

# SFAF60UP120DN

## 60A, 1200V Ultrafast Dual Diode

### Features

- Ultrafast Soft Recovery:  $t_{rr}$ =90ns
- Typical Forward Voltage:  $V_F$ =3.0V@  $I_F$ =30A
- Reverse Voltage:  $V_{RRM}$ =1200V
- Avalanche Energy Rated

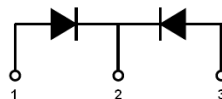
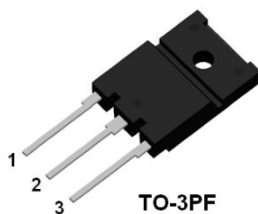
### Description

The SFAF60UP120DN is an ultrafast dual diode, its typical reverse recovery time is 90ns. This device is designed for freewheel diode in motor and power switching applications, and specially suited for use in inverter welding.

### Applications

- General Rectifier
- Output Rectifier in Switching Power Supply & Welder
- FWD for Motor Application

### Package Type & Internal Circuit



1. Anode 2.Cathode 3.Anode

### Absolute Maximum Ratings

per diode at  $T_C$ =25 °C unless otherwise noted

| Symbol      | Parameter                            |                            | Ratings  | Unit |
|-------------|--------------------------------------|----------------------------|----------|------|
| $V_{RRM}$   | Peak Repetitive Reverse Voltage      |                            | 1200     | V    |
| $V_{RWM}$   | Working Peak Reverse Voltage         |                            | 1200     | V    |
| $V_R$       | DC Blocking Voltage                  |                            | 1200     | V    |
| $I_{F(AV)}$ | Average Rectified Forward Current    | per device at $T_C$ =120°C | 60       | A    |
| $I_{FSM}$   | Non-repetitive Peak Surge Current    |                            | 300      | A    |
| $T_J$       | Operating Junction Temperature Range |                            | -55~+150 | °C   |
| $T_{STG}$   | Storage Temperature Range            |                            | -55~+150 | °C   |

### Thermal Characteristics

| Symbol        | Parameter                            | Ratings | Unit |
|---------------|--------------------------------------|---------|------|
| $R_{th(J-C)}$ | Thermal Resistance, Junction to case | 1.8     | °C/W |

## Electrical Characteristics per diode @ $T_c=25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter               | Conditions                                       | Min. | Typ. | Max. | Unit          |
|-----------|-------------------------|--------------------------------------------------|------|------|------|---------------|
| $V_F$     | Forward Voltage Drop    | $I_F=30\text{A}$                                 | -    | 3.0  | 3.6  | V             |
|           |                         | $I_F=30\text{A}, T_c=125^\circ\text{C}$          | -    |      | 3.0  | V             |
| $I_R$     | Reverse Leakage Current | $V_R=1200\text{V}$                               | -    | -    | 10   | $\mu\text{A}$ |
| $t_{rr}$  | Reverse Recovery Time   | $I_F=30\text{A}, di/dt=-200\text{A}/\mu\text{s}$ | -    | 90   | -    | ns            |
| $W_{AVL}$ | Avalanche Energy        | $L=30\text{mH}$                                  | 20   | -    | -    | mJ            |

## Typical Performance Characteristics

Fig. 1. Typical Characteristics:  $V_F$  vs.  $I_F$

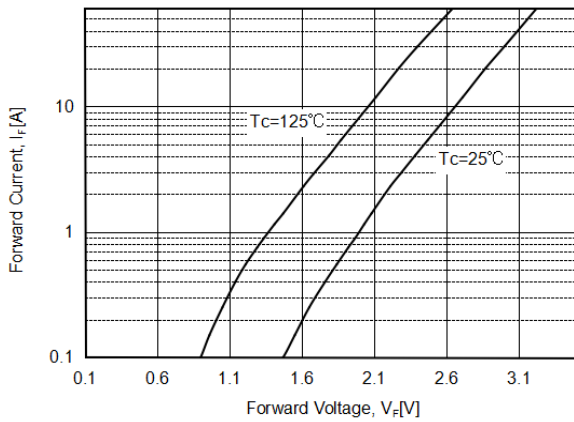


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

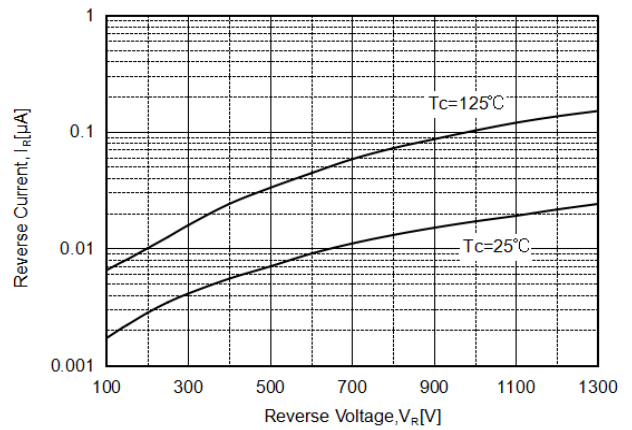


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

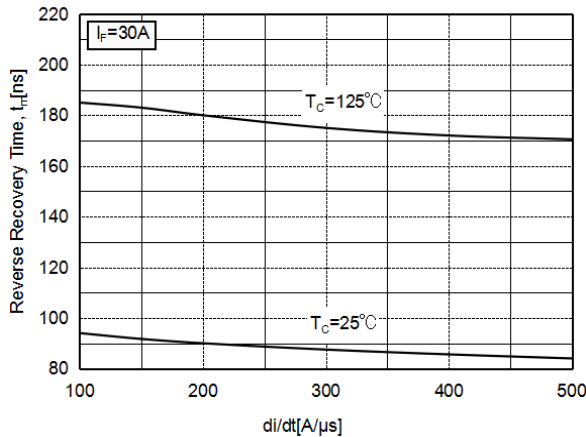
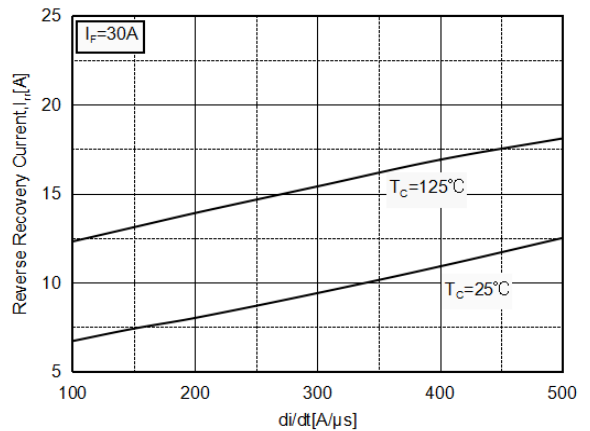


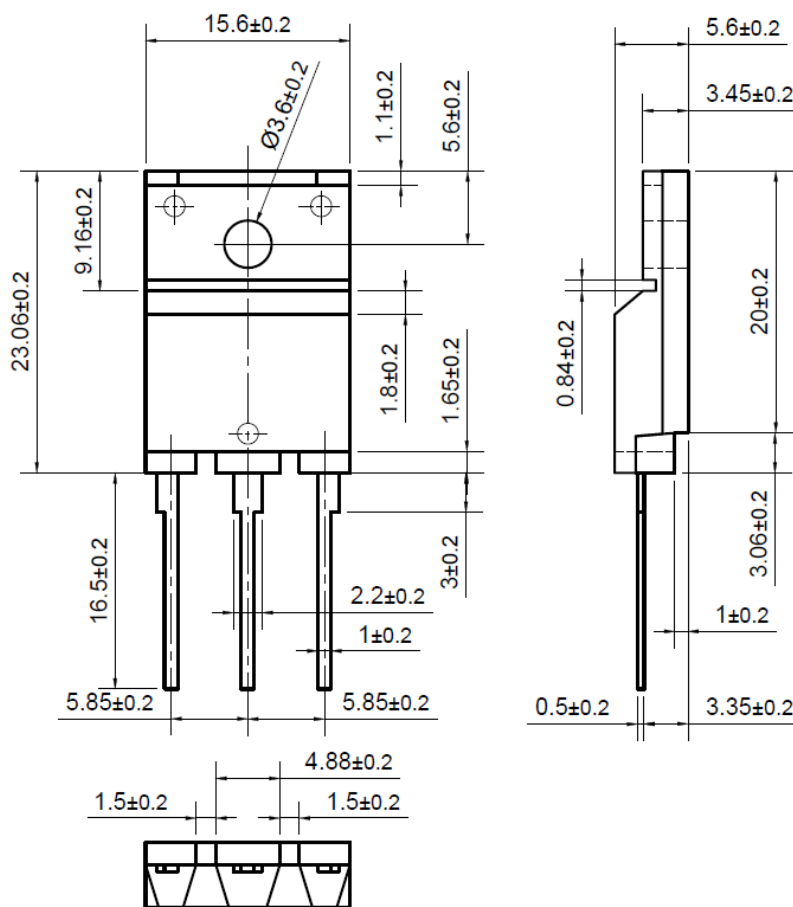
Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



## Package Dimensions

### TO-3PF

(Dimensions in Millimeters)



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