

HFS21 (HF5421) THREE-PHASE MOTOR CONTROL MODULE



Features

- Photo isolation
- LED status indication
- 4000V dielectric strength
- zero cross
- Built-in snubber
- Min. switch time for forward and reverse operation: 300μs (user offer)
- Panel mount
- RoHS compliant

INPUT (TA = 25°C)

| | | |
|--|-----|--------------------|
| Control voltage | 12D | 12VDC |
| | 24D | 24VDC |
| Must operate voltage | 12D | 9.6VDC |
| | 24D | 19.2VDC |
| Must release voltage | 12D | 3VDC |
| | 24D | 10VDC |
| Max. input current | | 35mA |
| Max. reverse protection voltage | 12D | -12VDC |
| | 24D | -24VDC |
| Min. switch time for motor forward and reverse operation | | 300μs (User offer) |

GENERAL (TA = 25°C)

| | | |
|---------------------------------------|--------------------------------|---------------|
| Dielectric strength (input to output) | 4000VAC, 50Hz/60Hz, 1min | |
| Insulation resistance | 1000MΩ (at 500VDC) | |
| Ambient temperature | Operating | -30°C ~ 80°C |
| | Storage | -30°C ~ 100°C |
| Ambient humidity | 45% ~ 85% RH | |
| Termination | Screw | |
| Mounting model | Panel mount | |
| Unit weight | Approx. 335g | |
| Operating status indication | Forward: green Reverse: red | |

OUTPUT (TA = 25°C)

| | | |
|----------------------------|-----------------------------|---------|
| Load current range | 380A10Z: | 10A |
| | 380A15Z: | 15A |
| | 380A25Z: | 25A |
| | 380A40Z: | 40A |
| Load voltage range | 48 to 440VAC | |
| Transient overvoltage | 800Vpk | |
| Max. on-state voltage drop | 1.5Vrms | |
| Min. load current | 100mA | |
| Max. leakage current | 5mA | |
| Min. off-state dv/dt | 200V/μs | |
| Delay turn-on time | 20 to 80ms | |
| Max. turn-off time | 1/2cycle + 1ms (on request) | |
| Max. surge current (10ms) | 380A10Z: | 100Apk |
| | 380A15Z: | 150 Apk |
| | 380A25Z: | 250 Apk |
| | 380A40Z: | 400 Apk |

DESCRIPTION

The HFS21 motor control module is a special power control module only using for three phase motor forward and reverse operation. It contains logic interlock circuit and delay turn-on circuit. So when it used for motor forward and reverse switching operation, it can avoid destruction by wrong operations or destruction caused by triac not being shut off immediately when ensuring that switch time is more than 300μs, and so that it can protect our power supply system, motor and the module itself. In the meantime, the module includes three internal snubbers, so when it put into use, the reliability of itself would be improved.

The module offer 12VDC or 24VDC input control, with outputs rated at 10, 15, 25 or 40 Amps. The modules include a double color LED indicator to provide motor running status information. The modules are widely used for motor control in the modern industrial application.



HONGFA RELAY

ISO9001、ISO/TS16949、ISO14001、OHSAS18001 CERTIFIED

2007 Rev. 1.00

INSTALLATION

1. When mounting the modules side by side, provide a space equivalent to the width of a single module between two adjacent modules. Otherwise , reduce the load current flow to 1/2 to 1/3 of the rated current.
2. When mounting modules on the heat sink surface , first apply a heat conductive grease to the metal back surface of the module. Press the module firmly onto the heat sink to ensure a good seal. Screw the module down to the heat sink .
3. Next , wire the screw terminals and securely tighten the screws.

PRECAUTIONS

1. Before connect a load that generates a high surge current ,such as a lamp load to the module ,make sure that the module can withstand the surge current of the load.
2. The product data sheet shows the non-repetitive peak value of the surge current that flows through the module. Normally , use 1/2 of the non-repetitive peak surge current as the standard value. If a surge current exceeding that value is expected , connect a quick-blowing fuse to protect the module.
3. When using the HFS21 for an AC three phase motor with a peak voltage of more than 750V,connect the load terminals of the module to an inrush absorber.
4. Please ensure the switching time for motor forward and reverse operation more than 300s while the module is put into use.

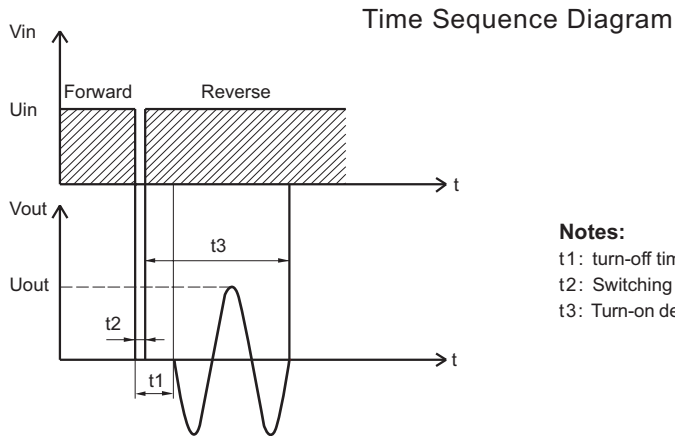
ORDERING INFORMATION

| | | | | | | | |
|------------------------------|---|-------------------|----------------|----------------|--|--|--|
| | HFS21 / 24D- 380 A 25 Z -L 3 (XXX) | | | | | | |
| Type | | | | | | | |
| Input voltage | 12D: 12VDC | 24D: 24VDC | | | | | |
| Load voltage | 380: 380V | | | | | | |
| Load voltage form | A: AC | | | | | | |
| Load current | 10: 10A | 15: 15A | 25: 25A | 40: 40A | | | |
| Zero cross function | Z: Zero cross turn on | | | | | | |
| LED indicator | L: With LED | | | | | | |
| Output number | 3: Three | | | | | | |
| Customer special code | Only for special requirements, e.g. (555) stands for RoHS compliant | | | | | | |

Notes: HFS21 is an environmental friendly product, please mark special code (555) when order.

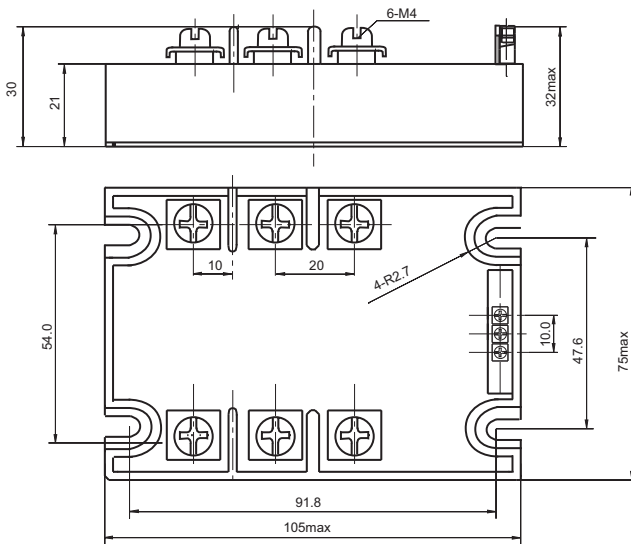
TIME SEQUENCE DIAGRAM, OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

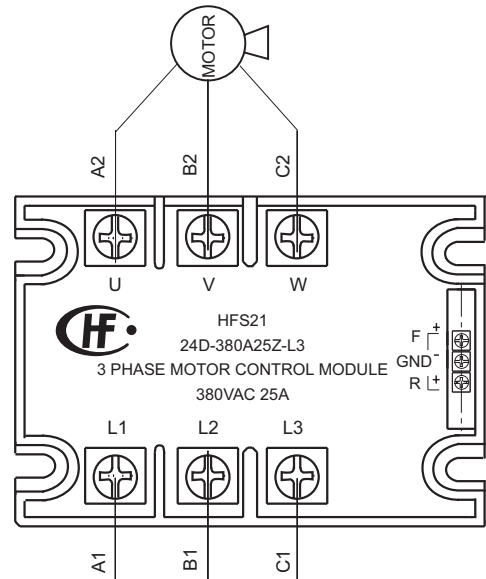


- Notes:**
- t_1 : turn-off time
 - t_2 : Switching time
 - t_3 : Turn-on delay time

Outline Dimensions

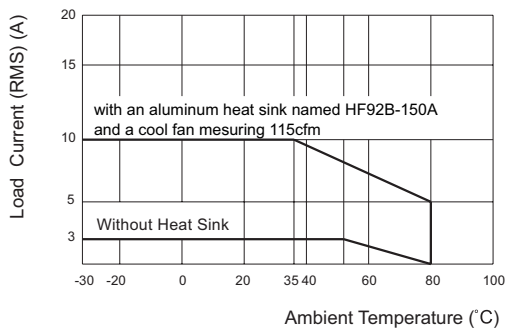


Wiring Diagram

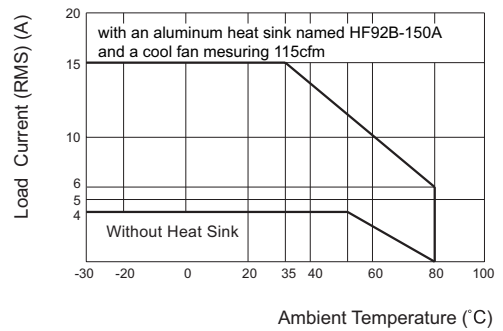


CHARACTERISTIC CURVES

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

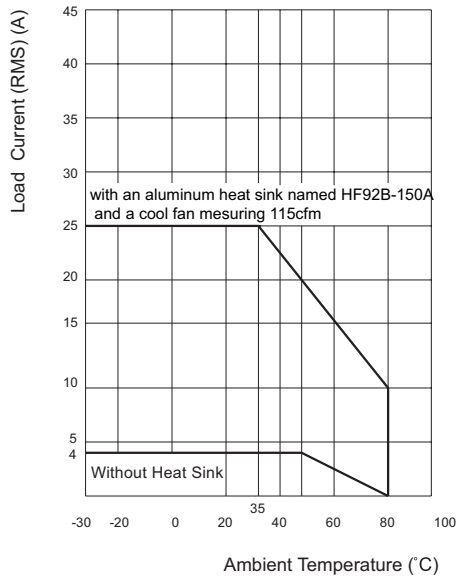


Max. Load Current vs. Ambient Temp. (15A)

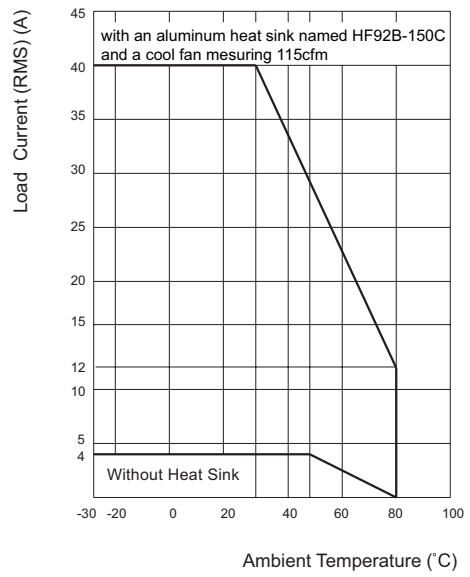


CHARACTERISTIC CURVES

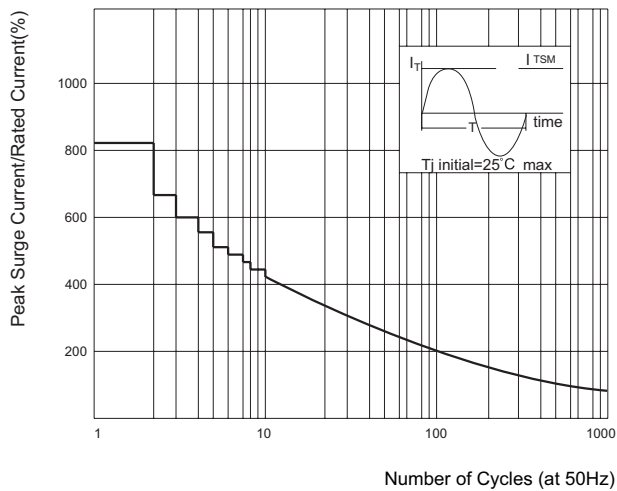
Max. Load Current vs. Ambient Temp. (25A)



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



Max. Permissible Non-repetitive Peak Surge Current vs. Number of Cycles



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.