

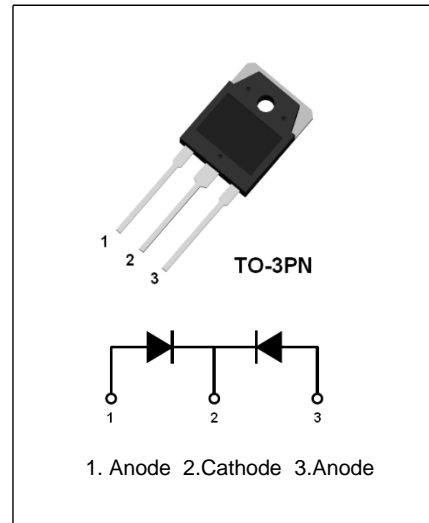
## 90A, 300V Ultrafast Dual Diode

### Description

The AKFA90UP30DN is an ultrafast dual 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:  $T_{rr}=40\text{ns}$  (typ)
- Typical Forward Voltage:  $V_F=0.95\text{V}$  @  $I_F=45\text{A}$
- Reverse Voltage:  $V_{RRM}=300\text{V}$
- 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	300	V
$V_{RWM}$	Working Peak Reverse Voltage	300	V
$V_R$	DC Blocking Voltage	300	V
$I_{F(AV)}$	Average Rectified Forward Current	at $T_C=120\text{ }^\circ\text{C}$ 45	A
$I_{FSM}$	Non-repetitive Peak Surge Current	350	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	0.6	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_F$	Forward Voltage Drop	$I_F=45\text{A}$	-	0.95	1	V
		$I_F=45\text{A}, T_C=125^\circ\text{C}$	-	0.83	-	V
$I_R$	Reverse Leakage Current	$V_R=300\text{V}$	-	-	10	$\mu\text{A}$
$T_{rr}$	Reverse Recovery Time	$I_F=45\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	40	50	ns
$E_{AS}$	Avalanche Energy	$L=5\text{mH}$	900	-	-	mJ

## Typical Performance Characteristics

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

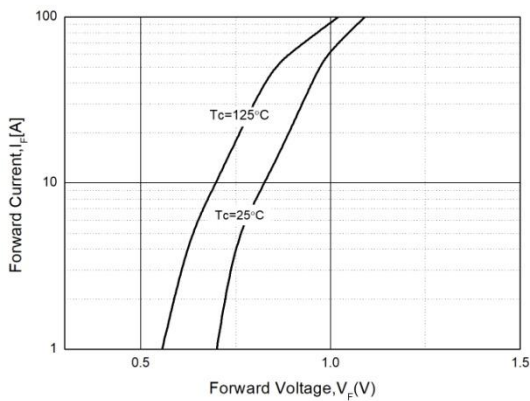


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

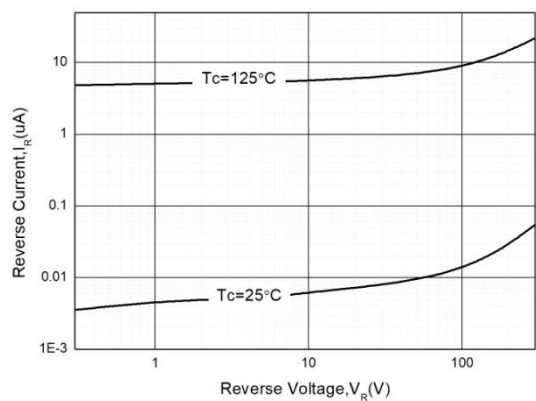


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

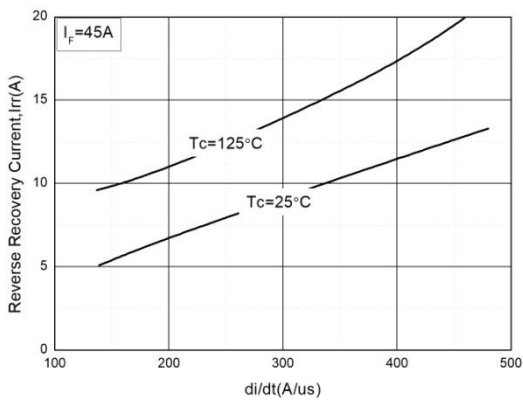
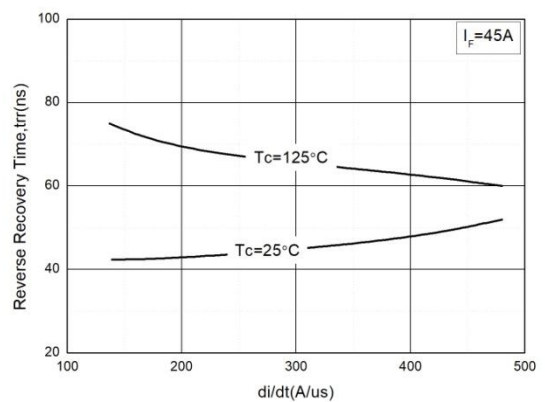


Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



Package Dimensions

TO-3PN

(Dimensions in Millimeters)

