

Features

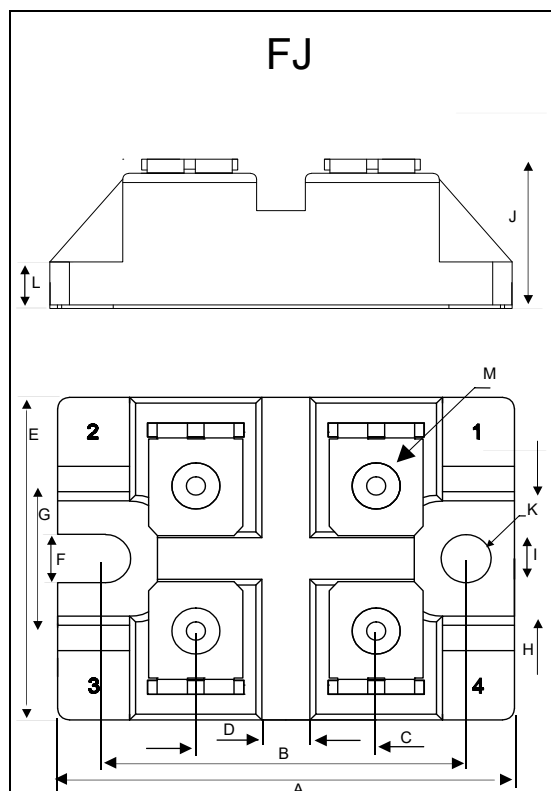
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Popular SOT-227 Package

Applications

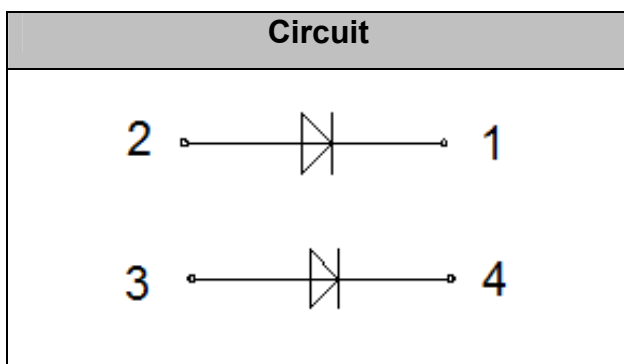
- Inversion Welder
- Uninterruptible Power Supply (UPS)
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Power Factor Correction (PFC) Circuit
- Converter & Chopper



**120 Amp
FRED Modules
600 Volts**



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 1.484 | 1.508 | 37.50 | 38.50 | |
| B | 1.169 | 1.193 | 29.50 | 30.50 | |
| C | 0.579 | 0.602 | 14.50 | 15.50 | |
| D | 0.146 | 0.169 | 3.50 | 4.50 | |
| E | 1.091 | 1.114 | 27.50 | 28.50 | |
| F | 0.154 | 0.177 | 3.70 | 4.70 | |
| G | 0.484 | 0.508 | 12.10 | 13.10 | |
| H | 0.382 | 0.406 | 9.50 | 10.50 | |
| I | 0.130 | 0.154 | 3.10 | 4.10 | |
| J | 0.492 | 0.516 | 12.30 | 13.30 | |
| K | 0.165 | | 4.20 | | ∅ |
| L | 0.146 | 0.169 | 3.50 | 4.50 | |
| | 0.157 | | 4.00 | | |



Maximum Ratings

| Symbol | Conditions | Values | Units |
|--------------|--|-------------|----------------------|
| V_R | | 600 | V |
| V_{RRM} | | 600 | V |
| $I_{F(AV)}$ | $T_C=90^{\circ}\text{C}$, Per Leg | 60 | A |
| | $T_C=90^{\circ}\text{C}$, Per Moudle | 120 | A |
| | $T_C=90^{\circ}\text{C}$, 20KHz, Per Moudle | 80 | A |
| $I_{F(RMS)}$ | $T_C=90^{\circ}\text{C}$, Per Leg | 85 | A |
| I_{FSM} | 1/2 Cycle , 50Hz, Sine | 550 | A |
| | 1/2 Cycle , 60Hz, Sine | 600 | A |
| I^2t | $T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine | 1510 | A^2s |
| | $T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine | 1490 | A^2s |
| P_D | $T_C=25^{\circ}\text{C}$ | 208 | W |
| T_J | | -40 to +150 | $^{\circ}\text{C}$ |
| T_{STG} | | -40 to +125 | $^{\circ}\text{C}$ |
| Visol | 3600V AC 1s | 1 | mA |
| Torque | To Sink Recommended (M4) | 0.7~1.5 | N·m |
| Torque | To Terminal Recommended (M4) | 0.7~1.1 | N·m |
| Weight | | 27 | g |

Thermal Characteristics

| Symbol | Conditions | Values | Units |
|---------------|------------|--------|----------------------|
| $R_{th(j-c)}$ | Per diode | 0.6 | $^{\circ}\text{C/W}$ |

Electrical Characteristics

| Symbol | Conditions | Values | | | Units |
|-----------|---|--------|------|------|-------|
| | | Min. | Typ. | Max. | |
| I_{RM} | $V_R=600\text{V}$ | -- | -- | 0.1 | mA |
| | $V_R=600\text{V}$, $T_J=125^{\circ}\text{C}$ | -- | -- | 1 | mA |
| V_F | $I_F=60\text{A}$ | -- | 1.55 | 1.9 | V |
| | $I_F=60\text{A}$, $T_J=125^{\circ}\text{C}$ | -- | 1.35 | 1.7 | V |
| trr | $I_F=1\text{A}$, $V_R=30\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$ | -- | 35 | 50 | ns |
| trr | $V_R=300\text{V}$, $I_F=60\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=25^{\circ}\text{C}$ | -- | 75 | -- | ns |
| I_{RRM} | | -- | 7.2 | -- | A |
| trr | $V_R=300\text{V}$, $I_F=60\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=125^{\circ}\text{C}$ | -- | 135 | -- | ns |
| I_{RRM} | | -- | 16 | -- | A |

Performance Curves

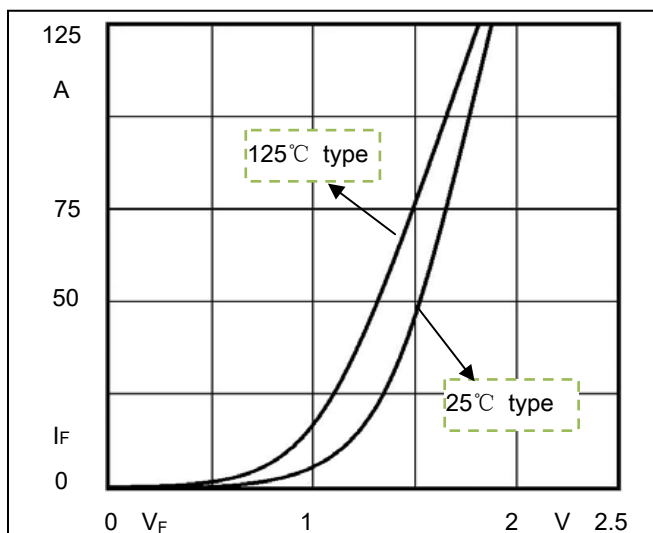


Fig1. Forward Voltage Drop vs Forward Current

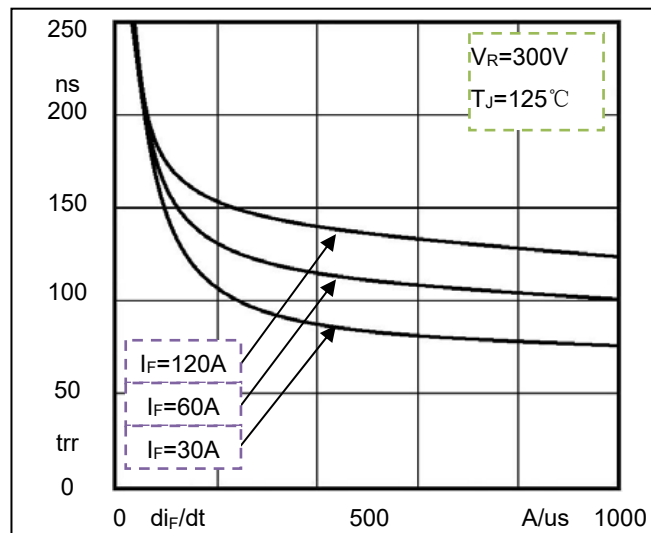


Fig2. Reverse Recovery Time vs diF/dt

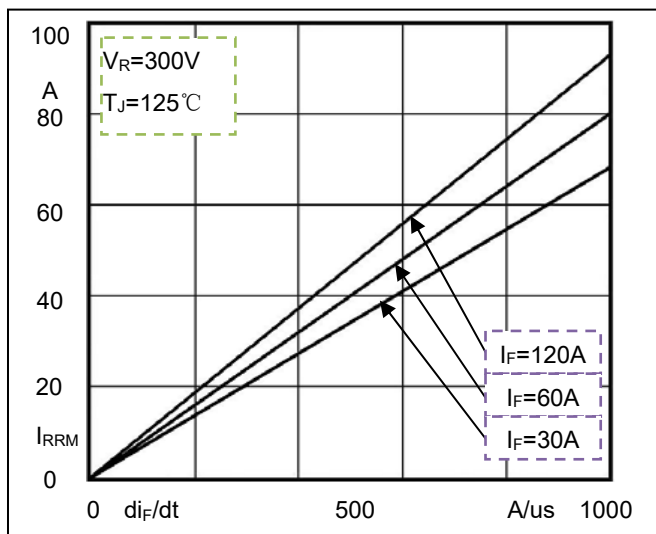


Fig3. Reverse Recovery Current vs diF/dt

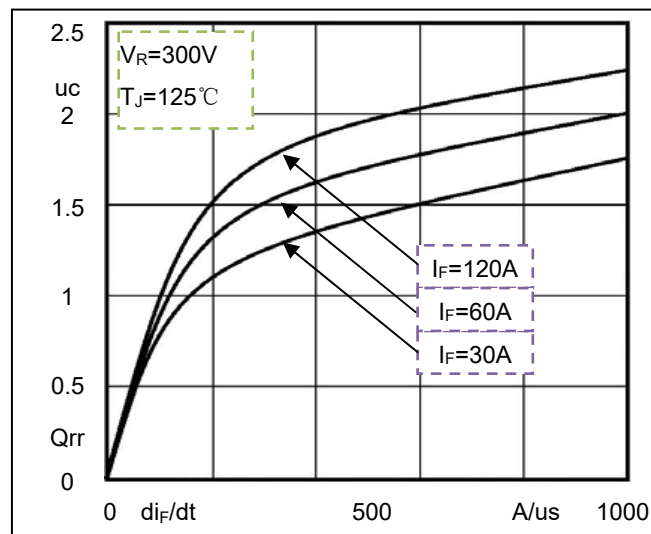


Fig4. Reverse Recovery Charge vs diF/dt

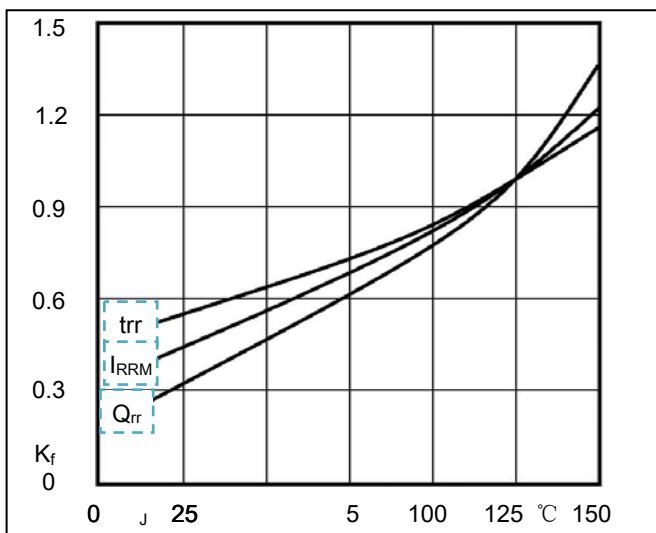


Fig5. Dynamic Parameters vs Junction Temperature

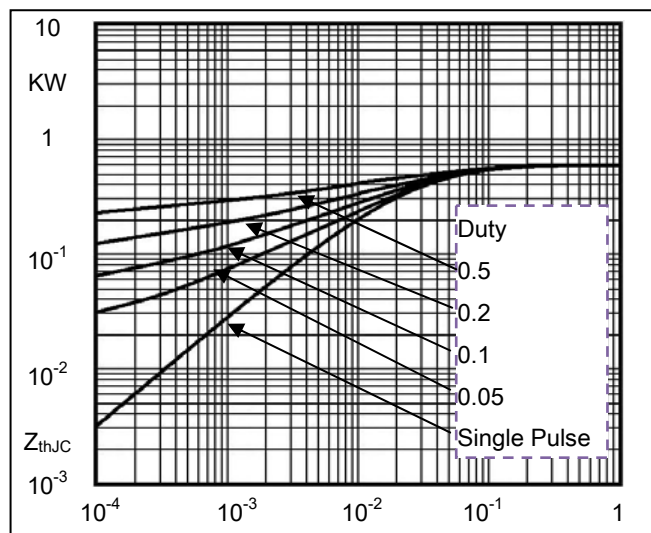


Fig6. Transient Thermal Impedance

Ordering Information

| Device | Packing |
|----------------|-----------------------------|
| Part Number-BP | Bulk: 25PCS/BOX ;125PCS/CTN |

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