

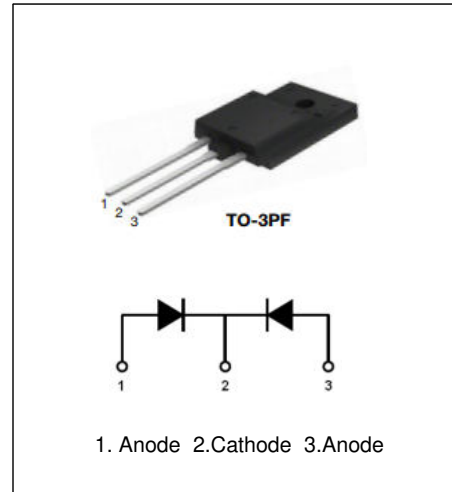
## 20A, 400V Ultrafast Dual Diode

### Description

The AKF20U40DNG 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 $T_C=25\text{ }^\circ\text{C}$ 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	10	A
	per device at $T_C=120\text{ }^\circ\text{C}$		
$I_{FSM}$	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	$\mu\text{A}$
$t_{rr}$	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.  $I_F$

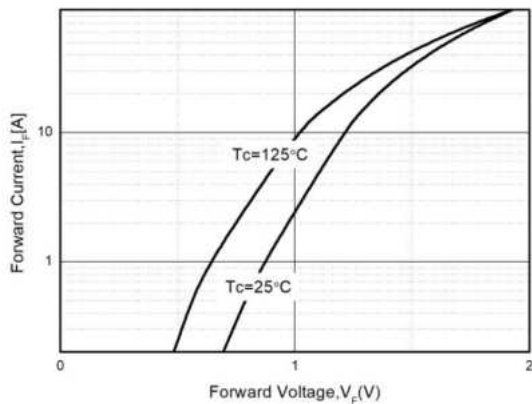


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

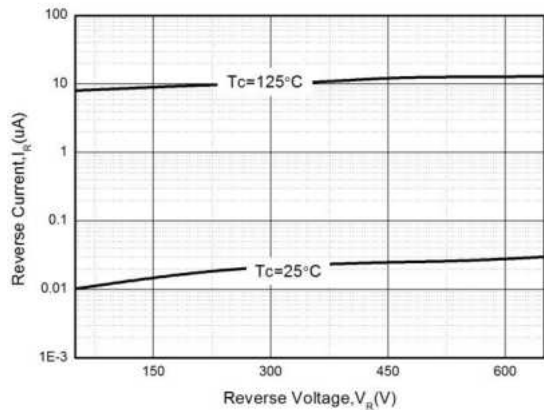


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

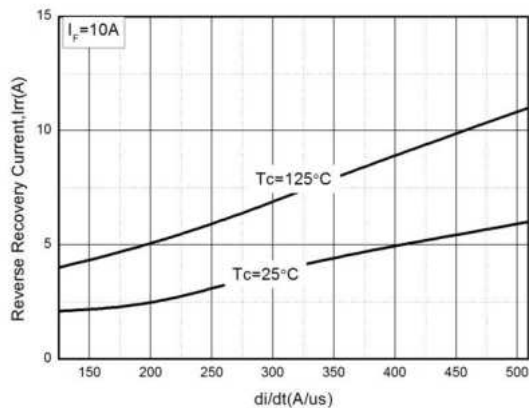
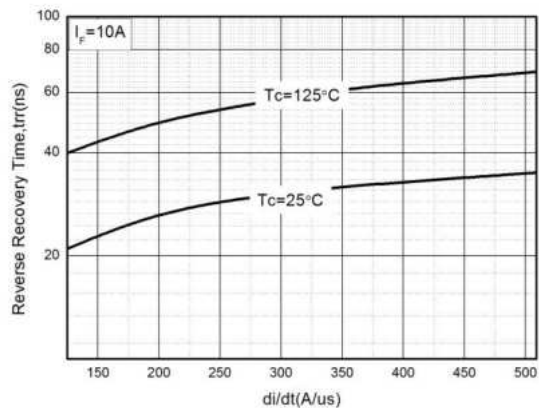


Fig. 4. Typical Reverse Recovery Time vs.  $di/dt$



**Package Dimensions**

**TO-3PF**

(Dimensions in Millimeters)

