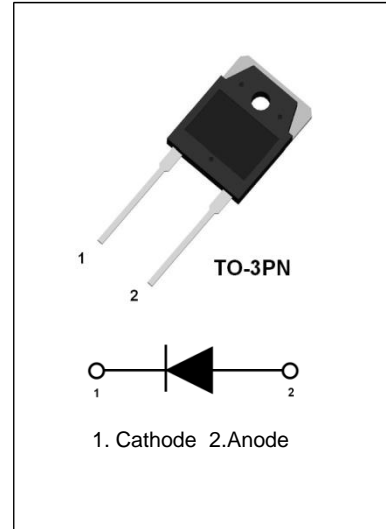


## 60A, 600V Ultrafast Diode

### Description

The AKF60U60SN is an ultrafast diode with low forward voltage drop. This device is designed for FWD in motor and power switching applications. It is specially suited for use in switching power supplies and industrial applications as welder and UPS application.



### Features

- Ultrafast Soft Recovery:  $t_{rr}=100\text{ns}$  (typ.)
- Typical Forward Voltage:  $V_F=1.32\text{V}$  @  $I_F=60\text{A}$
- Reverse Voltage:  $V_{RRM}=600\text{V}$
- Avalanche Energy Rated

### Applications

- Welder & UPS
- Switching Power Supply
- FWD for Motor Application

### Absolute Maximum Ratings 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	at $T_C=120\text{ }^\circ\text{C}$ 60	A
$I_{FSM}$	Non-repetitive Peak Surge Current	500	A
$T_J$	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	0.7	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_F$	Forward Voltage Drop	$I_F=60\text{A}$	-	1.32	1.70	V
		$I_F=60\text{A}, T_C=125\text{ }^\circ\text{C}$	-	1.2	-	V
$I_R$	Reverse Leakage Current	$V_R=600\text{V}$	-	-	10	$\mu\text{A}$
$t_{rr}$	Reverse Recovery Time	$I_F=60\text{A}, di/dt=-200\text{A}/\mu\text{s}, V_R=300\text{V}$	-	100	130	ns
$Q_{rr}$	Reverse Recovery Charge		-	198.6	-	nC
$I_{RRM}$	repetitive peak reverse current		-	6.2	-	A
$W_{AVL}$	Avalanche Energy	$L=30\text{mH}$	20	-	-	mJ

## Electrical Characteristics @ $T_C=125\text{ }^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$t_{rr}$	Reverse Recovery Time	$I_F=60\text{A}, di/dt=-200\text{A}/\mu\text{s}, V_R=300\text{V}$	-	236.4	-	ns
$Q_{rr}$	Reverse Recovery Charge		-	1860	-	nC
$I_{RRM}$	repetitive peak reverse current		-	13.8	-	A
$t_{rr}$	Reverse Recovery Time	$I_F=60\text{A}, di/dt=-1000\text{A}/\mu\text{s}, V_R=300\text{V}$	-	165.4	-	ns
$Q_{rr}$	Reverse Recovery Charge		-	2880	-	nC
$I_{RRM}$	repetitive peak reverse current		-	28.2	-	A

## Typical Performance Characteristics

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

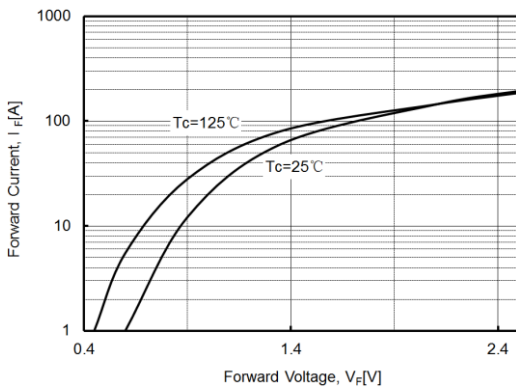


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

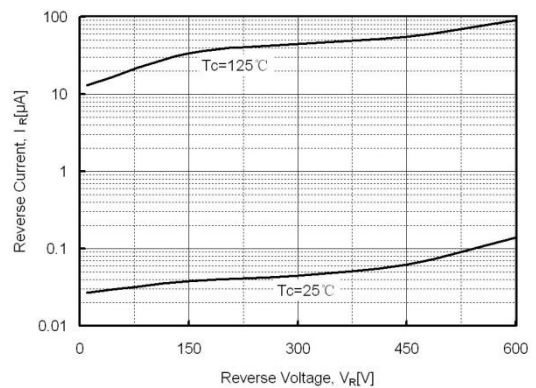


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

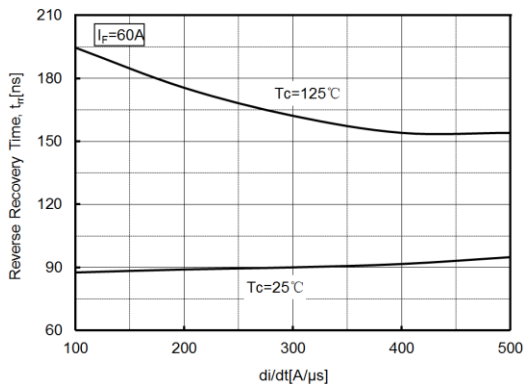
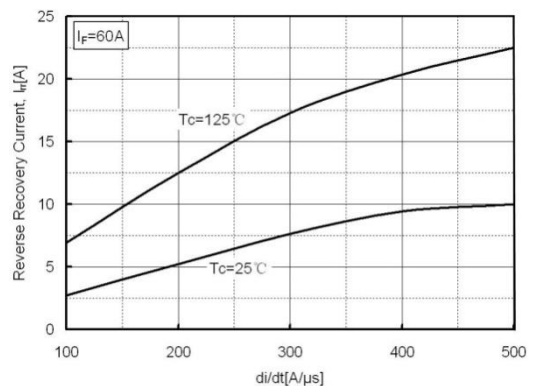


Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



**Package Dimensions**

**TO-3PN**

(Dimensions in Millimeters)

