

## MF150C06F2

**150 Amp  
FRED Modules  
600 Volts**

### Features

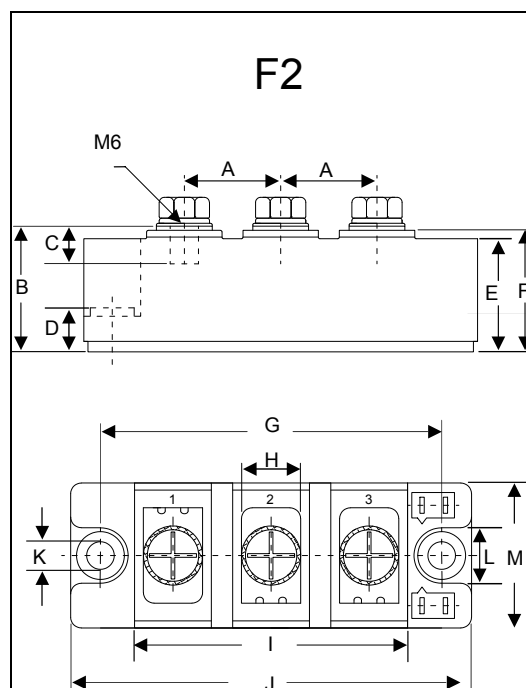
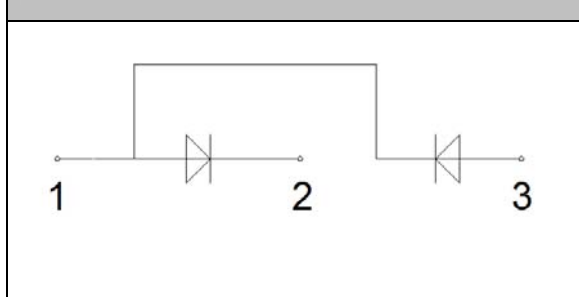
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

### Applications

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



**Circuit**



| DIMENSIONS |        |       |       |       |      |
|------------|--------|-------|-------|-------|------|
| DIM        | INCHES |       | MM    |       | NOTE |
|            | MIN    | MAX   | MIN   | MAX   |      |
| A          | 0.886  | 0.925 | 22.50 | 23.50 |      |
| B          | 1.161  | 1.201 | 29.50 | 30.50 |      |
| C          | 0.335  | 0.374 | 8.50  | 9.50  |      |
| D          | 0.315  | 0.350 | 8.00  | 8.90  |      |
| E          | 1.043  | 1.083 | 26.50 | 27.50 |      |
| F          | 1.122  | 1.161 | 28.50 | 29.50 |      |
| G          | 3.130  | 3.169 | 79.50 | 80.50 |      |
| H          | 0.492  | 0.531 | 12.50 | 13.50 |      |
| I          | 2.500  | 2.539 | 63.50 | 64.50 |      |
| J          | 3.681  | 3.720 | 93.50 | 94.50 |      |
| K          | 0.256  |       | 6.50  |       | Ø    |
| L          | 0.492  | 0.531 | 12.50 | 13.50 |      |
| M          | 1.319  | 1.358 | 33.50 | 34.50 |      |

## Maximum Ratings

| Symbol       | Conditions                                               | Values      | Units                |
|--------------|----------------------------------------------------------|-------------|----------------------|
| $V_R$        |                                                          | 600         | V                    |
| $V_{RRM}$    |                                                          | 600         | V                    |
| $I_{F(AV)}$  | $T_C=100^{\circ}\text{C}$ , Per Diode                    | 150         | A                    |
|              | $T_C=100^{\circ}\text{C}$ , Per Module                   | 300         | A                    |
|              | $T_C=110^{\circ}\text{C}$ , 20KHz, Per Module            | 200         | A                    |
| $I_{F(RMS)}$ | $T_C=100^{\circ}\text{C}$ , Per Diode                    | 220         | A                    |
| $I_{FSM}$    | 1/2 Cycle , 50Hz, Sine                                   | 1400        | A                    |
|              | 1/2 Cycle , 60Hz, Sine                                   | 1500        | A                    |
| $I^2t$       | $T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine  | 9800        | $\text{A}^2\text{s}$ |
|              | $T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine | 11200       | $\text{A}^2\text{s}$ |
| $P_D$        |                                                          | 370         | 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 Module | 0.34   | $^{\circ}\text{C/W}$ |

## Electrical Characteristics

| Symbol    | Conditions                                                                                             | Values |      |      | Units |
|-----------|--------------------------------------------------------------------------------------------------------|--------|------|------|-------|
|           |                                                                                                        | Min.   | Typ. | Max. |       |
| $I_{RM}$  | $V_R=600\text{V}$                                                                                      | --     | --   | 1    | mA    |
|           | $V_R=600\text{V}$ , $T_J=125^{\circ}\text{C}$                                                          | --     | --   | 5    | mA    |
| $V_F$     | $I_F=150\text{A}$                                                                                      | --     | 1.45 | 1.6  | V     |
|           | $I_F=150\text{A}$ , $T_J=125^{\circ}\text{C}$                                                          | --     | --   | 1.45 | V     |
| trr       | $I_F=1\text{A}$ , $V_R=30\text{V}$ , $di_F/dt=-200\text{A}/\mu\text{s}$                                | --     | 50   | --   | ns    |
| trr       | $V_R=300\text{V}$ , $I_F=150\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=25^{\circ}\text{C}$  | --     | 130  | --   | ns    |
| $I_{RRM}$ |                                                                                                        | --     | 14   | --   | A     |
| trr       | $V_R=300\text{V}$ , $I_F=150\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=125^{\circ}\text{C}$ | --     | 220  | --   | ns    |
| $I_{RRM}$ |                                                                                                        | --     | 22   | --   | A     |

# MF150C06F2

## Performance Curves

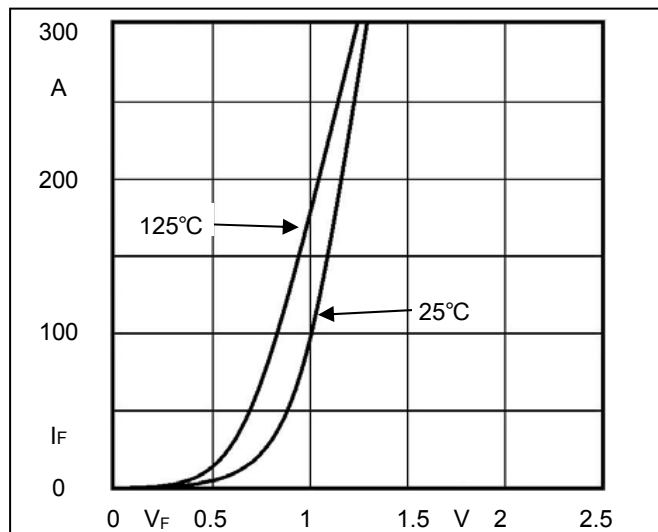


Fig1. Forward Voltage Drop vs Forward Current

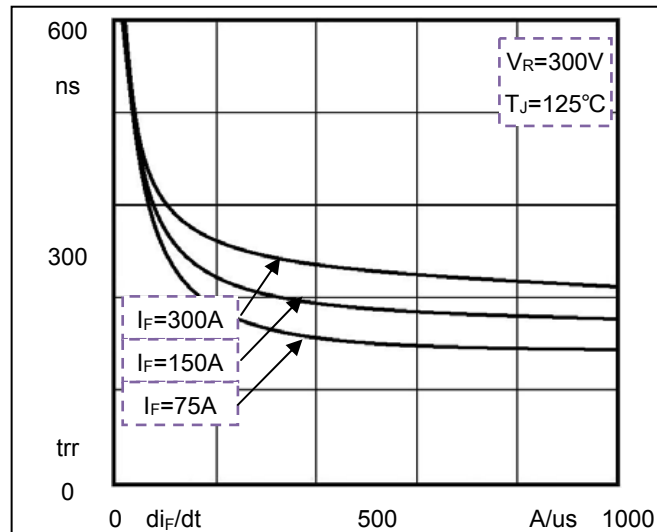


Fig2. Reverse Recovery Time vs  $di_F/dt$

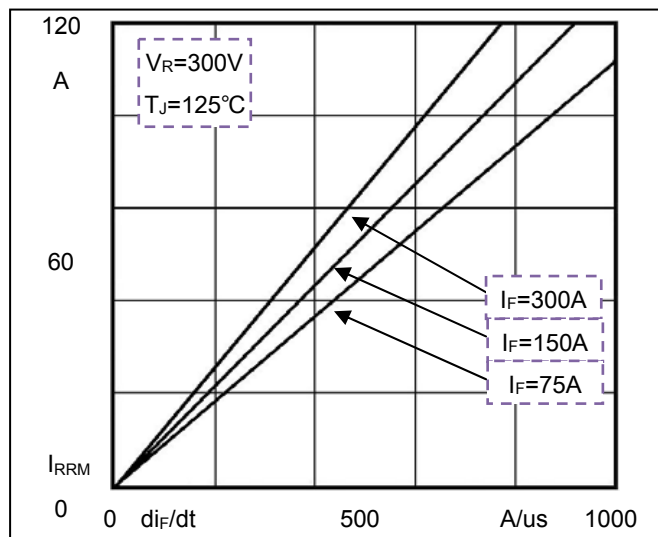


Fig3. Reverse Recovery Current vs  $di_F/dt$

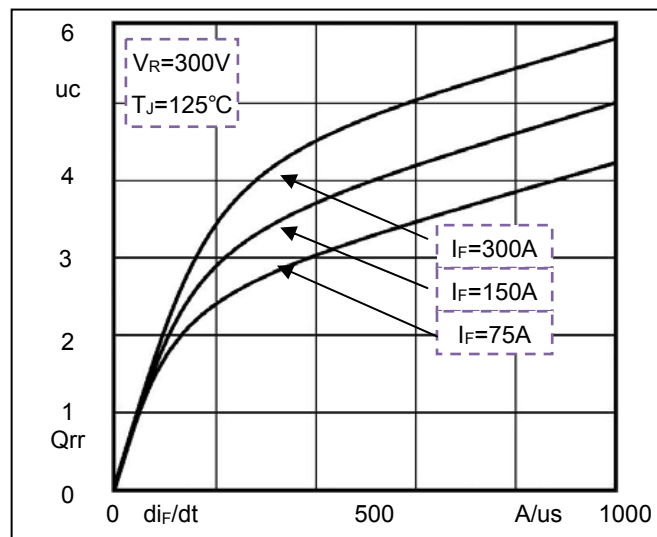


Fig4. Reverse Recovery Charge vs  $di_F/dt$

## Ordering Information :

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

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