

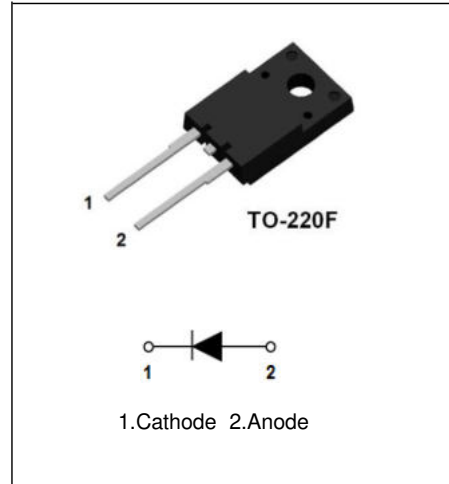
## 30A, 1200V Ultrafast Diode

### Description

The AKF30120SF is an ultrafast diode, its typical reverse recovery time is 90ns. This device is designed for freewheel diode in motor and power switching applications, and specially suited for use in inverter welding.

### Features

- Ultrafast Soft Recovery:  $t_{rr}=90\text{ns}$
- Typical Forward Voltage:  $V_F=3.0\text{V}@ I_F=30\text{A}$
- Reverse Voltage:  $V_{RRM}=1200\text{V}$
- Avalanche Energy Rated



### Applications

- General Rectifier
- Output Rectifier in Switching Power Supply & Welder
- 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	1200	V
$V_{RWM}$	Working Peak Reverse Voltage	1200	V
$V_R$	DC Blocking Voltage	1200	V
$I_{F(AV)}$	Average Rectified Forward Current	30	A
	per device at $T_c=120\text{ }^\circ\text{C}$		
$I_{FSM}$	Non-repetitive Peak Surge Current	300	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	1.3	$^\circ\text{C}/\text{W}$

**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	$I_F=30\text{A}$	-	3.0	3.6	V
		$I_F=30\text{A}, T_c=120^\circ\text{C}$	-	-	3.0	V
$I_R$	Reverse Leakage Current	$V_R=1200\text{V}$	-	-	10	$\mu\text{A}$
$t_{rr}$	Reverse Recovery Time	$I_F=30\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	90	-	ns
$W_{AVL}$	Avalanche Energy	$L=30\text{mH}$	20	-	-	mJ

**Typical Performance Characteristics**

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

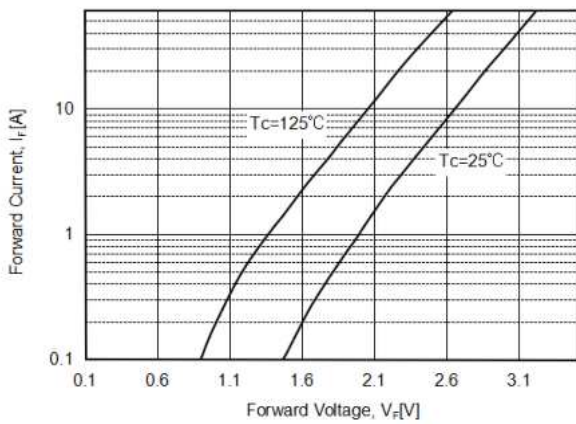


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

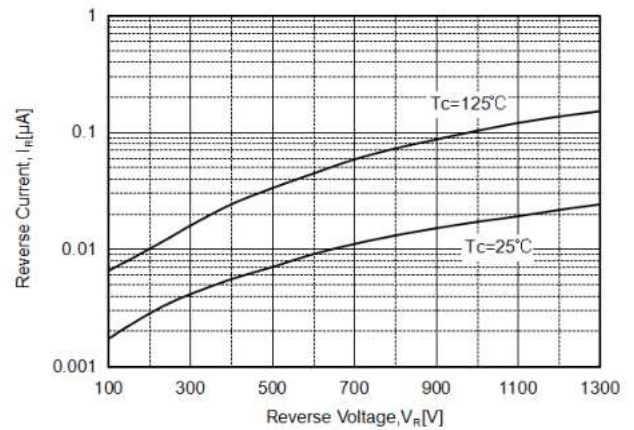


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

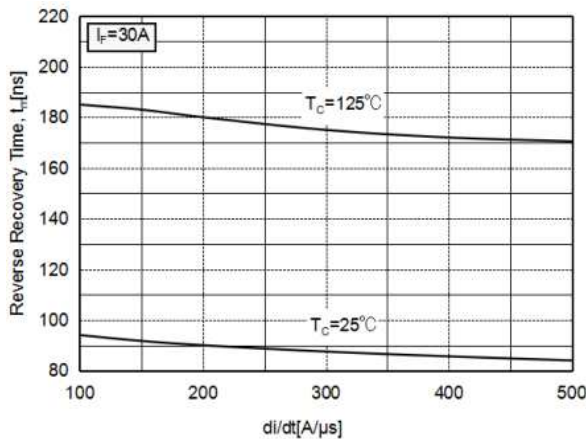
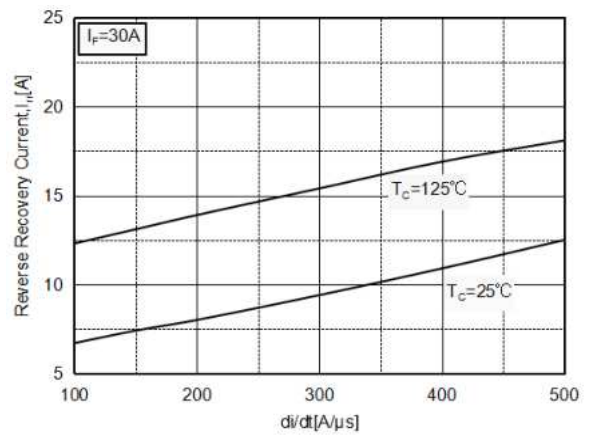


Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



**Package Dimensions**

**TO-220F**

(Dimensions in Millimeters)

