

# SFA60UP60NC

## 60A, 600V Ultrafast Diode with Dual Anode

### Features

- Ultrafast Soft Recovery:  $t_{rr}=80ns$
- Typical Forward Voltage:  $V_F=1.35V@ I_F=60A$
- Reverse Voltage:  $V_{RRM}=600V$
- Avalanche Energy Rated

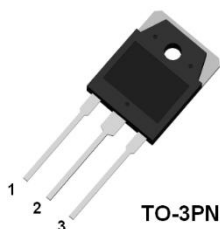
### Description

The SFA60UP60NC is an ultrafast diode with dual anode. It has lower forward voltage drop , more powerful avalanche energy, and better reliability. The series of device is specially suited for use in cutting machine and boost diode in PFC stages.

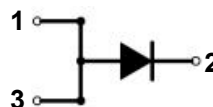
### Applications

- Cutting Machine
- General Rectifier
- Boost diode in PFC stages
- FWD for Motor Application

### Package Type & internal Circuit



TO-3PN



1. Anode 2.Cathode 3.Anode

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

| Symbol      | Parameter                            |                                  | Ratings  | Unit        |
|-------------|--------------------------------------|----------------------------------|----------|-------------|
| $V_{RRM}$   | Peak Repetitive Reverse Voltage      |                                  | 600      | V           |
| $V_{RWM}$   | Working Peak Reverse Voltage         |                                  | 600      | V           |
| $V_R$       | DC Blocking Voltage                  |                                  | 600      | V           |
| $I_{F(AV)}$ | Average Rectified Forward Current    | per device at $T_C=120^{\circ}C$ | 60       | A           |
| $I_{FSM}$   | Non-repetitive Peak Surge Current    |                                  | 500      | A           |
| $T_J$       | Operating Junction Temperature Range |                                  | -65~+150 | $^{\circ}C$ |
| $T_{STG}$   | Storage Temperature Range            |                                  | -65~+150 | $^{\circ}C$ |

### Thermal Characteristics

| Symbol        | Parameter                            | Ratings | Unit          |
|---------------|--------------------------------------|---------|---------------|
| $R_{th(J-C)}$ | Thermal Resistance, Junction to case | 0.46    | $^{\circ}C/W$ |

## 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    | $I_F=30\text{A}$                                 | -    | 1.25 | -    | V             |
|           |                         | $I_F=30\text{A}, T_C=120^\circ\text{C}$          | -    |      | 1.05 | V             |
| $V_F$     | Forward Voltage Drop    | $I_F=60\text{A}$                                 | -    | 1.35 | 1.6  | V             |
|           |                         | $I_F=60\text{A}, T_C=120^\circ\text{C}$          | -    |      | 1.22 | V             |
| $I_R$     | Reverse Leakage Current | $V_R=600\text{V}$                                | -    | -    | 10   | $\mu\text{A}$ |
| $t_{rr}$  | Reverse Recovery Time   | $I_F=30\text{A}, di/dt=-200\text{A}/\mu\text{s}$ | -    | 80   | -    | ns            |
| $W_{AVL}$ | Avalanche Energy        | $L=20\text{mH}$                                  | 30   | -    | -    | mJ            |

## Typical Performance Characteristics

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

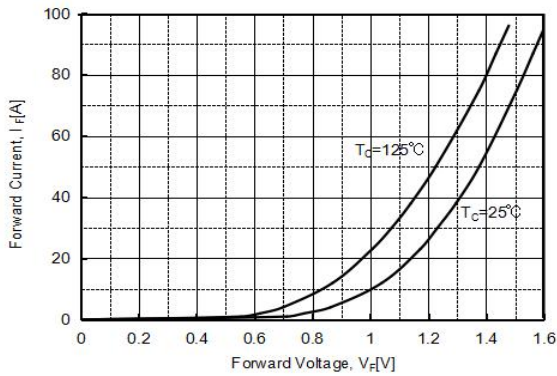


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

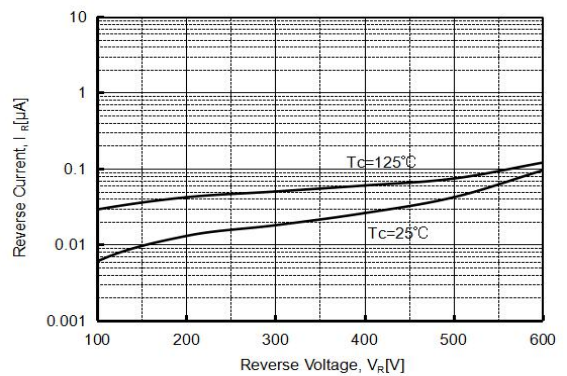


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

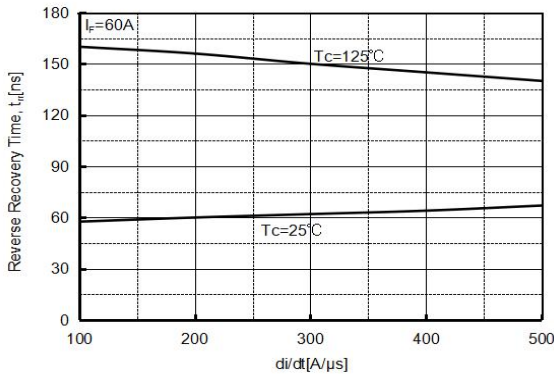
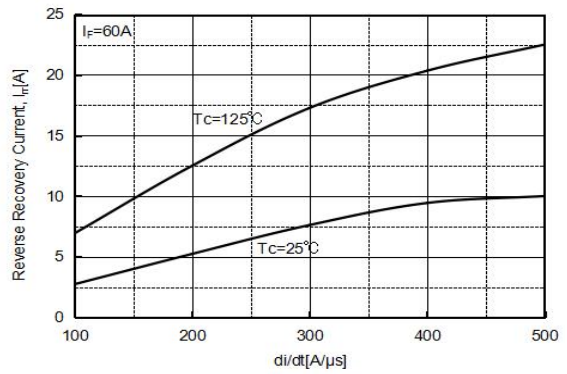


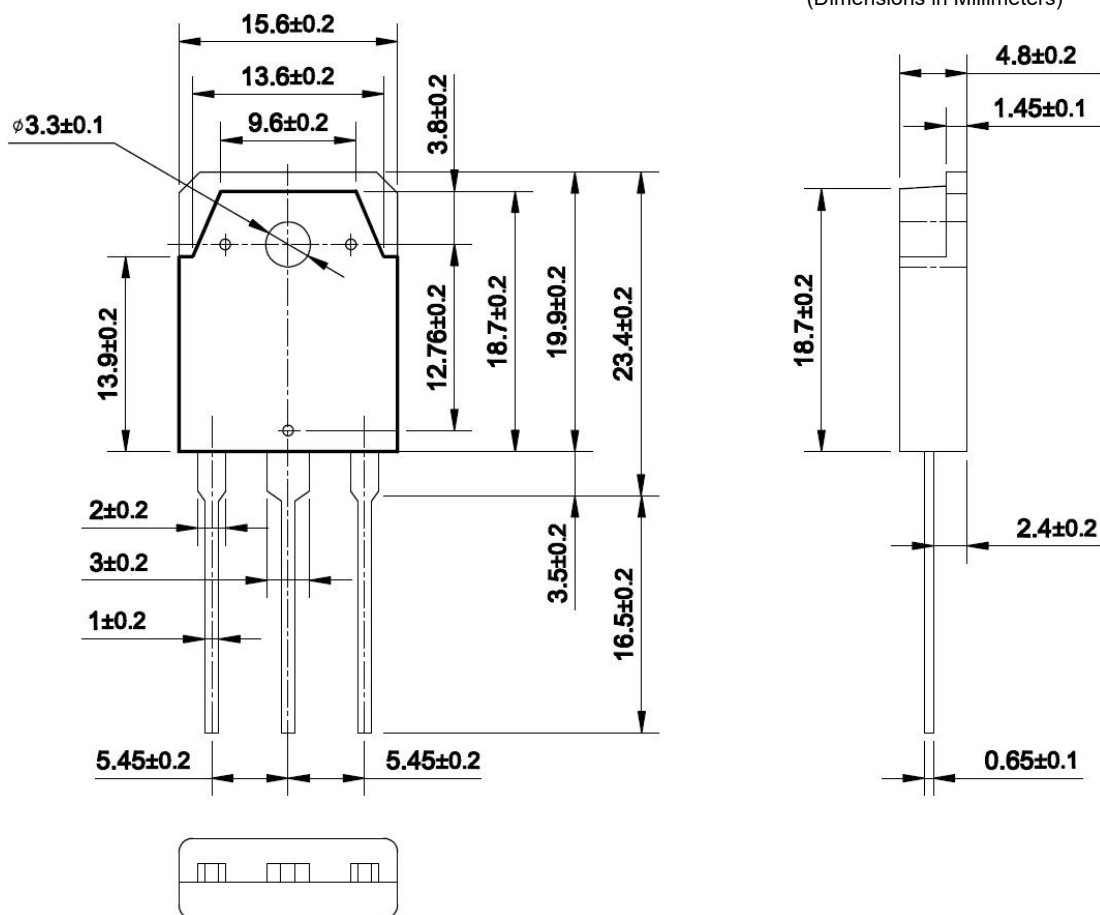
Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



# Package Dimensions

## TO-3PN

(Dimensions in Millimeters)



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