

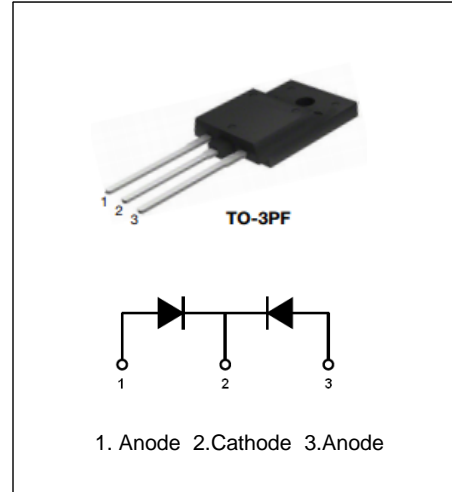
20A, 400V Ultrafast Dual Diode

Description

The AKFAF20UP40DN 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: $t_{rr}=27\text{ns}(\text{typ.})$
- Typical Forward Voltage: $V_F=1.2\text{V}@ I_F=10\text{A}$
- Reverse Voltage: $V_{RRM}=400\text{V}$
- Avalanche Energy Rated



Applications

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

Absolute Maximum Ratings per diode at $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Ratings	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	400	V
V_{RWM}	Working Peak Reverse Voltage	400	V
V_R	DC Blocking Voltage	400	V
$I_{F(AV)}$	Average Rectified Forward Current	per device at $T_c=120^\circ\text{C}$	10
I_{FSM}	Non-repetitive Peak Surge Current	100	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	2.3	$^\circ\text{C}/\text{W}$

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	$I_F=10\text{A}$	-	1.2	-	V
		$I_F=10\text{A}, T_c=125^\circ\text{C}$	-	1.0	-	V
I_R	Reverse Leakage Current	$V_R=400\text{V}$	-	-	100	μA
t_{rr}	Reverse Recovery Time	$I_F=10\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	27	-	ns
W_{AVL}	Avalanche Energy	$L=5\text{mH}$	-	82	-	mJ

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

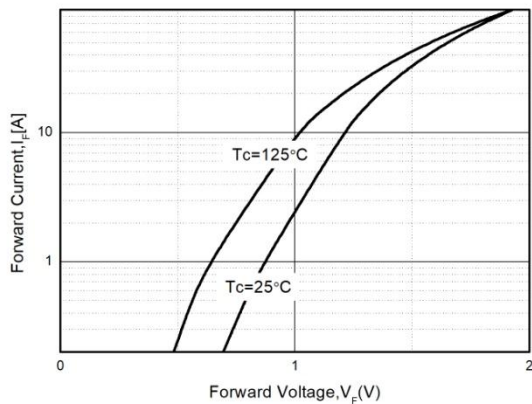


Fig. 2. Typical Characteristics: V_R vs. I_R

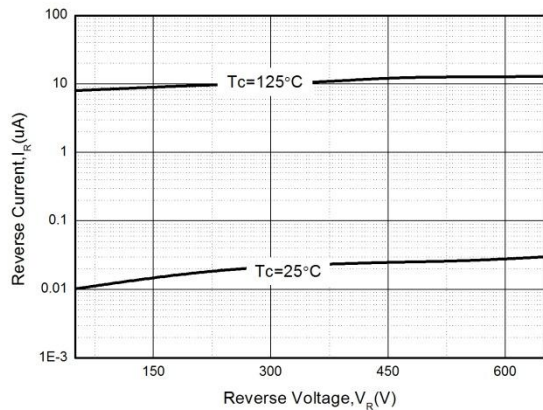


Fig. 3. Typical Reverse Recovery Time vs. di/dt

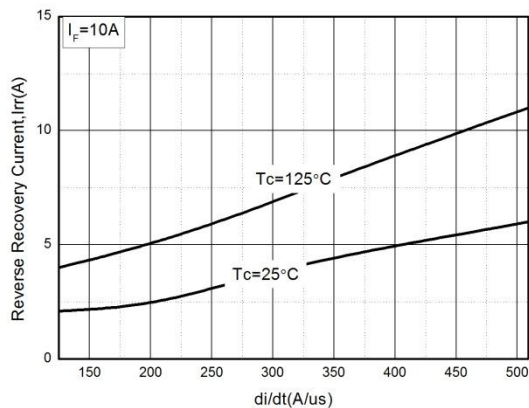
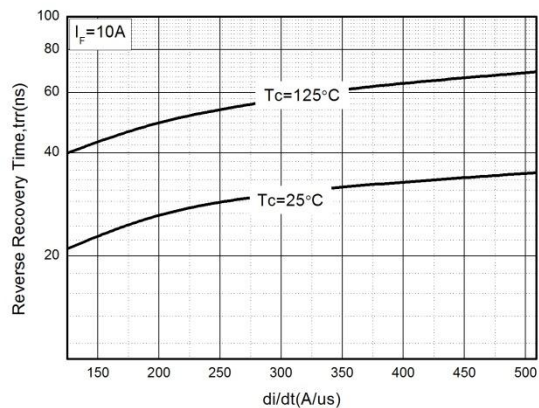


Fig. 4. Typical Reverse Recovery Time vs. di/dt



Package Dimensions

TO-3PF

(Dimensions in Millimeters)

