

## FRED Modules

V<sub>RRM</sub> 600V

I<sub>FAV</sub> 200 A

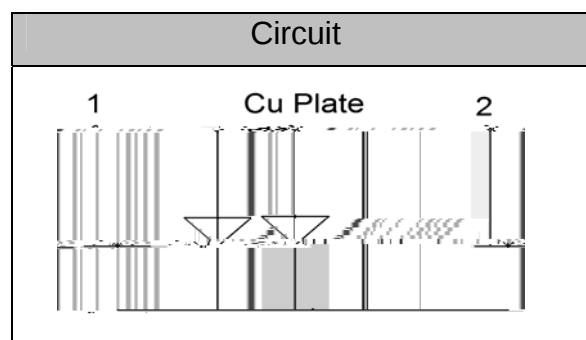


### Applications

- y Inversion Welder
- y Uninterruptible Power Supply (UPS)
- y Plating Power Supply
- y Ultrasonic Cleaner and Welder
- y Power Factor Correction (PFC) Circuit
- y Converter & Chopper

### Features

- y Soft Reverse Recovery Characteristics
- y Ultrafast Reverse Recovery Time
- y Low Reverse Recovery Loss
- y Low Forward Voltage
- y High Surge Current Capability
- y Low Inductance Package



### Maximum Ratings

| Symbol              | Conditions                                | Values             | Units            |
|---------------------|-------------------------------------------|--------------------|------------------|
| V <sub>R</sub>      |                                           | 600                | V                |
| V <sub>RRM</sub>    |                                           | 600                | V                |
| I <sub>F(AV)</sub>  | T <sub>C</sub> =125°C, Per Diode          | 100                | A                |
|                     | T <sub>C</sub> =125°C, Per Module         | 200                | A                |
| I <sub>F(RMS)</sub> | T <sub>C</sub> =125°C, Per Diode          | 141                | A                |
| I <sub>FSM</sub>    | 1/2 Cycle , 50Hz, Sine                    | 2100               | A                |
|                     | 1/2 Cycle , 60Hz, Sine                    | 2350               | A                |
| I <sup>2</sup> t    | T <sub>J</sub> =45°C, t=10ms, 50Hz, Sine  | 22000              | A <sup>2</sup> s |
|                     | T <sub>J</sub> =45°C, t=8.3ms, 60Hz, Sine | 27600              | A <sup>2</sup> s |
| P <sub>D</sub>      |                                           | 1400               | W                |
| T <sub>J</sub>      |                                           | -40 to +150        | °C               |
| T <sub>STG</sub>    |                                           | -40 to +125        | °C               |
| Torque              | RecommendedHM6H                           | 3H <del>4</del> .7 | N·m              |
| Torque              | RecommendedHM6H                           | 3H <del>4</del> .7 | N·m              |
| Weight              |                                           | 92                 | g                |

### Thermal Characteristics

| Symbol               | Conditions | Values | Units |
|----------------------|------------|--------|-------|
| R <sub>th(j-c)</sub> | Per diode  | 0.09   | /W    |

## Electrical Characteristics

| Symbol   | Conditions                                             | Values |      |      | Units |
|----------|--------------------------------------------------------|--------|------|------|-------|
|          |                                                        | Min.   | Typ. | Max. |       |
| $I_{RM}$ | $V_R=600V$                                             | --     | --   | 0.5  | mA    |
|          | $V_R=600V, T_J=125^{\circ}C$                           | --     | --   | 1    | mA    |
| $V_F$    | $I_F=100A$                                             | --     | 1.15 |      | V     |
|          | $I_F=100A, T_J=125^{\circ}C$                           | --     | 1.0  |      | V     |
| $t_{rr}$ | $I_F=1A, V_R=30V, di_F/dt=-200A/s$                     | --     | 48   | --   | ns    |
| $t_{rr}$ | $V_R=300V, I_F=100A, di_F/dt=-200A/s, T_J=25^{\circ}C$ | --     | 105  |      |       |

## Performance Curves



Fig1. Forward Voltage Drop vs Forward Current

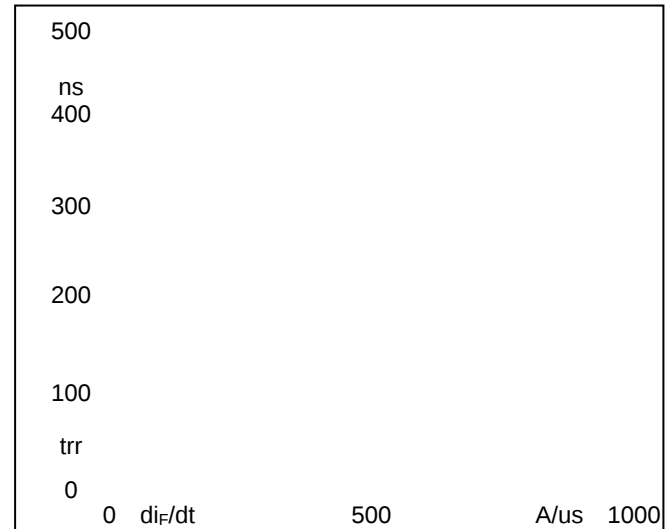


Fig2. Reverse Recovery Time vs  $di_F/dt$



Fig3. Reverse Recovery Current vs  $di_F/dt$



Fig4. Reverse Recovery Charge vs  $di_F/dt$

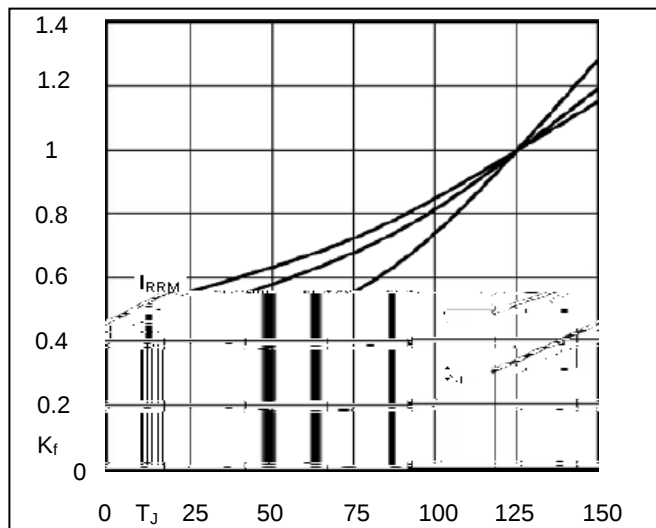


Fig5. Dynamic Parameters vs Junction Temperature

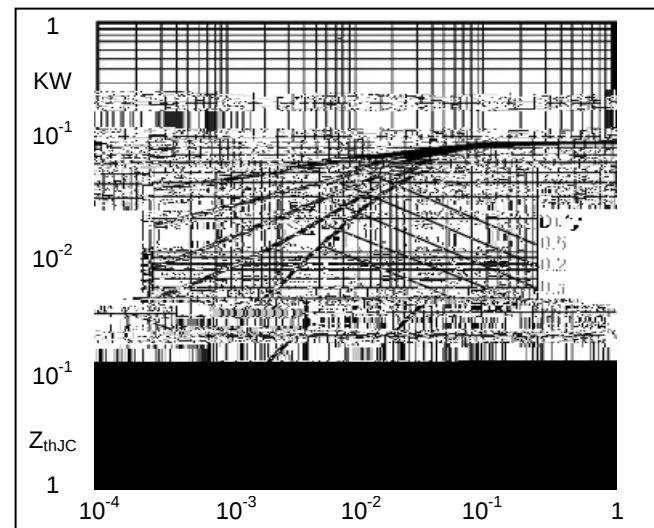
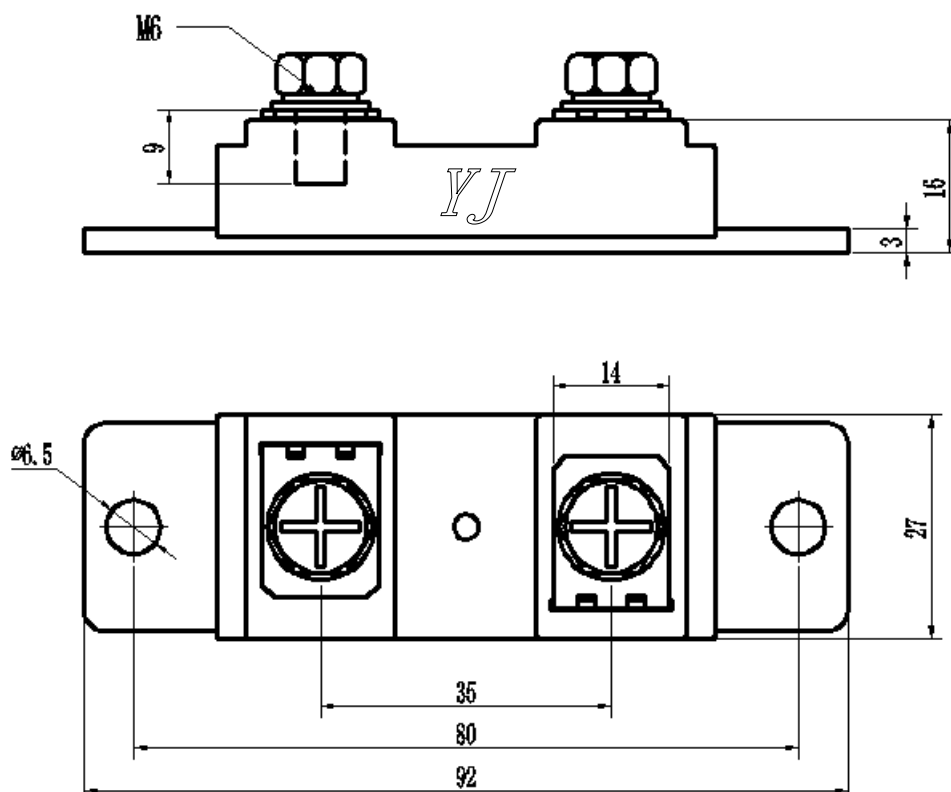


Fig6. Transient Thermal Impedance

## Package Outline Information

CASE: F3



Dimensions in mm