

## 80A, 600V Ultrafast Diode

### Description

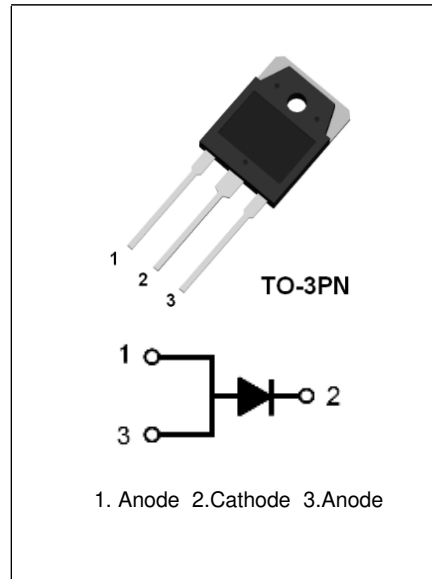
The AKF80U60NCN2 is an ultrafast diode with dual anode. It has lower forward voltage drop, more powerful avalanche energy, and better reliability. The series of device is specially suited for use in cutting machine and boost diode in PFC stages.

### Features

- Ultrafast Soft Recovery:  $t_{rr}=70\text{ns}$
- Typical Forward Voltage:  $V_F=1.45\text{V}@ I_F=80\text{A}$
- 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 $T_C=25\text{ }^\circ\text{C}$ 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 $T_C=120\text{ }^\circ\text{C}$ 80	A
$I_{FSM}$	Non-repetitive Peak Surge Current	750	A
$P_D$	Power Dissipation	278	W
$T_J$	Operating Junction Temperature Range	-55~+150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55~+150	$^\circ\text{C}$

### Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th(J-C)}$	Thermal Resistance, Junction to case	0.45	$^\circ\text{C}/\text{W}$

## 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	$I_F=80\text{A}$	-	1.45	-	V
		$I_F=80\text{A}, T_C=120^\circ\text{C}$	-	-	1.65	V
$I_R$	Reverse Leakage Current	$V_R=600\text{V}$	-	-	10	$\mu\text{A}$
$t_{rr}$	Reverse Recovery Time	$I_F=80\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	70	-	ns
$W_{AVL}$	Avalanche Energy	$L=30\text{mH}$	20	-	-	mJ

## Typical Performance Characteristics

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

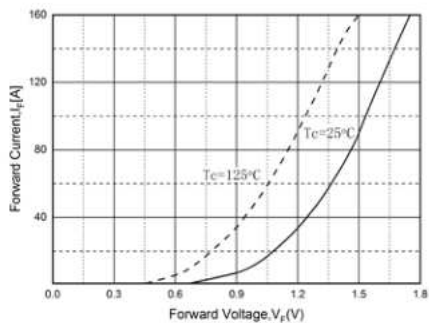


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

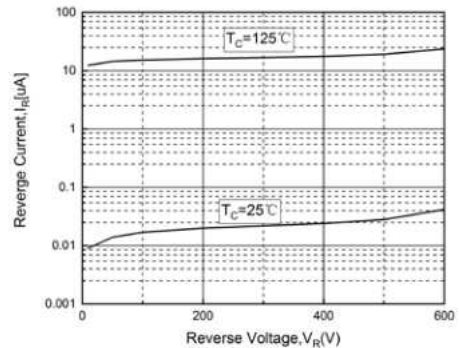


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

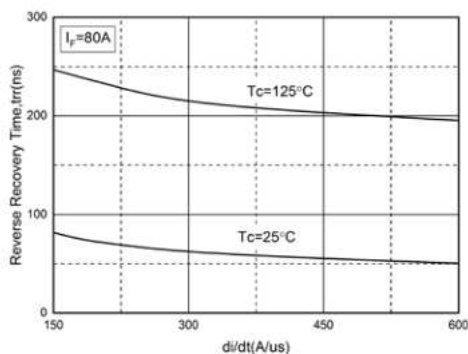
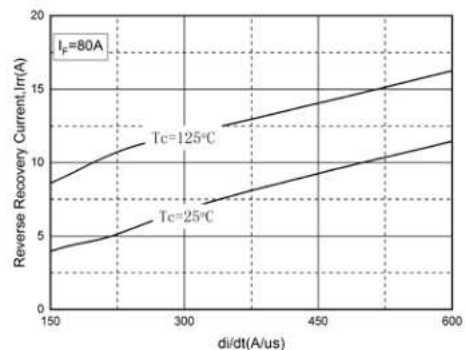


Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



**Package Dimensions**

**TO-3PN**

(Dimensions in Millimeters)

