# HFS33 SOLID STATE RELAY

### Features
- MOSFET output
- DC control
- Low on-state resistance
- Photo isolation
- 2500V dielectric strength
- RoHS compliant

### Description
HFS33 Series offer 3 to 32VDC input control and use MOSFET technology to provide an economical and reliable method of switching medium and high power DC loads. These relays combine low on-state resistance with fast switching times. They are available with switching currents 50A at 30V, 100A at 30V, 40A at 50V, 80A at 50V and 20A at 100V, 40A at 100V, 50A at 150V, 10A at 200V, 40A at 200V, 10A at 400V, 7A at 500V and 12A at 500V etc.

### Precautions
1. Inductive loads must be diode suppressed.
2. 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.
3. Apply heat-radiation silicon grease of 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.
4. Tighten the SSR terminal screws properly. If the screws are not tight, the SSR will be Damaged by heat generated when the power in ON. Perform wiring using the tightening torque shown in the right table.

### INPUT (TA = 25°C)
<table>
<thead>
<tr>
<th>Control voltage range</th>
<th>3 to 32VDC (Without LED)</th>
<th>4 to 32VDC (With LED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must operate voltage</td>
<td>3VDC (Without LED)</td>
<td>4VDC (With LED)</td>
</tr>
<tr>
<td>Must release voltage</td>
<td>1.0VDC</td>
<td></td>
</tr>
<tr>
<td>Max. input current</td>
<td>28mA (at 32VDC)</td>
<td></td>
</tr>
<tr>
<td>Max. reverse voltage</td>
<td>-32VDC</td>
<td></td>
</tr>
</tbody>
</table>

### OUTPUT (TA = 25°C)

<table>
<thead>
<tr>
<th>Load voltage range</th>
<th>0~30VDC</th>
<th>0~50VDC</th>
<th>0~100VDC</th>
<th>0~150VDC</th>
<th>0~200VDC</th>
<th>0~400VDC</th>
<th>0~500VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load current range</td>
<td>0.02A -50A</td>
<td>0.02A -100A</td>
<td>0.02A -80A</td>
<td>0.02A -20A</td>
<td>0.02A -40A</td>
<td>0.02A -50A</td>
<td>0.02A -10A</td>
</tr>
<tr>
<td>Max. off-state leakage current</td>
<td>0.1mA</td>
<td>0.1mA</td>
<td>0.1mA</td>
<td>0.1mA</td>
<td>0.1mA</td>
<td>0.1mA</td>
<td>0.1mA</td>
</tr>
<tr>
<td>Max. on-state voltage drop</td>
<td>0.35V</td>
<td>0.35V</td>
<td>0.64V</td>
<td>0.64V</td>
<td>1.5V</td>
<td>1.5V</td>
<td>0.6V</td>
</tr>
<tr>
<td>Max. on-state resistance</td>
<td>7mΩ</td>
<td>3.5mΩ</td>
<td>16mΩ</td>
<td>8mΩ</td>
<td>75mΩ</td>
<td>37.5mΩ</td>
<td>12mΩ</td>
</tr>
<tr>
<td>Max. turn-on time</td>
<td>1ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. turn-off time</td>
<td>0.5ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. surge current (10ms)</td>
<td>120A</td>
<td>240A</td>
<td>100A</td>
<td>200A</td>
<td>80A</td>
<td>160A</td>
<td>200A</td>
</tr>
</tbody>
</table>

### GENERAL (TA = 25°C)
- Dielectric strength (Input/Output/Base): 2500VAC, 50/60Hz, 1min
- Insulation resistance: 1000Ω (at 500VDC)
- Ambient temperature:
  - Operating: -30°C to 80°C
  - Storage: -30°C to 100°C
- Unit weight: Approx. 80g

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**HONGFA RELAY**
ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED 2008 Rev. 1.00
ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Type</th>
<th>HFS33 / D- 200 D 40 M -L (XXX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>3 to 32VDC (Without LED) 4 to 32VDC (With LED)</td>
</tr>
<tr>
<td>Load voltage</td>
<td>30: 30V 50: 50V 100: 100V 150: 150V 200: 200V 400: 400V 500: 500V</td>
</tr>
<tr>
<td>Load voltage form</td>
<td>D: DC</td>
</tr>
<tr>
<td>Load current</td>
<td>7: 7A 10: 10A 12: 12A 20: 20A 40: 40A 50: 50A 80: 80A 100: 100A</td>
</tr>
<tr>
<td>Output component</td>
<td>M: MOSFET output</td>
</tr>
<tr>
<td>LED indicator</td>
<td>L: With LED  Nil: Without LED</td>
</tr>
<tr>
<td>Customer special code</td>
<td></td>
</tr>
</tbody>
</table>


OUTLINE DIMENSIONS, WIRING DIAGRAM AND MOUNTING HOLES

Unit: mm

Outline Dimensions

Mounting Hole Layout

Wiring Diagram

CHARACTERISTIC CURVES

Max. Load Current vs. Ambient Temp. (D-200D10M)

Max. Load Current vs. Ambient Temp. (D-100D40M, D-200D40M)
**CHARACTERISTIC CURVES**

Max. Load Current vs. Ambient Temp. (D-50D80M)

![Graph](image1)

Max. Load Current vs. Ambient Temp. (D-30D100M)

![Graph](image2)

Max. Load Current vs. Ambient Temp. (D-400D10M)

![Graph](image3)

Max. Load Current vs. Ambient Temp. (D-100D20M)

![Graph](image4)

Max. Load Current vs. Ambient Temp. (D-50D40M)

![Graph](image5)

Max. Load Current vs. Ambient Temp. (D-30D50M)

![Graph](image6)
CHARACTERISTIC CURVES

Max. Load Current vs. Ambient Temp. (D-150D50M)

With aluminum heat sink measuring HF92B-120

Without Heat Sink

Max. Load Current vs. Ambient Temp. (D-500D7M)

With aluminum heat sink measuring HF92B-120

Without Heat Sink

Max. Load Current vs. Ambient Temp. (D-500D12M)

With aluminum heat sink measuring HF92B-120

Without Heat Sink

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

Max. Permissible Non-repetitive
Peak Surge Current 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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