

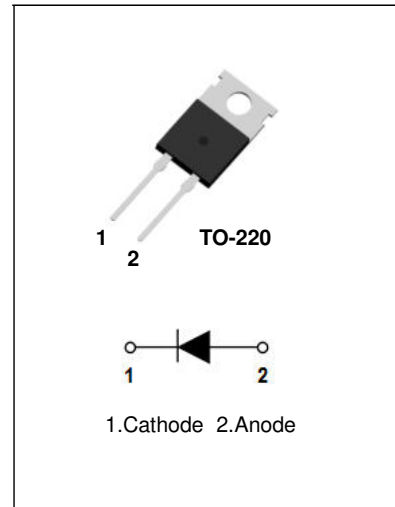
30A, 1200V Ultrafast Diode

Description

The AKF30120ST is an ultrafast diode, its typical reverse recovery time is 50ns. 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: $t_{rr}=50\text{ns}$
- Typical Forward Voltage: $V_F=3.35\text{V}@ I_F=30\text{A}$
- 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	1.1	$^\circ\text{C}/\text{W}$

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	$I_F=30\text{A}$	-	3.35	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	μA
t_{rr}	Reverse Recovery Time	$I_F=30\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	50	-	ns
W_{AVL}	Avalanche Energy	$L=30\text{mH}$	20	-	-	mJ

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

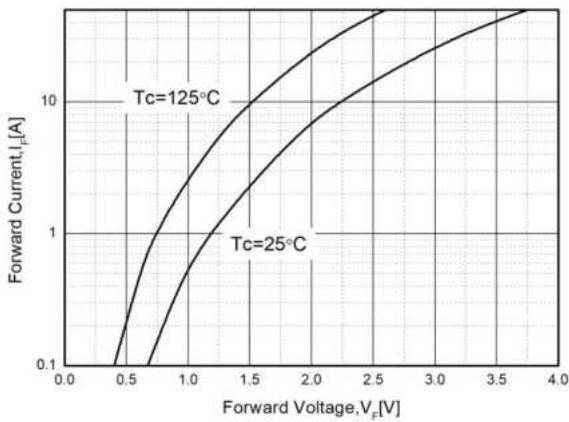


Fig. 2. Typical Characteristics: V_R vs. I_R

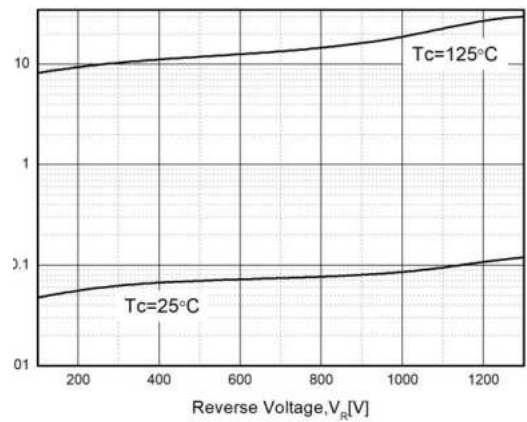


Fig. 3. Typical Reverse Recovery Time vs. di/dt

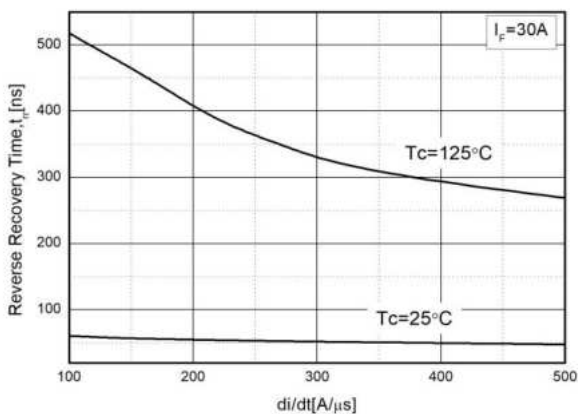
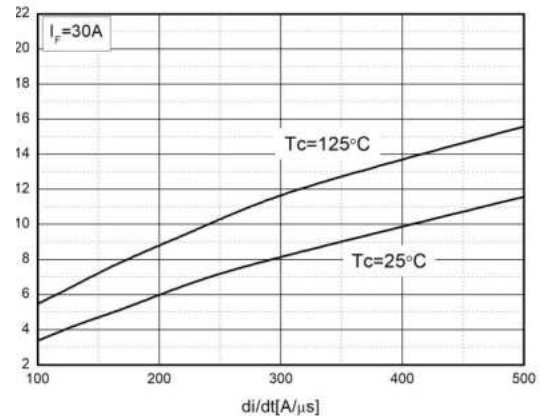


Fig. 4. Typical Reverse Recovery Current vs. di/dt



Package Dimensions

TO-220

(Dimensions in Millimeters)

