



Micro Commercial Components



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MF300C12F2

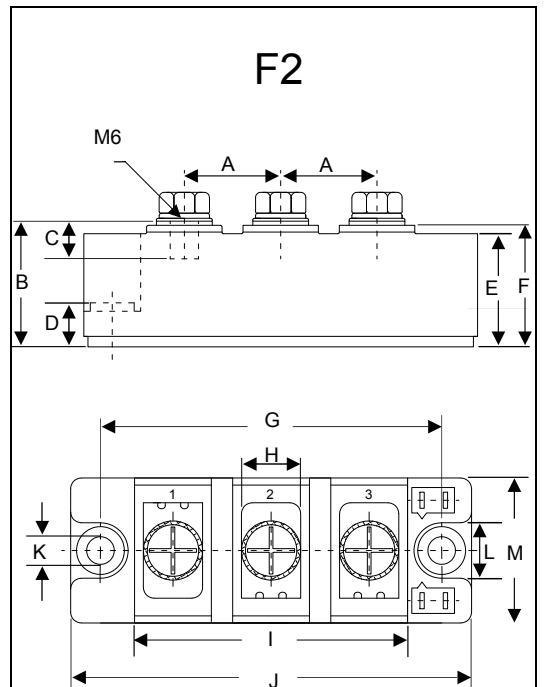
300 Amp FRED Modules 1200 Volts

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

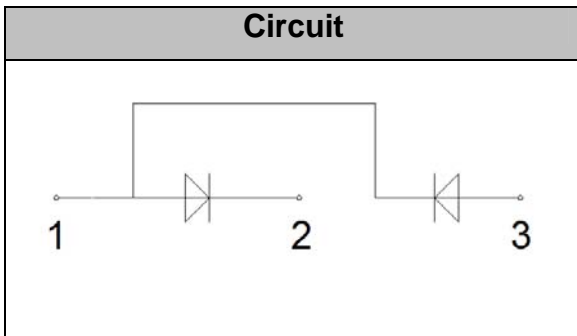
Applications

- 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 | .894 | .917 | 22.70 | 23.30 | |
| B | 1.169 | 1.193 | 29.70 | 30.30 | |
| C | .343 | .366 | 8.70 | 9.30 | |
| D | .323 | .343 | 8.20 | 8.70 | |
| E | 1.051 | 1.075 | 26.70 | 27.30 | |
| F | 1.130 | 1.154 | 28.70 | 29.30 | |
| G | .120 | .130 | 79.70 | 80.30 | |
| H | .500 | .524 | 12.70 | 13.30 | |
| I | 2.501 | 2.531 | 63.70 | 64.30 | |
| J | 3.689 | 3.713 | 93.70 | 94.30 | |
| K | | .256 | | 6.50 | ∅ |
| L | .500 | .524 | 12.70 | 13.30 | |
| M | 1.327 | 1.350 | 33.70 | 34.30 | |

Circuit



MF300C12F2

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 |
| | $T_C=120^{\circ}\text{C}$, 20KHz, Per Moudle | 200 | 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 |
| Torque | Recommended (M6) | $5\pm 15\%$ | N·m |
| 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} | $V_R=1200\text{V}$ | -- | -- | 1 | mA |
| | $V_R=1200\text{V}$, $T_J=125^{\circ}\text{C}$ | -- | -- | 5 | mA |
| V_F | $I_F=300\text{A}$ | -- | 2.8 | 3 | V |
| | $I_F=300\text{A}$, $T_J=125^{\circ}\text{C}$ | -- | 2.1 | 2 | V |
| trr | $I_F=1\text{A}$, $V_R=30\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$ | -- | 65 | -- | ns |
| trr | $V_R=600\text{V}$, $I_F=300\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=25^{\circ}\text{C}$ | -- | 135 | -- | ns |
| I_{RRM} | | -- | 10 | -- | A |
| trr | $V_R=600\text{V}$, $I_F=300\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=125^{\circ}\text{C}$ | -- | 385 | -- | ns |
| I_{RRM} | | -- | 25 | -- | A |

Performance Curves

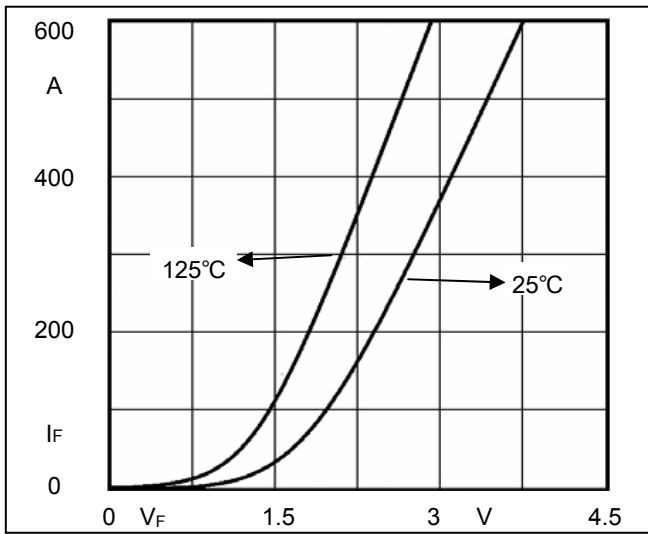


Fig1. Forward Voltage Drop vs Forward Current

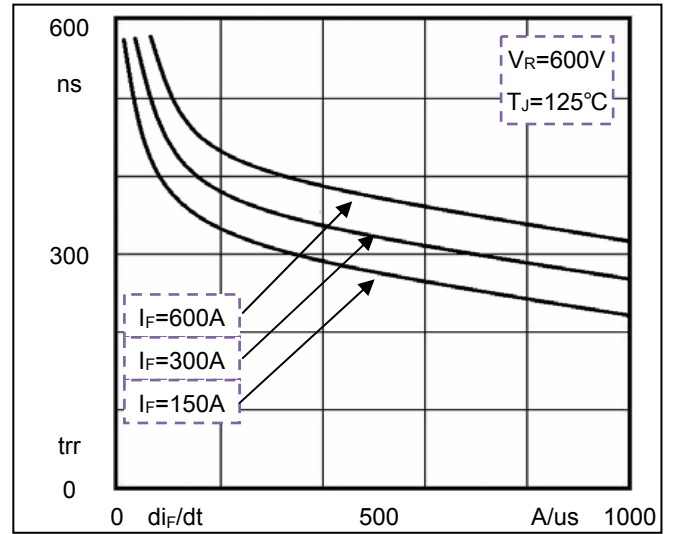


Fig2. Reverse Recovery Time vs di_F/dt

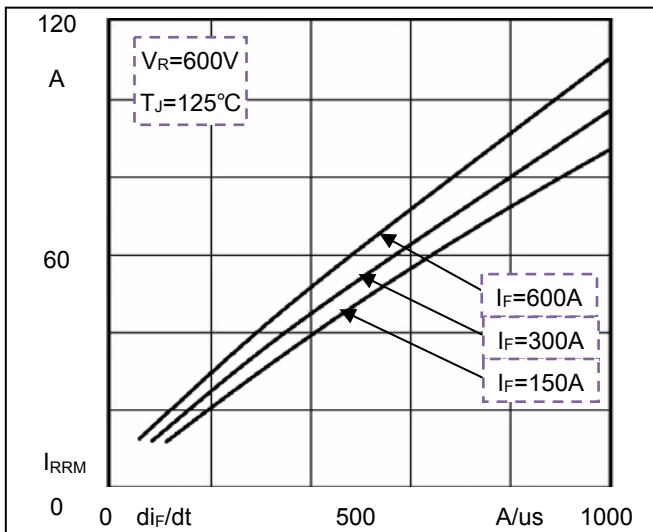


Fig3. Reverse Recovery Current vs di_F/dt

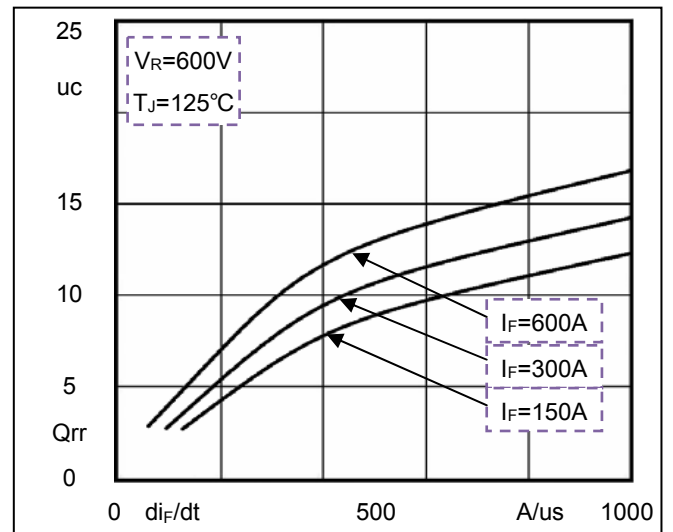


Fig4. Reverse Recovery Charge vs di_F/dt



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Ordering Information :

| Device | Packing |
|----------------|---------------------------|
| Part Number-BP | Bulk: 8PCS/BOX ;80PCS/CTN |

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