# HF163F-L16 SUBMINIATURE INTERMEDIATE POWER LATCHING RELAY

File No.:E133481

File NO.:40051265

File No.: B0532860028

File No.: CQC19002212710


## Features

- Low height 15.7mm
- Breakdown voltage (between contact and coil): 5,000 V
- Have passed TV-8 certification
- 16A switching capability
- Max. switching capacity 20A
- Inrush current Capacitor 192A/1.2ms
- For LED load

## CONTACT DATA

| | |
|---|---|
| Contact arrangement | 1A |
| Contact resistance 1) | 30mΩ max. (at 1A 6VDC) |
| Contact material | $AgSnO_2$ |
| Contact rating | 16A 277VAC,1 x $10^5$(Resistive, at 85°C)<br>20A 250VAC,5 x $10^4$(Resistive, at 85°C)<br>600W 120VAC,2.5 x$10^4$<br>(Incandescent lamp,at 50°C)<br>8A 277VAC,6 x$10^3$<br>(Standard ballast,at 50°C)<br>5A 120VAC,6x$10^3$<br>(Electronic ballast,at 40°C)<br>8A 240VAC,2.5x$10^4$(TV-8,40°C) |
| Max. switching voltage | 277VAC |
| Max. switching current | 20A |
| Max. switching power | 5000VA |
| Mechanical endurance | 1 x $10^6$ops |
| Electrical endurance | See rated load |

Notes:1) The data shown above are initial values.

## CHARACTERISTICS

| | | |
|---|---|---|
| Insulation resistance | | 1000MΩ (at 500VDC) |
| Dielectric strength | Between coil & contacts | 5000VAC 1min |
| | Between open contacts | 1000VAC 1min |
| Set time | | 15ms max. |
| Reset time | | 15ms max. |
| Shock resistance | Functional | 98m/s² |
| | Destructive | 980m/s² |
| Vibration resistance | | 10Hz to 55Hz 1.5mm DA |
| Humidity | | 5% to 85% RH |
| Ambient temperature | | -40°C to 85°C |
| Termination | coil termination | PCB |
| | load termination | PCB |
| Unit weight | | Approx. 7g |
| Construction | | Plastic sealed, Flux proofed |

Notes: The data shown above are initial values.

## COIL

| | | |
|---|---|---|
| Coil power | Standard type | 1 coil latching: Approx. 0.4W<br>2 coils latching: Approx. 0.6W |
| | Sensitive type | 1 coil latching: Approx. 0.2W<br>2 coils latching: Approx. 0.4W |

## COIL DATA at 23˚C

**1 coils latching**

| Nominal Voltage VDC | Set / Reset Voltage VDC 1)2) max. | Pulse Duration ms min. | Coil Resistance x (1±10%) Ω | |
|---|---|---|---|---|
| | | | Sensitive type | Standard type |
| 3 | 2.4 | 50 | 45 | 22.5 |
| 5 | 4.0 | 50 | 125 | 62.5 |
| 6 | 4.8 | 50 | 180 | 90 |
| 9 | 7.2 | 50 | 405 | 202.5 |
| 12 | 9.6 | 50 | 720 | 360 |
| 24 | 19.2 | 50 | 2880 | 1440 |

**2 coils latching**

| Nominal Voltage VDC | Set / Reset Voltage VDC 1)2) max. | Pulse Duration ms min. | Coil Resistance x (1±10%) Ω | |
|---|---|---|---|---|
| | | | Sensitive type | Standard type |
| 3 | 2.4 | 50 | 22.5+22.5 | 15+15 |
| 5 | 4.0 | 50 | 62.5+62.5 | 42+42 |
| 6 | 4.8 | 50 | 90+90 | 60+60 |
| 9 | 7.2 | 50 | 202.5+202.5 | 135+135 |
| 12 | 9.6 | 50 | 360+360 | 240+240 |
| 24 | 19.2 | 50 | 1440+1440 | 960+960 |

Notes:1) The data shown above are initial values.
2) The above set voltage, reset voltage are the test value for relay without load. Please use 1~1.5 times of rated voltage to drive the relay for your application.

## SAFETY APPROVAL RATINGS

| | |
|---|---|
| UL/CUL | Resistive:16A 277VAC 85°C<br>Resistive:20A 250VAC 85°C<br>Resistive:5A 30VDC 85°C<br>Incandescent lamp:600W 120VAC 50°C<br>Standard ballast:8A 277VAC 50°C<br>Electronic ballast:5A 120VAC 40°C<br>TV-8:8A 240VAC 40°C |
| TÜV | Resistive:16A 277VAC 85°C<br>Resistive:20A 250VAC 85°C<br>Resistive:5A 30VDC 85°C |
| VDE | Resistive:16A 277VAC 85°C<br>Resistive:20A 250VAC 70°C<br>Resistive:5A 30VDC 85°C |

Notes: Only typical loads are iisted above.other load specifications can be available upon request.

## ORDERING INFORMATION

HF163F-L16 /12 -H 1A- L T -L2 (XXX)

| | | |
|---|---|---|
| **Type** | | |
| **Coil voltage** | 3, 5, 6, 9, 12, 24VDC | |
| **Contact form** | **H:** 1 Form A | |
| **Termination** | **Nil:** Standard | **1A:** Wide pin type |
| **Coil power** (4) | **Nil:** Standard | **L:** Sensitive type |
| **Contact material** | **T:** $AgSnO_2$ | |
| **Sort** | **L1:** 1 coil latching | **L2:** 2 coils latching |
| **Special code** | **XXX:** Customer special requirement | **Nil:** Standard |

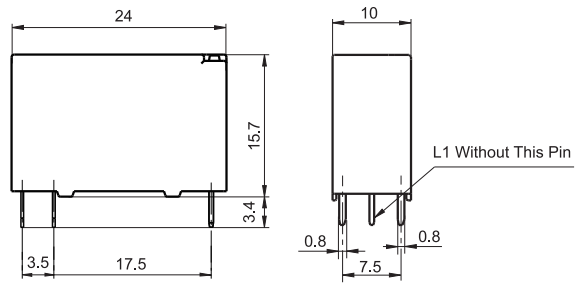
**Notes:** 1) We recommend flux proofed types for a clean environment (free from contaminations like $H_2S$, $SO_2$, $NO_2$, dust, etc.).
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PCBOARD LAYOUT

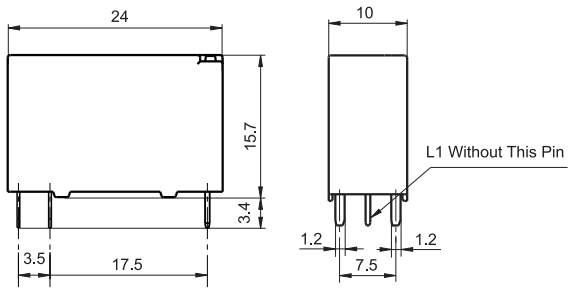
Unit: mm

Outline Dimensions

HF163F-L16/XX-HXT-X




HF163F-L16/XX-H1A-XT-X

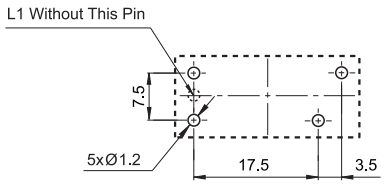


## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PCBOARD LAYOUT

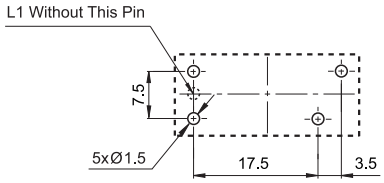
Unit: mm

### PCB Layout
(Bottom view)

HF163F-L16/XX-HXT-X



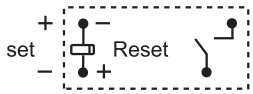

HF163F-L16/XX-H1A-XT-X

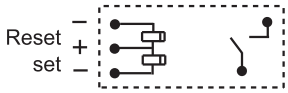



**Remark:** 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be±0.2mm; outline dimension ＞1mm and ≤5mm, tolerance should be±0.3mm; outline dimension ＞5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The width of the gridding is 2.54mm.

### Wiring Diagram
(Bottom view)

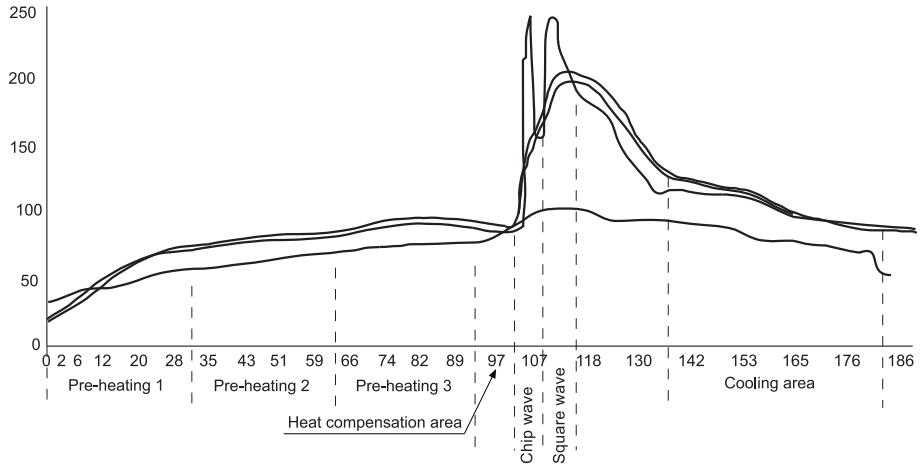
Reset Status



## RECOMMENDED SOLDERING CONDITIONS

Wave soldering temperature distribution chart




Notice:

1. the recommended welding temperature range and duration is 240°C to 260°C, 2s to 5s; Please do not use the reflow welding method, if the reflow is really required, please contact our technicals; the normal recommeded wave soldering temperature is 250°C within 2s; the above chart is the wave soldering temperature distribution chart we recommended for your reference.
2. Relay is on the "reset" or "set" status when being released from stock, with the consideration of shock risen from transit and relay mounting, relay would be changed to "set" or "reset" status, therefore, when application ( connecting the power supply), please reset the relay to "set" or "reset" status on request.
3. In order to maintain "set" or "reset" status, energized voltage to coil should reach the rated voltage, impulse width should be 5 times more than "set" or "reset" time. Do not energize voltage to "set" coil and "reset" coil simultaneously. And also long energized time (more than 1 min) should be avoided.
4. Keep the product away from strong magnetic field during transportation, storage and application, to avoid change of set/reset voltage.

### Disclaimer

The specification is for reference only. Specifications 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.