

# HFS34

# SOLID STATE RELAY



File No.: E134517



File No.: R50166328



File No.: CQC08001023650



### Features

- Dielectric strength 4000V
- Photo isolation
- Zero cross or random turn-on
- Removable finger proof cover available
- Double SCR AC output
- Panel mount
- DC or AC control
- Environmental friendly product (RoHS compliant)

### INPUT (Ta = 25°C)

|  |   |
|--|---|
| Control voltage range (DC input)           | 3VDC to 32VDC (Without LED)<br>4VDC to 32VDC (With LED) |
| Control voltage range (AC input)           | 90VAC to 280VAC   |
| Must operate voltage (DC input)            | 3VDC (Without LED)<br>4VDC (With LED)                   |
| Must operate voltage (AC input)            | 90VAC   |
| Must release voltage (DC input)            | 1VDC  |
| Must release voltage (AC input)            | 10VAC   |
| Max. input current (DC input)              | 25mA(32VDC)   |
| Max. reverse protection voltage (DC input) | - 32VDC   |

### GENERAL (Ta = 25°C)

|  |                   |                    |
|--|-------------------|--------------------|
| Dielectric strength (at 50/60Hz, 1min) | Input to output   | 4000VAC            |
|  | Input/output-case | 2500VAC            |
| Insulation resistance                  |                   | 1000MΩ (at 500VDC) |
| Max. capacitance (input to output)     |                   | 8pF                |
| Ambient temperature                    | Operating         | -30°C to 80°C      |
|  | Storage           | -30°C to 100°C     |
| Ambient humidity                       |                   | 45% to 85% RH      |
| Unit weight                            |                   | Approx. 88g        |

### OUTPUT (Ta = 25°C)

| Type  | A -240<br>D -240              |        | D -380          |        |        | A -480<br>D -480 |        |        | D -600          |         |
|---|-------------------------------|--------|-----------------|--------|--------|------------------|--------|--------|-----------------|---------|
| Load voltage range  | 48VAC to 280VAC               |        | 48VAC to 440VAC |        |        | 48VAC to 530VAC  |        |        | 48VAC to 660VAC |         |
| Max. transient voltage                                    | 600Vpk                        |        | 800Vpk          |        |        | 1200Vpk          |        |        | 1600Vpk         |         |
| Load current  | 10A                           | 15A    | 20A             | 25A    | 40A    | 50A              | 60A    | 70A    | 80A             | 100A    |
| Max. surge current (10ms)                                 | 140Apk                        | 188Apk | 255Apk          | 300Apk | 400Apk | 500Apk           | 600Apk | 700Apk | 800Apk          | 1000Apk |
| Max. I <sup>2</sup> t for fusing (10ms, A <sup>2</sup> s) | 98                            | 176    | 325             | 450    | 800    | 1250             | 1800   | 2450   | 3200            | 5000    |
| Max. leakage current                                      | 5mA                           |        |                 |        |        |                  |        |        |                 |         |
| Max. on-state voltage drop                                | 1.7Vr.m.s.                    |        |                 |        |        |                  |        |        |                 |         |
| Min. power factor   | 0.5                           |        |                 |        |        |                  |        |        |                 |         |
| Max. turn-on time   | Random turn-on (DC input)     |        |                 |        |        | 1ms              |        |        |                 |         |
|   | Zero cross turn-on (DC input) |        |                 |        |        | 1/2cycle+1ms     |        |        |                 |         |
|   | AC input type                 |        |                 |        |        | 20ms             |        |        |                 |         |
| Max turn-off time   | DC input                      |        |                 |        |        | 1/2cycle+1ms     |        |        |                 |         |
|   | AC input                      |        |                 |        |        | 40ms             |        |        |                 |         |
| Frequency range   | 47Hz to 63Hz                  |        |                 |        |        |                  |        |        |                 |         |
| Min. off-state dv/dt                                      | 500V/μs                       |        |                 |        |        |                  |        |        |                 |         |



HONGFA RELAY

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

2010 Rev. 1.00

## DESCRIPTION

The HFS34 offer 3VDC to 32VDC or 90VAC to 280VAC input control, with outputs rated from 10A to 100A. SCR output provides high dv/dt capability more than 500V/us. All models include an internal snubber. The relays provide 4000VAC opto-isolation between input and output. Outline dimension is 58.4mmX45.7mmX22.9mm.

## PRECAUTIONS

- When choosing a SSR, please notice the actual load current and working ambient temperature. To use the SSR correctly, please refer to CHARACTERISTIC DATA and make sure the heat sink size when it works in full load current.
- Apply heat-radiation silicon grease or a heat conductive sheet between the SSR and heat sink. There will be a space between the SSR and heat sink Attached to the SSR. Therefore, the generated heat of the SSR cannot be radiated properly without the grease. As a result, the SSR may be overheated and damaged or deteriorated.

- Tighten the SSR terminal screws properly. If the screws are not tight, the SSR will be Damaged by heat generated when the power is ON. Perform wiring using the tightening torque shown in the following table.

| Screw size | Recommended tightene torque |
|------------|-----------------------------|
| M3         | 0.58 N·m to 0.98 N·m        |
| M4         | 0.98 N·m to 1.37 N·m        |

- It's recommended to use the matched heatsink by Hongfa. When a user need use home-made heatsink, it's needed to ensure that the SSR base temperature does not exceed 85°C.
- Please do not use the relay beyond the descriptions in the data sheet. If it is a must to use it beyond descriptions, please contact Hongfa for more technical support.

## ORDERING INFORMATION

|                               |  |                  |           |         |           |  |  |  |  |  |
|-------------------------------|--|------------------|-----------|---------|-----------|--|--|--|--|--|
| <b>Type</b>                   | HFS34 / D- 240 A 40 Z S -Y L (XXX)   |                  |           |         |           |  |  |  |  |  |
| <b>Input voltage</b>          | D: 3VDC to 32VDC (Without LED)<br>4VDC to 32VDC (With LED)<br>A: 90VAC to 280VAC |                  |           |         |           |  |  |  |  |  |
| <b>Load voltage</b>           | 240: 48V to 280V   | 380: 48V to 400V |           |         |           |  |  |  |  |  |
|                               | 480: 48V to 530V   | 600: 48V to 600V |           |         |           |  |  |  |  |  |
| <b>Load voltage form</b>      | A: AC  |                  |           |         |           |  |  |  |  |  |
| <b>Load current</b>           | 10: 10A  | 15: 15A          | 20: 20A   | 25: 25A | 40: 40A   |  |  |  |  |  |
|                               | 50: 50A  | 60: 60A          | 70: 70A   | 80: 80A | 100: 100A |  |  |  |  |  |
| <b>Zero cross function</b>    | Z: Zero cross turn-on P: Random turn-on  |                  |           |         |           |  |  |  |  |  |
| <b>Output component</b>       | S: SCRS  |                  |           |         |           |  |  |  |  |  |
| <b>Overvoltage protection</b> | Y: Varistor  | T: TVs           | Nil: None |         |           |  |  |  |  |  |
| <b>LED indicator</b>          | L: With LED Nil: Without LED   |                  |           |         |           |  |  |  |  |  |
| <b>Customer special code</b>  |  |                  |           |         |           |  |  |  |  |  |

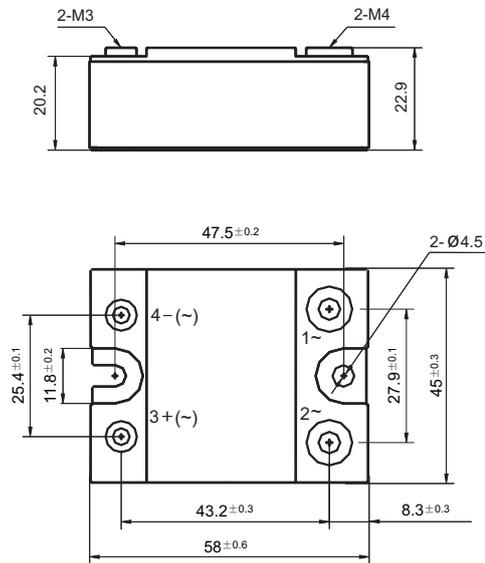
**Notes:** (1) With Overvoltage Protection function, the relay will switch off automatically. Overvoltage range for different loads are as follows: D-240A type is 400Vdc to 600Vdc, D-380A type is 600Vdc to 800Vdc, D-480A type is 850Vdc to 1200Vdc. This function is not suitable for capacitive load.

(2) Available parts are: HFS34/D-240A□□□S-□□, HFS34/D-380A□□□S-□□, HFS34/D-480A□□□S-□□, HFS34/D-600A40ZS-□□, HFS34/D-600A50ZS-□□, HFS34/D-600A60ZS-□□, HFS34/D-600A70ZS-□□, HFS34/D-600A80ZS-□□, HFS34/D-600A100ZS-□□, HFS34/A-240A40ZS-Y□, HFS34/A-240A40ZS-□, HFS34/A-240A50ZS-Y□, HFS34/A-240A50ZS-□, HFS34/A-240A60ZS-Y□, HFS34/A-240A60ZS-□, HFS34/A-240A70ZS-Y□, HFS34/A-240A70ZS-□, HFS34/A-240A80ZS-Y□, HFS34/A-240A80ZS-□, HFS34/A-240A100ZS-Y□, HFS34/A-240A100ZS-□, HFS34/A-480A40ZS-Y□, HFS34/A-480A40ZS-□, HFS34/A-480A50ZS-Y□, HFS34/A-480A50ZS-□, HFS34/A-480A60ZS-Y□, HFS34/A-480A60ZS-□, HFS34/A-480A70ZS-Y□, HFS34/A-480A70ZS-□, HFS34/A-480A80ZS-Y□, HFS34/A-480A80ZS-□, HFS34/A-480A100ZS-Y□, HFS34/A-480A100ZS-□.

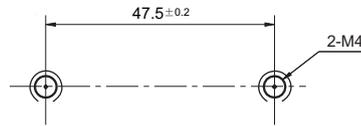
# OUTLINE DIMENSIONS, WIRING DIAGRAM AND MOUNTING HOLES

Unit: mm

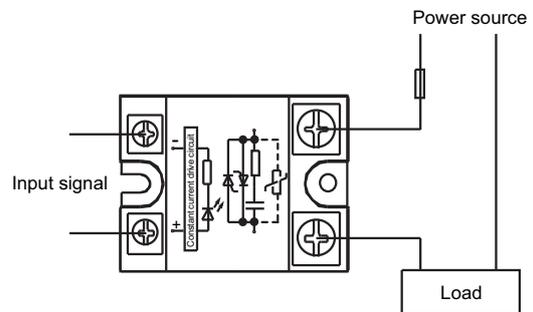
## Outline Dimensions



## Mounting Hole Layout

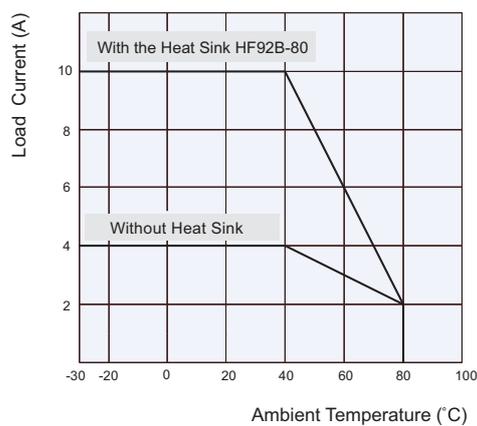


## Wiring Diagram

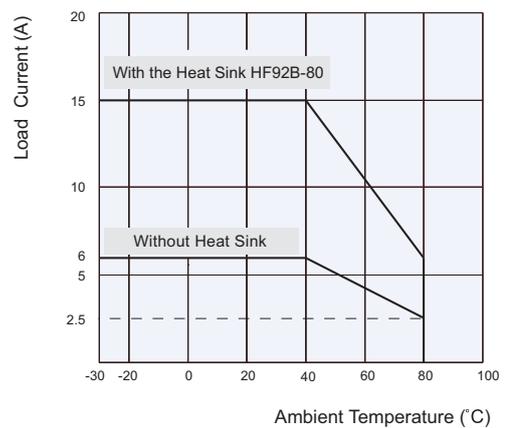


# CHARACTERISTIC CURVES

Max. Load Current vs. Ambient Temp. (10A)

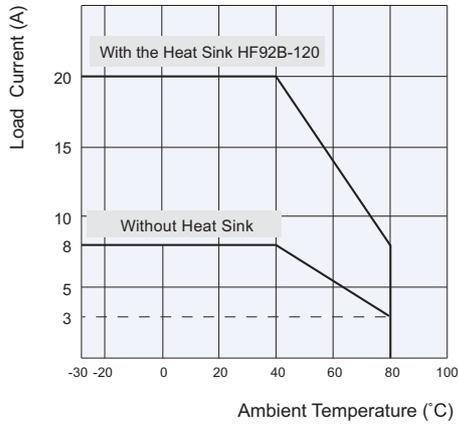


Max. Load Current vs. Ambient Temp. (15A)

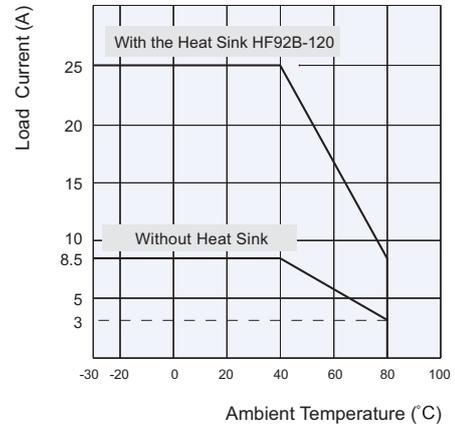


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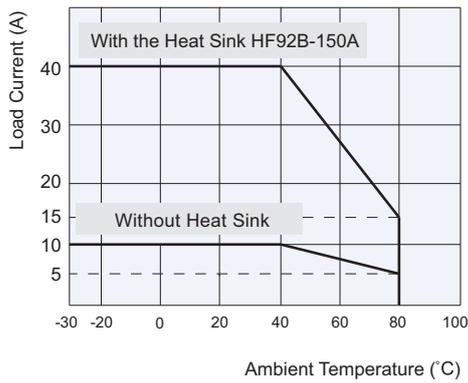
Max. Load Current vs. Ambient Temp. (20A)



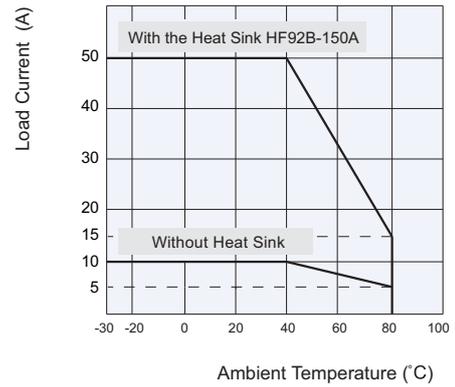
Max. Load Current vs. Ambient Temp. (25A)



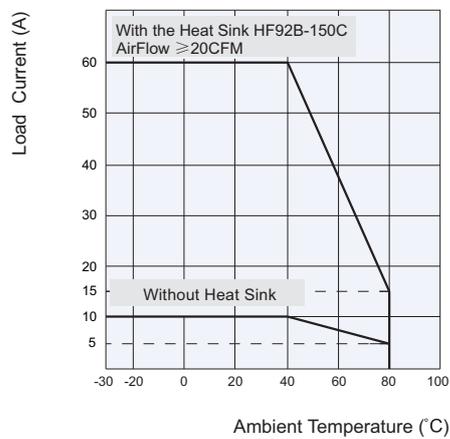
Max. Load Current vs. Ambient Temp. (40A)



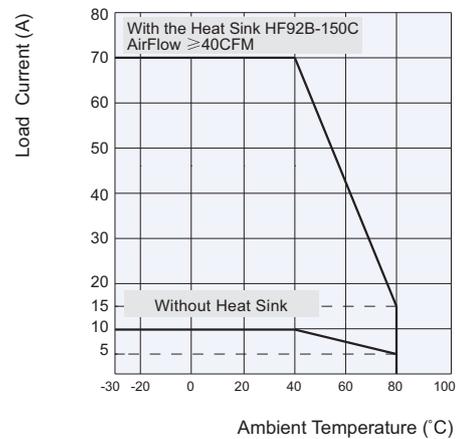
Max. Load Current vs. Ambient Temp. (50A)



Max. Load Current vs. Ambient Temp. (60A)

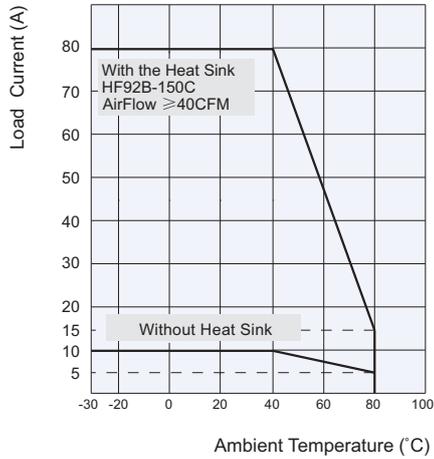


Max. Load Current vs. Ambient Temp. (70A)

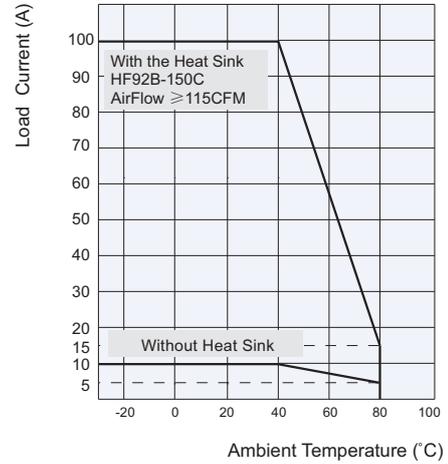


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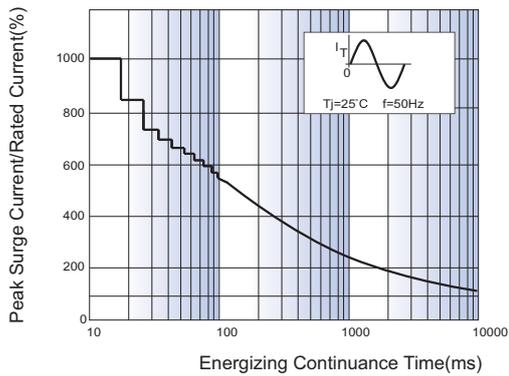
Max. Load Current vs. Ambient Temp. (80A)



Max. Load Current vs. Ambient Temp. (100A)



Max. Permissible Non-repetitive Peak Surge Current rate vs. Continuance Time



### 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.

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