

## 80A, 400V Ultrafast Dual Diode

### Description

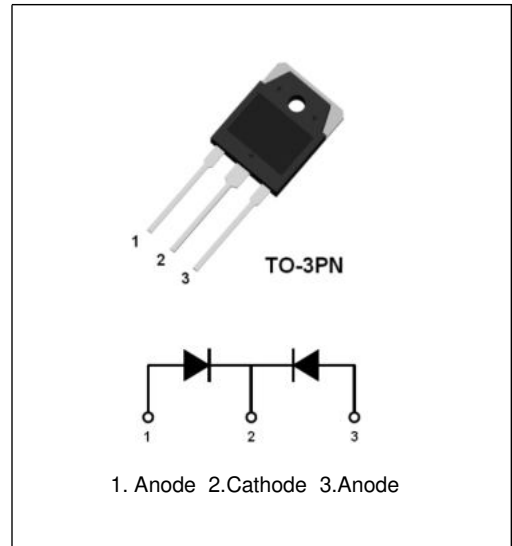
The AKF80U40DNNT is an ultrafast dual diode with low forward voltage drop. This device is designed for Inversion Welder and UPS, It is specially suited for use in Converter & Chopper and industrial applications as SMPS.

### Features

- Ultrafast Soft Recovery:  $T_{rr}=48\text{ns}$  (max)
- Typical Forward Voltage:  $V_F=1.15\text{V}$  @  $I_F=40\text{A}$
- Reverse Voltage:  $V_{RRM}=400\text{V}$
- Avalanche Energy Rated

### Applications

- Inversion Welder
- Converter & Chopper
- Rectifiers in Switch Mode Power Supplies



### 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	80	A
	per device at $T_C=120^\circ\text{C}$		
$I_{FSM}$	Non-repetitive Peak Surge Current	350	A
$T_J$	Operating Junction Temperature Range	-40~+150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-40~+150	$^\circ\text{C}$

### Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th(J-C)}$	Thermal Resistance, Junction to case	0.8	$^\circ\text{C}/\text{W}$

## 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	$I_F=40\text{A}$	-	1.15	1.6	V
		$I_F=40\text{A}, T_C=125^\circ\text{C}$	-	-	1.2	V
$I_R$	Reverse Leakage Current	$V_R=400\text{V}$	-	-	10	$\mu\text{A}$
$T_{rr}$	Reverse Recovery Time	$I_F=40\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	-	48	ns
$E_{AS}$	Avalanche Energy	$L=30\text{mH}$	20	-	-	mJ

## Typical Performance Characteristics

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

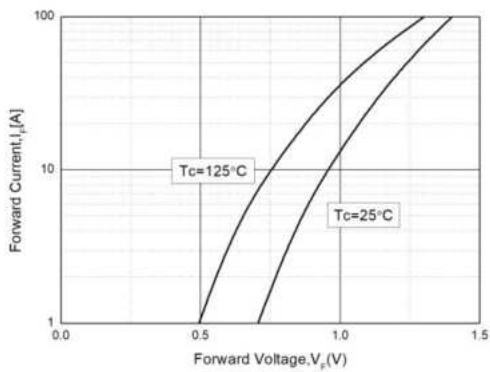


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

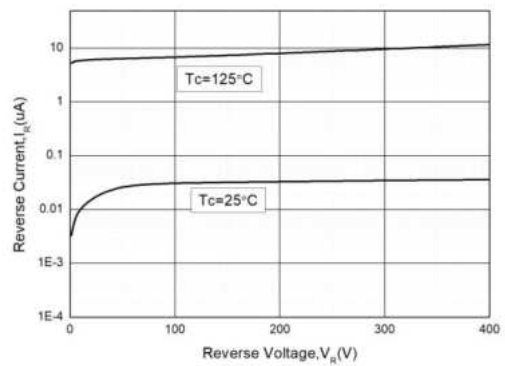


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

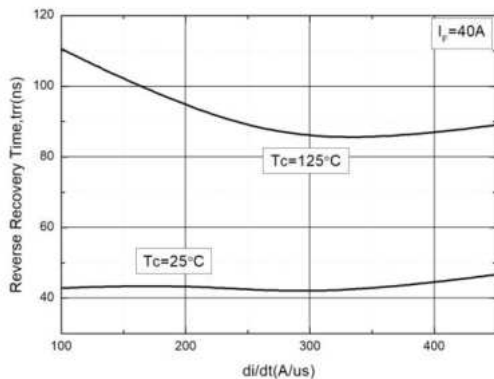
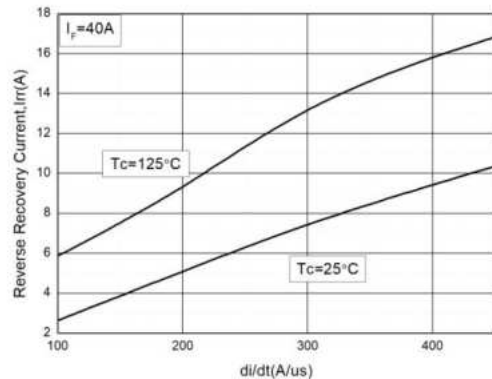


Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



**Package Dimensions**

**TO-3PN**

(Dimensions in Millimeters)

