



Micro Commercial Components



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MF300K04F3

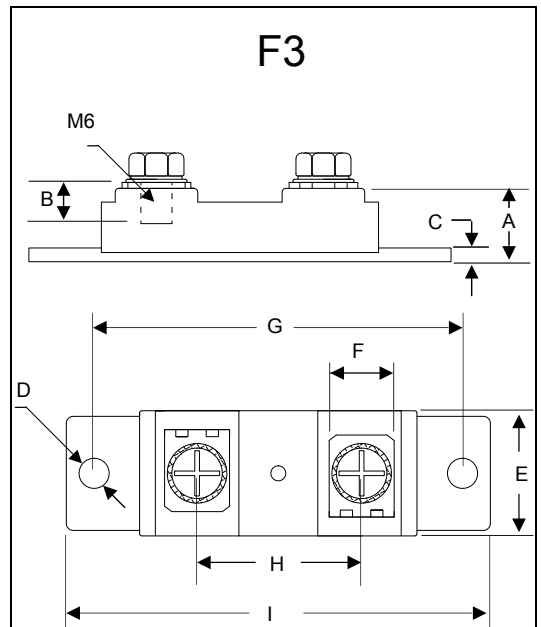
**300 Amp
 FRED Modules
 400 Volts**

Features

- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

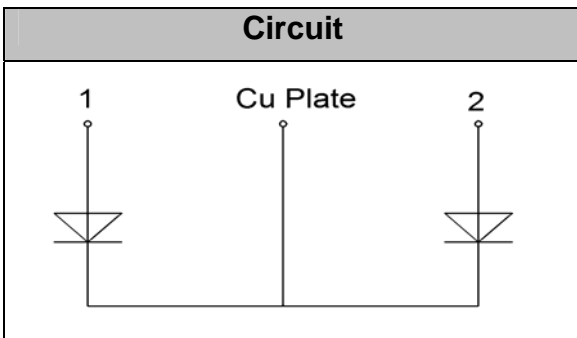
Applications

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



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | .618 | .642 | 15.70 | 16.30 | |
| B | .343 | .366 | 8.70 | 9.30 | |
| C | .118 | .130 | 3.00 | 3.30 | |
| D | .256 | | 6.50 | | ∅ |
| E | 1.051 | 1.075 | 26.70 | 27.30 | |
| F | .539 | .563 | 13.70 | 14.30 | |
| G | 3.138 | 3.161 | 79.70 | 80.30 | |
| H | 1.366 | 1.390 | 34.70 | 35.30 | |
| I | 3.610 | 3.634 | 91.70 | 92.30 | |

Circuit



MF300K04F3

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 | 150 | A |
| | $T_C=125^{\circ}\text{C}$, Per Moudle | 300 | A |
| | $T_C=125^{\circ}\text{C}$, 20KHz, Per Moudle | 200 | A |
| $I_{F(RMS)}$ | $T_C=125^{\circ}\text{C}$, Per Diode | 210 | A |
| I_{FSM} | 1/2 Cycle , 50Hz, Sine | 2700 | A |
| | 1/2 Cycle , 60Hz, Sine | 3000 | 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 | 37350 | A^2s |
| P_D | | 1250 | W |
| T_J | | -40 to +150 | $^{\circ}\text{C}$ |
| T_{STG} | | -40 to +125 | $^{\circ}\text{C}$ |
| Torque | Recommended (M6) | 3~4.7 | N·m |
| Torque | Recommended (M6) | 3~4.7 | N·m |
| Weight | | 90 | g |

Thermal Characteristics

| Symbol | Conditions | Values | Units |
|---------------|------------|--------|----------------------|
| $R_{th(j-c)}$ | | 0.10 | $^{\circ}\text{C/W}$ |

Electrical Characteristics

| Symbol | Conditions | Values | | | Units |
|-----------|--|--------|------|------|-------|
| | | Min. | Typ. | Max. | |
| I_{RM} | $V_R=400\text{V}$ | -- | -- | 0.5 | mA |
| | $V_R=400\text{V}$, $T_J=125^{\circ}\text{C}$ | -- | -- | 2 | mA |
| V_F | $I_F=150\text{A}$ | -- | 1.05 | -- | V |
| | $I_F=150\text{A}$, $T_J=125^{\circ}\text{C}$ | -- | 0.90 | -- | V |
| trr | $I_F=1\text{A}$, $V_R=30\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$ | -- | 44 | -- | ns |
| trr | $V_R=200\text{V}$, $I_F=150\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=25^{\circ}\text{C}$ | -- | 90 | -- | ns |
| I_{RRM} | | -- | 9 | -- | A |
| trr | $V_R=200\text{V}$, $I_F=150\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=125^{\circ}\text{C}$ | -- | 200 | -- | ns |
| I_{RRM} | | -- | 17 | -- | A |

Performance Curves

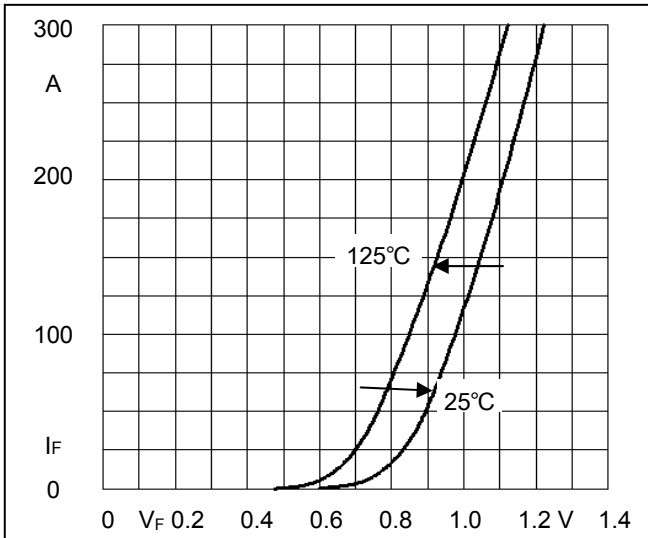


Fig1. Forward Voltage Drop vs Forward Current

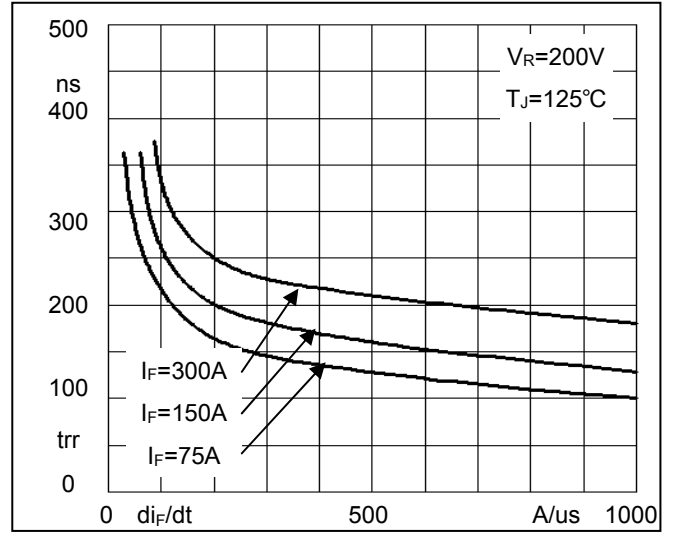


Fig2. Reverse Recovery Time vs di_F/dt

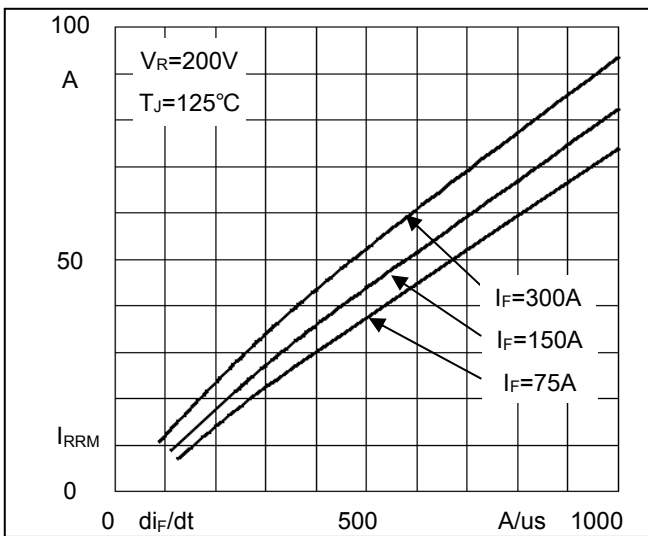


Fig3. Reverse Recovery Current vs di_F/dt

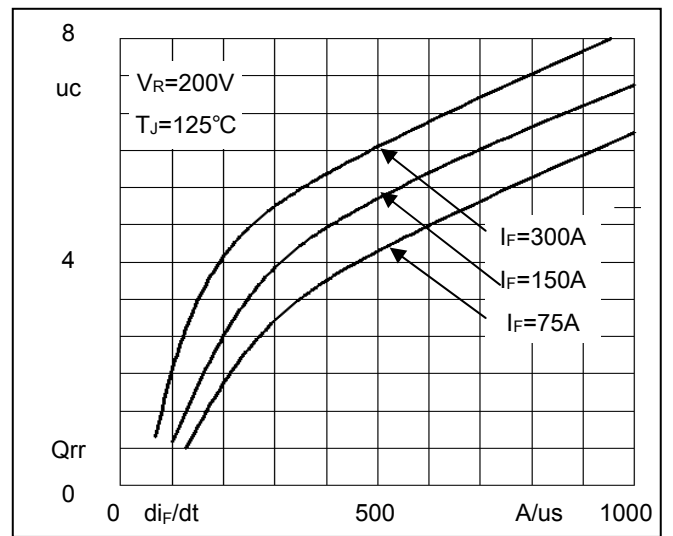


Fig4. Reverse Recovery Charge vs di_F/dt



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Ordering Information :

| Device | Packing |
|----------------|-----------------------------|
| Part Number-BP | Bulk: 10PCS/BOX ;100PCS/CTN |

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