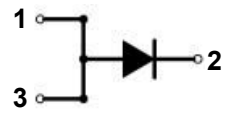
# 60A, 600V Ultrafast Diode with Dual Anode

## Description

The AKF60U60NCN 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.




1. Anode 2.Cathode 3.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

## Applications

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

## Absolute Maximum Ratings per diode at $T_C$=25 ℃ 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℃ | 60 | A |
| $I_{FSM}$ | Non-repetitive Peak Surge Current | | 500 | A |
| $T_J$ | Operating Junction Temperature Range | | -65~+150 | ℃ |
| $T_{STG}$ | Storage Temperature Range | | -65~+150 | ℃ |

## Thermal Characteristics

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

## Electrical Characteristics per diode @$T_C$=25 ℃ unless otherwise noted

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage Drop | $I_F$=30A | - | 1.25 | - | V |
| | | $I_F$=30A, $T_C$=120℃ | - | | 1.05 | V |
| $V_F$ | Forward Voltage Drop | $I_F$=60A | - | 1.35 | 1.6 | V |
| | | $I_F$=60A, $T_C$=120℃ | - | | 1.22 | V |
| $I_R$ | Reverse Leakage Current | $V_R$=600V | - | - | 10 | uA |
| $t_{rr}$ | Reverse Recovery Time | $I_F$=30A, di/dt=-200A/us | - | 80 | - | ns |
| $W_{AVL}$ | Avalanche Energy | L=20mH | 30 | - | - | mJ |

## Typical Performance Characteristics

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

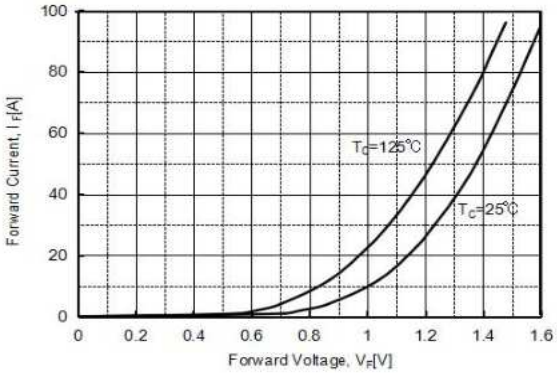



Fig. 2. Typical Characteristics: $V_R$ vs. $I_R$

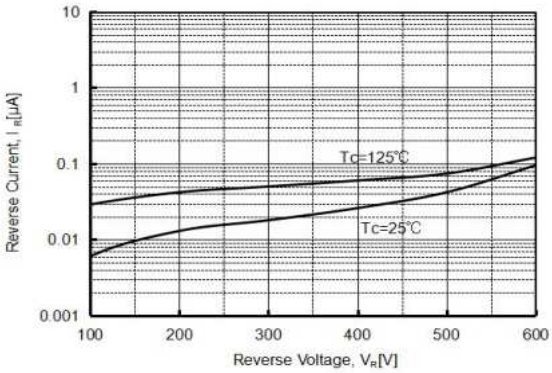



Fig. 3. Typical Reverse Recovery Time vs. di/dt

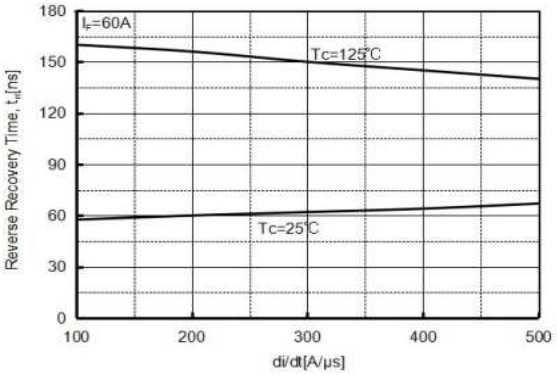
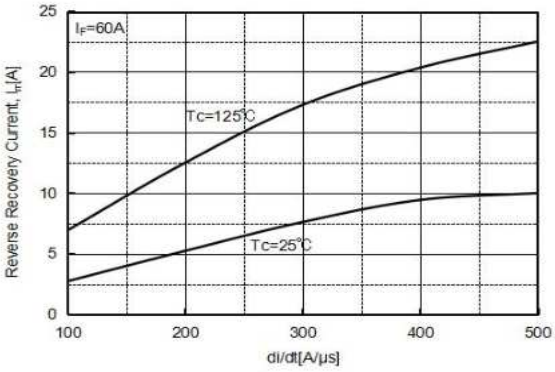
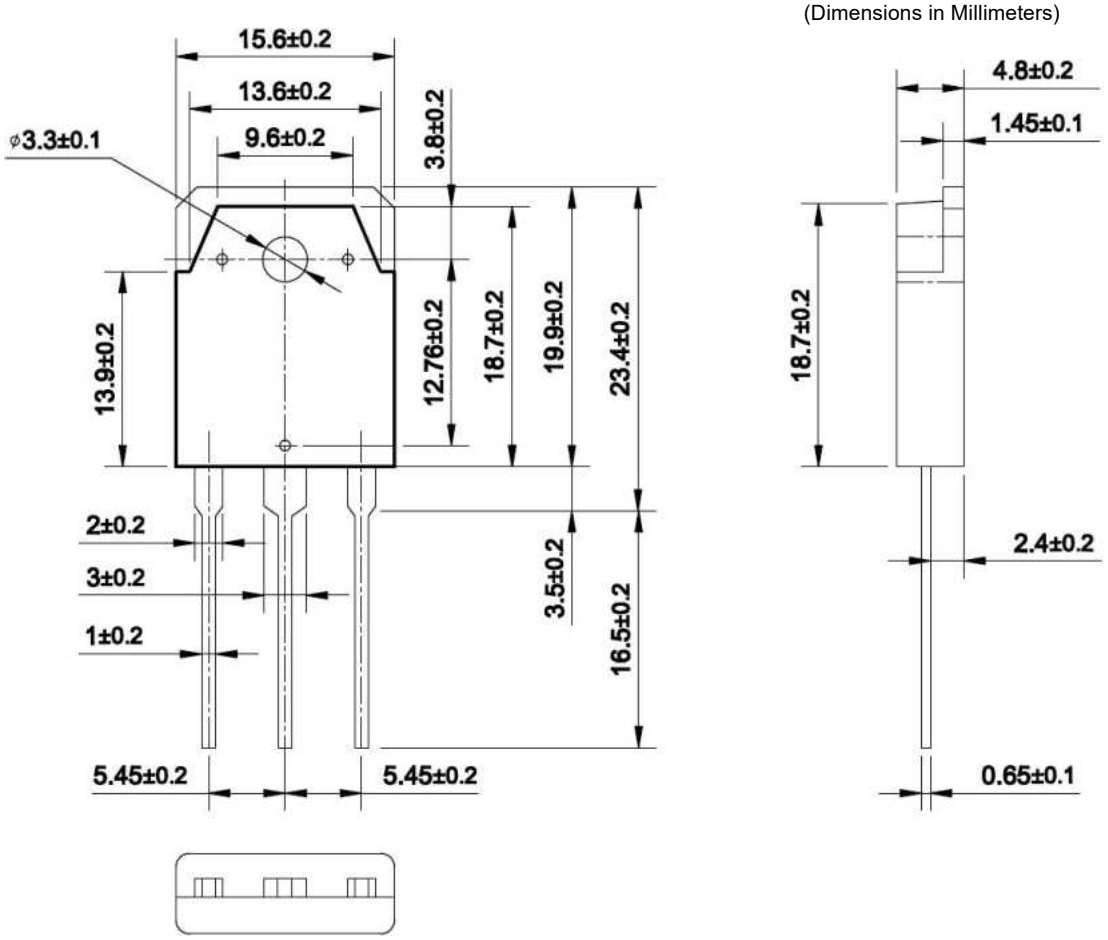



Fig. 4. Typical Reverse Recovery Current vs. di/dt



## Package Dimensions

TO-3PN

(Dimensions in Millimeters)