



FRED Modules

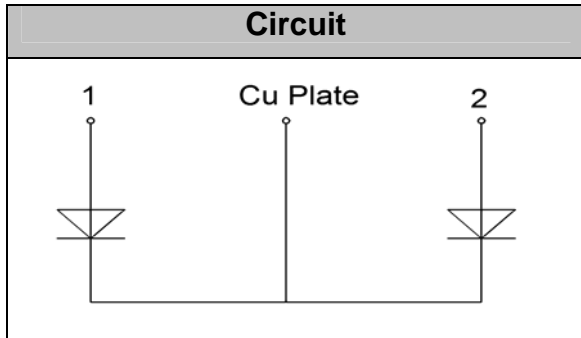
V_{RRM} 400V
I_{FAV} 200 A

Features

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

Applications

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



Maximum Ratings

| Symbol | Conditions | Values | Units |
|--------------|--|-------------|----------------------|
| V_R | | 400 | V |
| V_{RRM} | | 400 | V |
| $I_{F(AV)}$ | $T_C=125^{\circ}\text{C}$, Per Diode | 100 | A |
| | $T_C=125^{\circ}\text{C}$, Per Module | 200 | A |
| $I_{F(RMS)}$ | $T_C=125^{\circ}\text{C}$, Per Diode | 150 | A |
| I_{FSM} | 1/2 Cycle, 50Hz, Sine | 1500 | A |
| | 1/2 Cycle, 60Hz, Sine | 1800 | A |
| I^2t | $T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine | 11250 | A^2s |
| | $T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine | 16200 | A^2s |
| T_J | | -40 to +150 | $^{\circ}\text{C}$ |
| T_{STG} | | -40 to +125 | $^{\circ}\text{C}$ |
| Torque | Recommended (M6) | 3~4.7 | N·m |
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| Weight | | 68 | g |

Thermal Characteristics

| Symbol | Conditions | Values | Units |
|---------------|------------|--------|-----------------------------|
| $R_{th(j-c)}$ | Per Leg | 0.22 | $^{\circ}\text{C}/\text{W}$ |
| $R_{th(j-c)}$ | Per Module | 0.11 | $^{\circ}\text{C}/\text{W}$ |



Electrical Characteristics

| Symbol | Conditions | Values | | | Units |
|-----------|--|--------|------|------|-------|
| | | Min. | Typ. | Max. | |
| I_{RM} | $V_R=400V$ | -- | -- | 0.5 | mA |
| | $V_R=400V, T_J=125^\circ C$ | -- | -- | 1 | mA |
| V_F | $I_F=100A$ | -- | 1.1 | 1.35 | V |
| | $I_F=100A, T_J=125^\circ C$ | -- | 1.0 | 1.25 | V |
| t_{rr} | $I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$ | -- | 38 | -- | ns |
| t_{rr} | $V_R=200V, I_F=100A, di_F/dt=-200A/\mu s, T_J=25^\circ C$ | -- | 95 | -- | ns |
| I_{RRM} | | -- | 8.5 | -- | A |
| t_{rr} | $V_R=200V, I_F=100A, di_F/dt=-200A/\mu s, T_J=125^\circ C$ | -- | 150 | -- | ns |
| I_{RRM} | | -- | 14 | -- | A |

Performance Curves

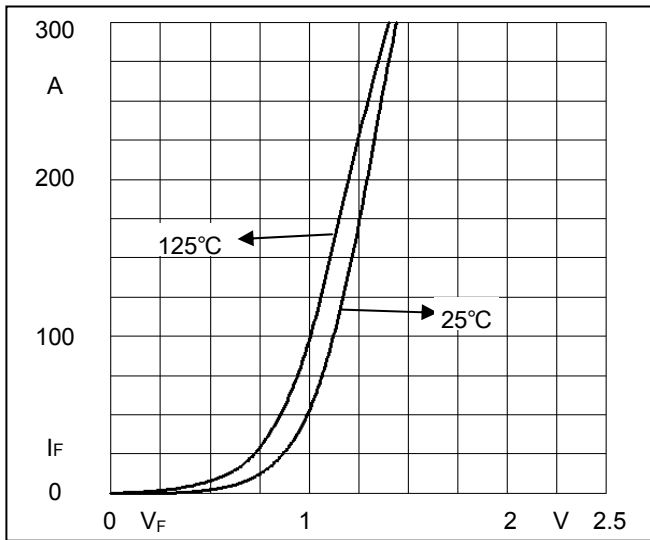


Fig1. Forward Voltage Drop vs Forward Current

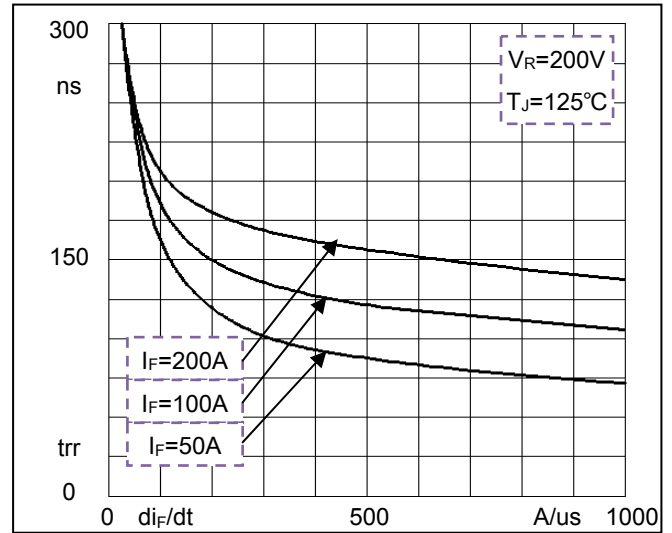


Fig2. Reverse Recovery Time vs di_F/dt

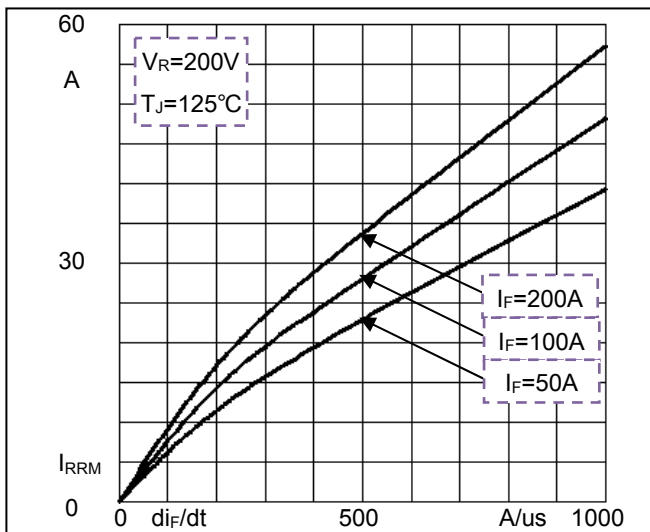


Fig3. Reverse Recovery Current vs di_F/dt

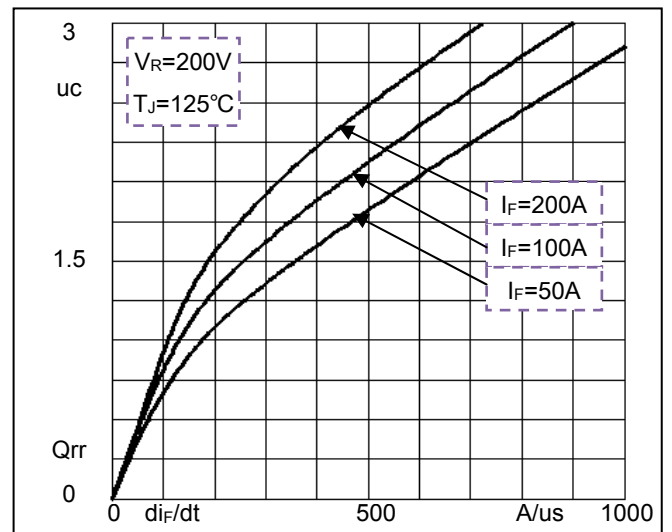
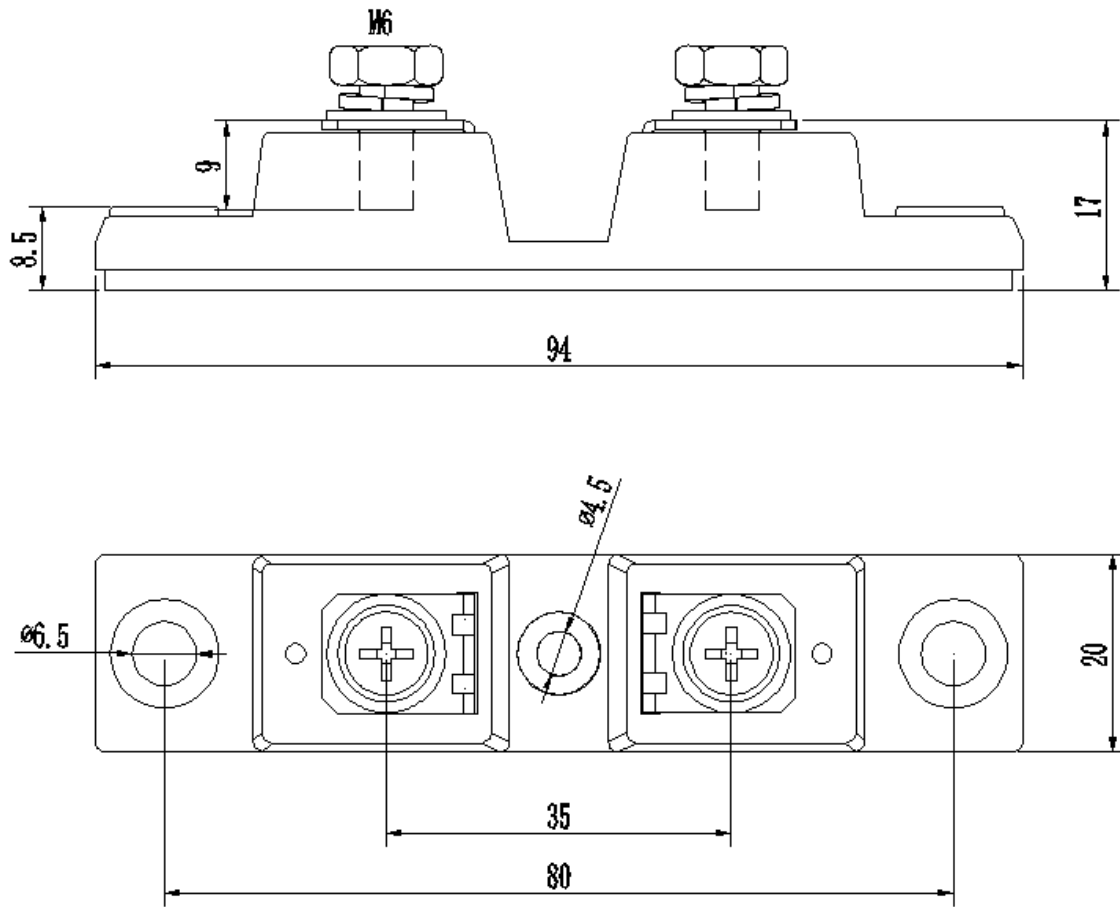


Fig4. Reverse Recovery Charge vs di_F/dt

Package Outline Information

CASE: F4N



Dimensions in mm