

FRED Modules



V_{RRM} 1200V

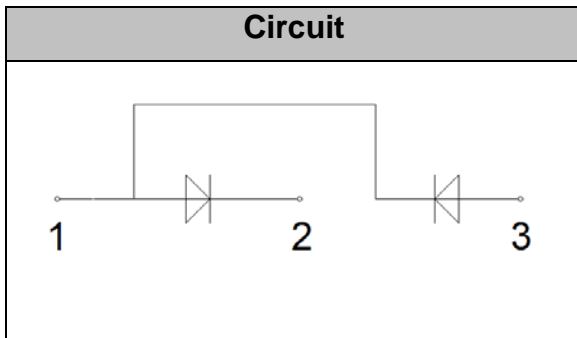
I_{FAV} 300 A

Applications

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

Features

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



Maximum Ratings

| Symbol | Conditions | Values | Units |
|--------------|--|-------------|----------------------|
| V_R | | 1200 | V |
| V_{RRM} | | 1200 | V |
| $I_{F(AV)}$ | $T_C=110^{\circ}\text{C}$, Per Diode | 300 | A |
| $I_{F(RMS)}$ | $T_C=110^{\circ}\text{C}$, Per Diode | 420 | A |
| I_{FSM} | 1/2 Cycle, 50Hz, Sine | 2700 | A |
| | 1/2 Cycle, 60Hz, Sine | 2850 | A |
| I^2t | $T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine | 36450 | A^2s |
| | $T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine | 40613 | A^2s |
| P_D | | 893 | W |
| Visol | AC, $T_{on}=1\text{min}$ | 3000 | V |
| T_J | | -40 to +150 | $^{\circ}\text{C}$ |
| T_{STG} | | -40 to +125 | $^{\circ}\text{C}$ |
| Torque | Recommended (M6) | $5\pm 15\%$ | N·m |
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| Weight | | 160 | g |

Thermal Characteristics

| Symbol | Conditions | Values | Units |
|---------------|------------|--------|----------------------|
| $R_{th(j-c)}$ | Per diode | 0.14 | $^{\circ}\text{C/W}$ |



Electrical Characteristics

| Symbol | Conditions | Values | | | Units |
|-----------|--|--------|------|------|-------|
| | | Min. | Typ. | Max. | |
| I_{RM} | $V_R=1200V$ | -- | -- | 1 | mA |
| | $V_R=1200V, T_J=125^\circ C$ | -- | -- | 5 | mA |
| V_F | $I_F=300A$ | -- | 2.8 | 3.1 | V |
| | $I_F=300A, T_J=125^\circ C$ | -- | 2.1 | 2.4 | V |
| trr | $I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$ | -- | 65 | -- | ns |
| trr | $V_R=600V, I_F=300A, di_F/dt=-200A/\mu s, T_J=25^\circ C$ | -- | 135 | -- | ns |
| I_{RRM} | | -- | 10 | -- | A |
| trr | $V_R=600V, I_F=300A, di_F/dt=-200A/\mu s, T_J=125^\circ C$ | -- | 385 | -- | ns |
| I_{RRM} | | -- | 25 | -- | A |

Performance Curves

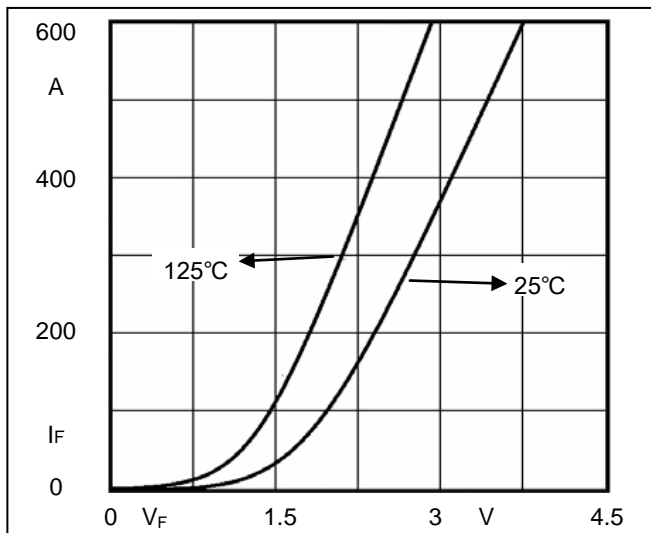


Fig1. Forward Voltage Drop vs Forward Current

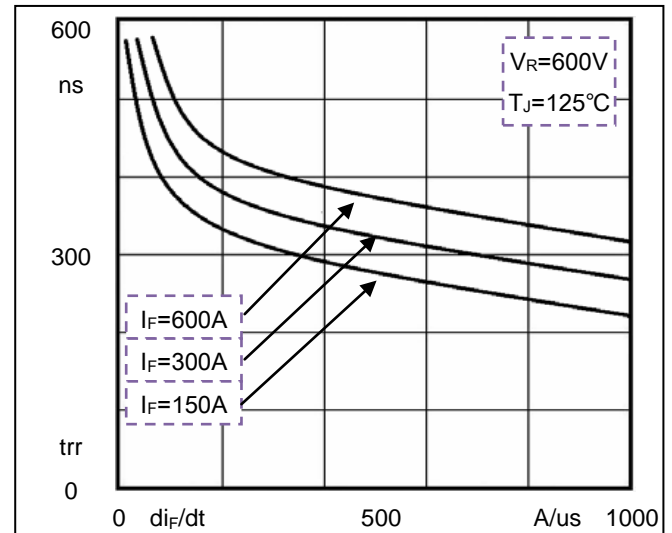


Fig2. Reverse Recovery Time vs di_F/dt

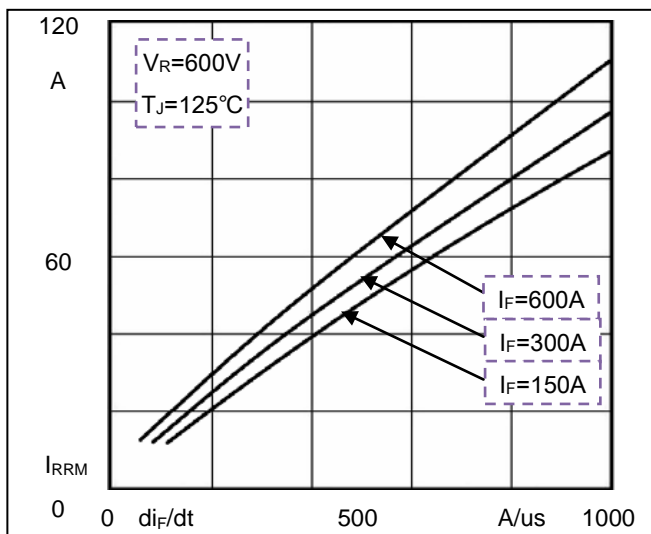


Fig3. Reverse Recovery Current vs di_F/dt

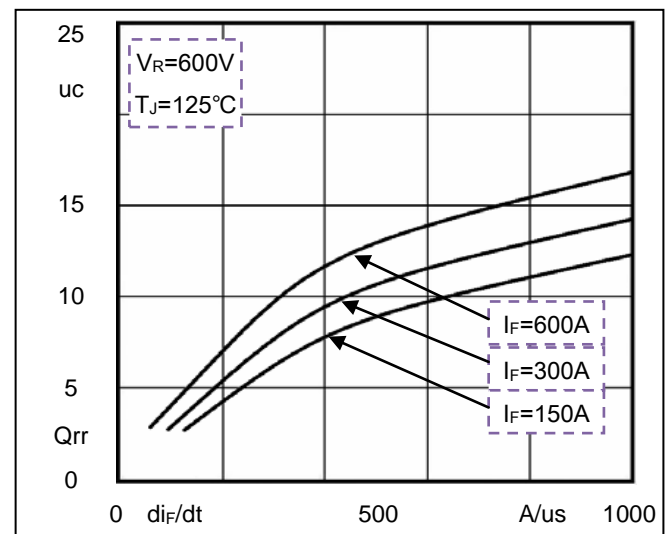
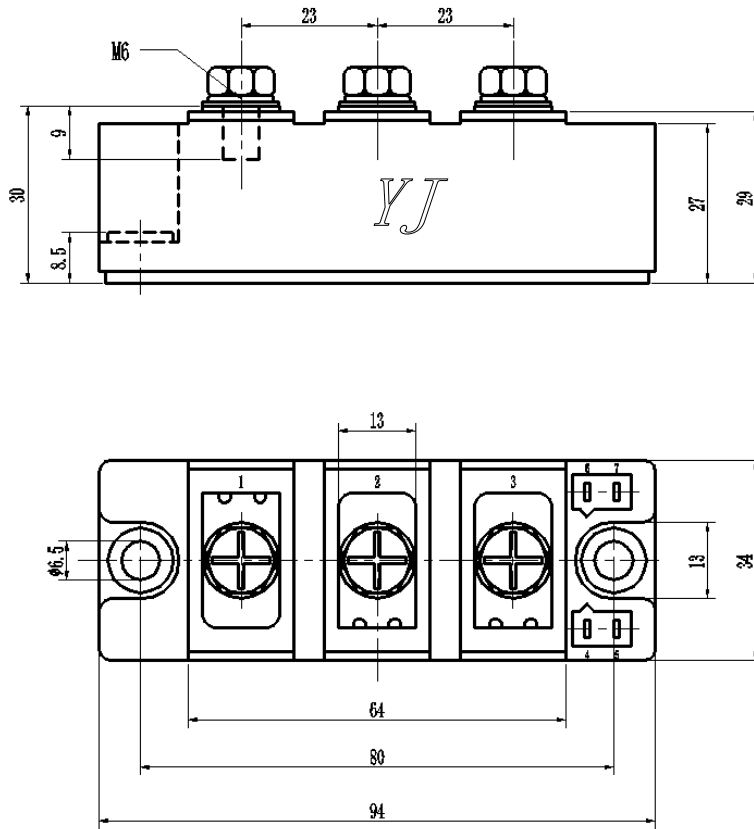


Fig4. Reverse Recovery Charge vs di_F/dt



Package Outline Information

CASE: F2



Dimensions in mm