

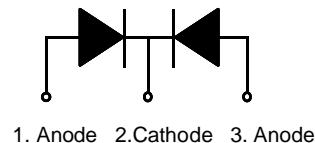
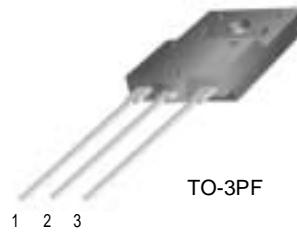
## FFAF05U120DN

### Features

- High voltage and high reliability
- High speed switching
- Low forward voltage

### Applications

- General purpose
- Switching mode power supply
- Free-wheeling diode for motor application
- Power switching circuits



## ULTRA FAST RECOVERY POWER RECTIFIER

### Absolute Maximum Ratings (per diode) $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter   | Value        | Units |
|----------------|---|--------------|-------|
| $V_{RRM}$      | Peak Repetitive Reverse Voltage                                 | 1200         | V     |
| $I_{F(AV)}$    | Average Rectified Forward Current @ $T_C = 100^\circ\text{C}$   | 5            | A     |
| $I_{FSM}$      | Non-repetitive Peak Surge Current<br>60Hz Single Half-Sine Wave | 30           | A     |
| $T_J, T_{STG}$ | Operating Junction and Storage Temperature                      | - 65 to +150 | °C    |

### Thermal Characteristics

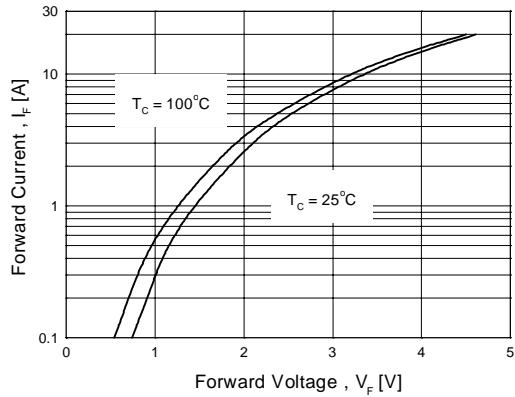
| Symbol          | Parameter                                    | Value | Units |
|-----------------|--|-------|-------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 3.4   | °C/W  |

### Electrical Characteristics (per diode) $T_C=25^\circ\text{C}$ unless otherwise noted

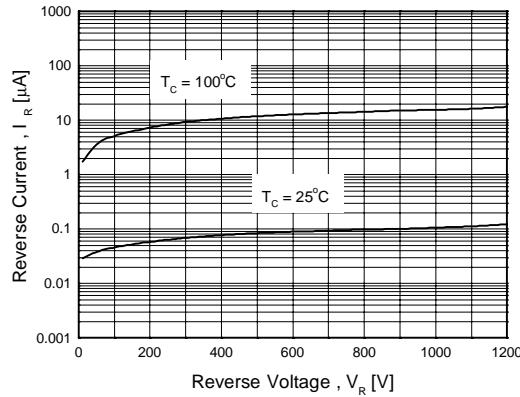
| Symbol                           | Parameter   | Min.  | Typ.        | Max.            | Units         |    |
|----------------------------------|---|---|-------------|-----------------|---------------|----|
| $V_{FM}$ *                       | Maximum Instantaneous Forward Voltage<br>$I_F = 5\text{A}$<br>$I_F = 5\text{A}$   | $T_C = 25^\circ\text{C}$<br>$T_C = 100^\circ\text{C}$ | -<br>-      | -<br>-          | 3.5<br>3.2    | V  |
| $I_{RM}$ *                       | Maximum Instantaneous Reverse Current<br>@ rated $V_R$  | $T_C = 25^\circ\text{C}$<br>$T_C = 100^\circ\text{C}$ | -<br>-      | -<br>-          | 5<br>600      | μA |
| $t_{rr}$<br>$I_{rr}$<br>$Q_{rr}$ | Maximum Reverse Recovery Time<br>Maximum Reverse Recovery Current<br>Maximum Reverse Recovery Charge<br>( $I_F = 5\text{A}$ , $di/dt = 200\text{A}/\mu\text{s}$ ) | -<br>-<br>-   | -<br>-<br>- | 100<br>7<br>280 | ns<br>A<br>nC |    |
| $W_{AVL}$                        | Avalanche Energy  | 1.0   | -           | -               | mJ            |    |

\* Pulse Test: Pulse Width=300μs, Duty Cycle=2%

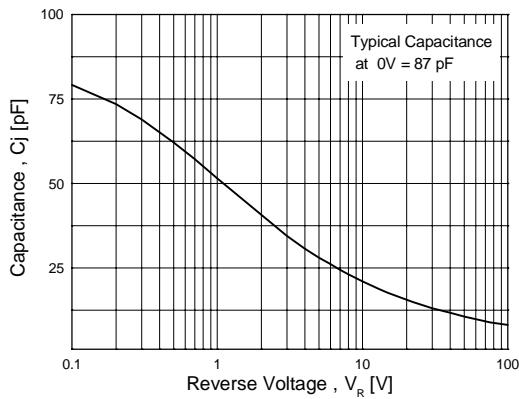
## Typical Characteristics



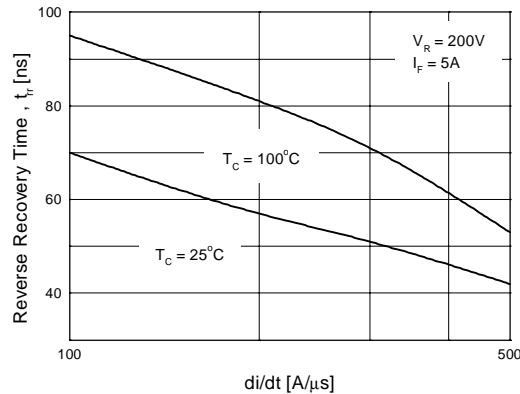
**Figure 1. Typical Forward Voltage Drop vs. Forward Current**



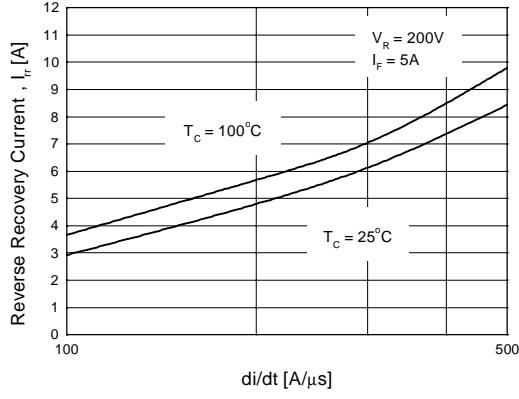
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



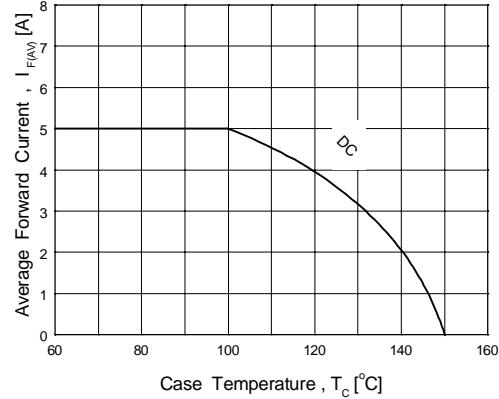
**Figure 3. Typical Junction Capacitance**



**Figure 4. Typical Reverse Recovery Time vs.  $di/dt$**



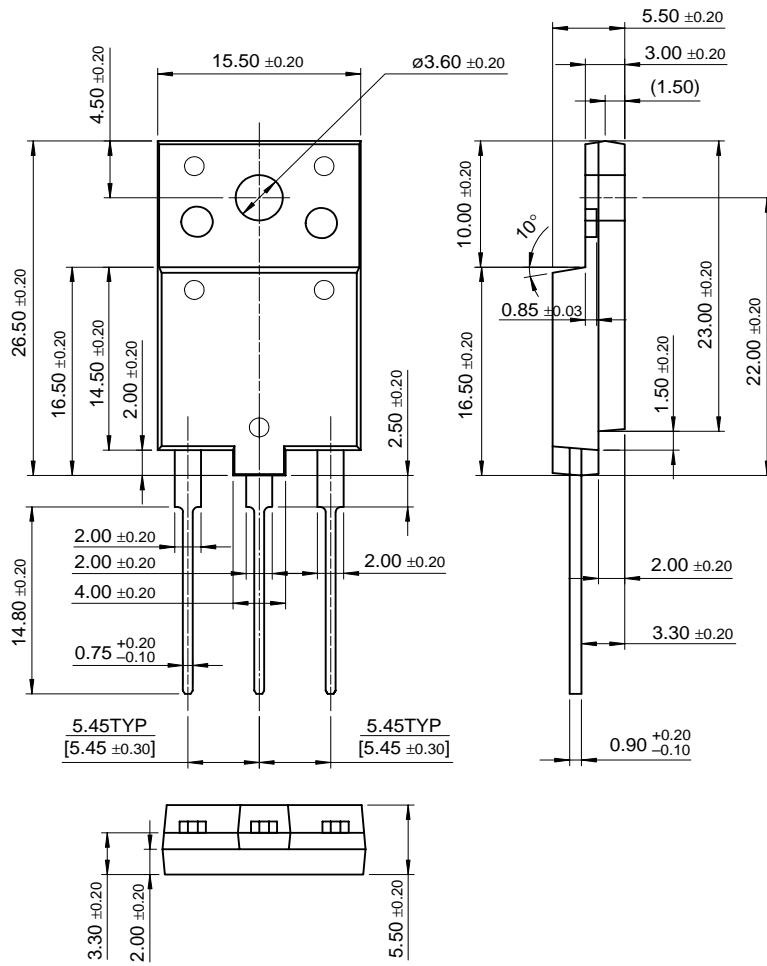
**Figure 5. Typical Reverse Recovery Current vs.  $di/dt$**



**Figure 6. Forward Current Derating Curve**

## Package Dimensions

## TO-3PF



Dimensions in Millimeters

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