

30A,600V Ultrafast Diode with Dual Anode

Description

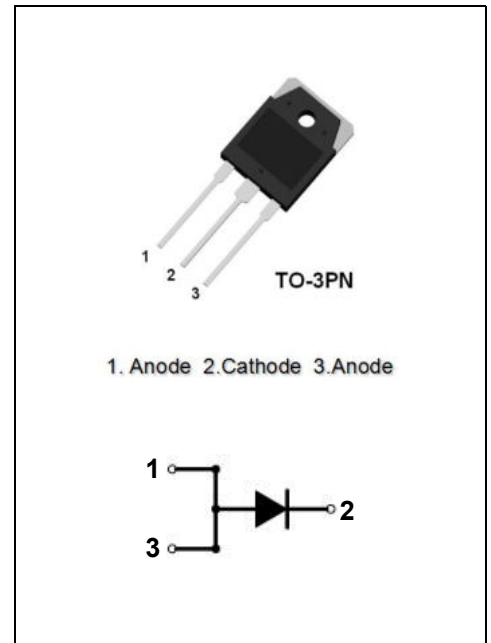
The AKF30U60NCN is an ultrafast diode with dual anode. It has lower forward voltage drop, more powerful avalanche energy, and better reliability. The series of device is specially suited for use in cutting machine and boost diode in PFC stages.

Features

- Ultrafast Soft Recovery: $t_r=80\text{ns}$
- Typical Forward Voltage: $V_F=1.3\text{V}@ I_F=30\text{A}$
- Reverse Voltage: $V_{RRM}=600\text{V}$
- Avalanche Energy Rated

Applications

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



Absolute Maximum Ratings per diode at $T_C=25^\circ\text{C}$ 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 $T_C=120^\circ\text{C}$ 30 | A |
| I_{FSM} | Non-repetitive Peak Surge Current | 250 | A |
| T_J | Operating Junction Temperature Range | -65~+150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature Range | -65~+150 | $^\circ\text{C}$ |

Thermal Characteristics

| Symbol | Parameter | Ratings | Unit |
|---------------|--------------------------------------|---------|---------------------------|
| $R_{th(J-C)}$ | Thermal Resistance, Junction to case | 0.4 | $^\circ\text{C}/\text{W}$ |

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 | $I_F=15\text{A}$ | - | 1.15 | - | V |
| | | $I_F=15\text{A}, T_C=120^\circ\text{C}$ | - | | 1.0 | V |
| V_F | Forward Voltage Drop | $I_F=30\text{A}$ | - | 1.3 | 1.6 | V |
| | | $I_F=30\text{A}, T_C=120^\circ\text{C}$ | - | | 1.2 | V |
| I_R | Reverse Leakage Current | $V_R=600\text{V}$ | - | - | 10 | μA |
| t_{rr} | Reverse Recovery Time | $I_F=15\text{A}, di/dt=-200\text{A}/\mu\text{s}$ | - | 80 | - | ns |
| W_{AVL} | Avalanche Energy | $L=20\text{mH}$ | 30 | - | - | mJ |

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

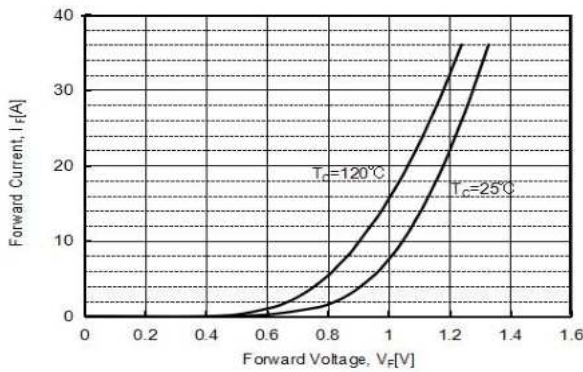


Fig. 2. Typical Characteristics: V_R vs. I_R

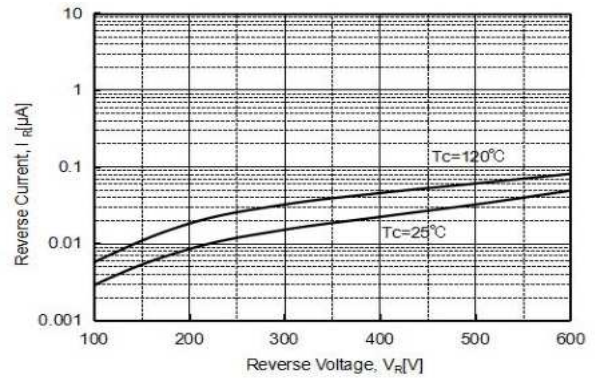


Fig. 3. Typical Reverse Recovery Time vs. di/dt

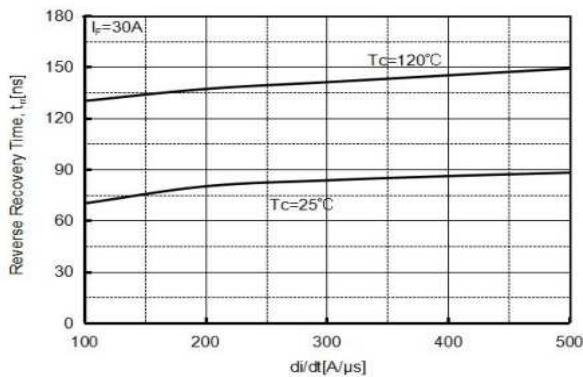
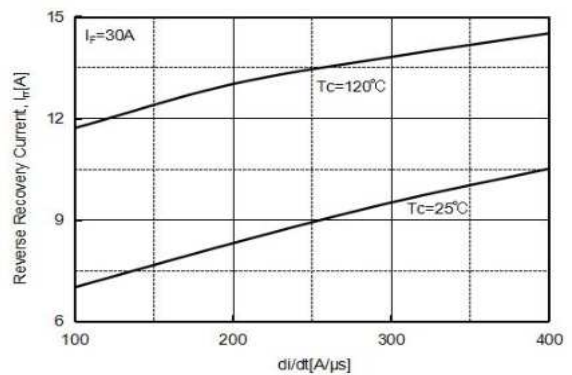


Fig. 4. Typical Reverse Recovery Current vs. di/dt



Package Dimensions

TO-3PN

(Dimensions in Millimeters)

