

(Bottom view)

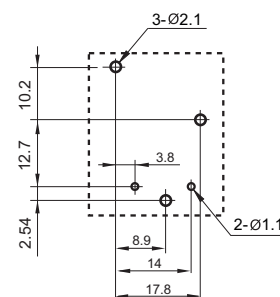


(Bottom view)

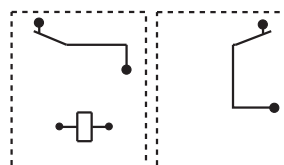
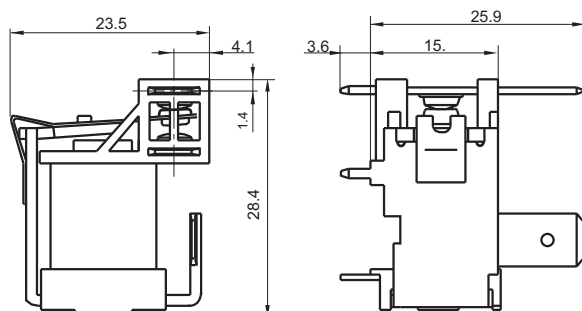
(Top view)

### PCB Layout

(Bottom view)

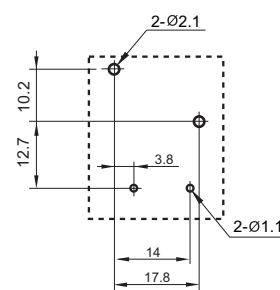


HF2120



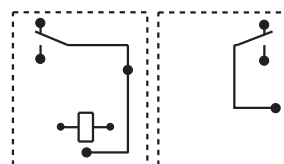
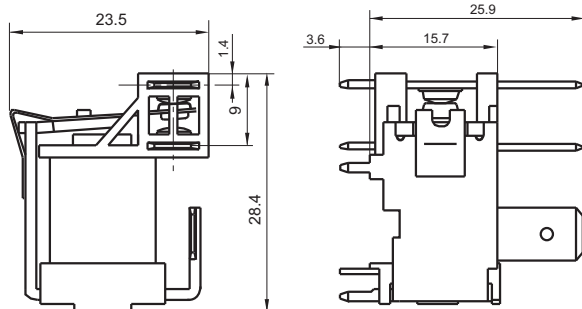
(Bottom view)

(Top view)



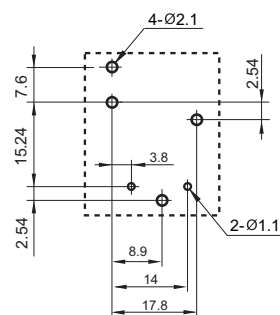
## 1 Form C

HF2121

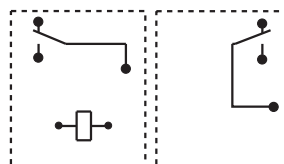
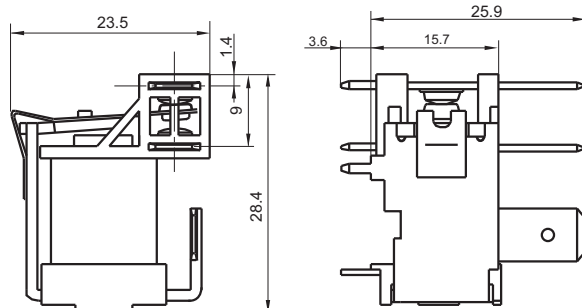


(Bottom view)

(Top view)

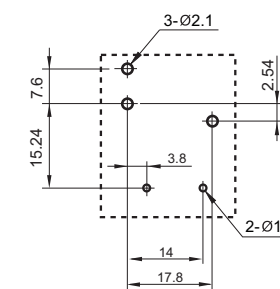


HF2120



(Bottom view)

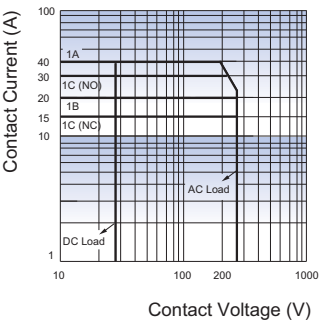
(Top view)



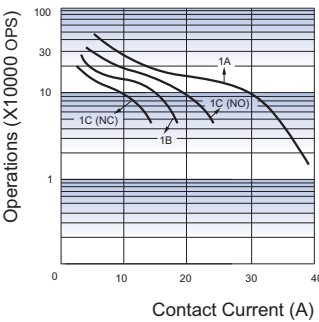
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $> 1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $> 5\text{mm}$ , tolerance should be  $\pm 0.4\text{mm}$ .  
 2) The tolerance without indicating for PCB layout is always  $\pm 0.1\text{mm}$ .

CHARACTERISTIC CURVES

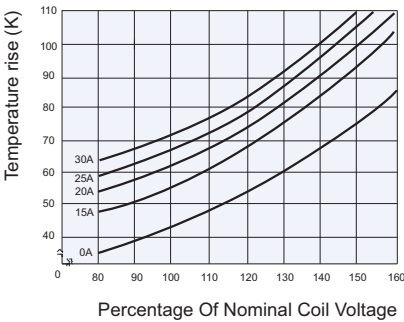
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



**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.

© Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.