

## 30A, 600V Ultrafast Dual Diode

### Description

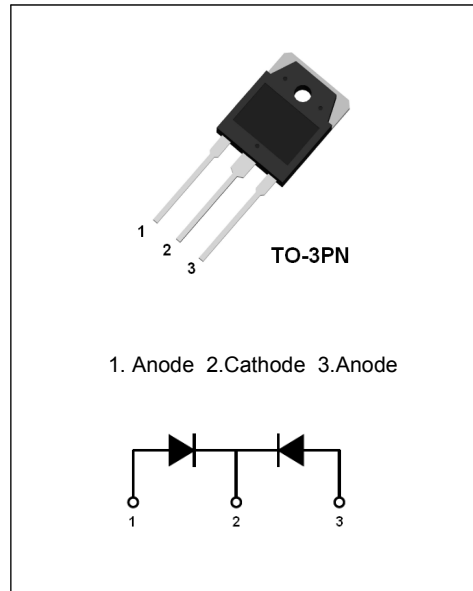
The AKFA30UP60DN is an ultrafast dual diode, its maximum reverse recovery time is 60ns. This device is designed for freewheel diode in motor and power switching applications, and specially suited for use in inverter welding.

### Features

- Ultrafast Soft Recovery:  $T_{rr}=60\text{ns}$  (max)
- Typical Forward Voltage:  $V_F=1.84\text{V}$  (typ.) @  $I_F=15\text{A}$
- Reverse Voltage:  $V_{RRM}=600\text{V}$
- Avalanche Energy Rated

### Applications

- Switching Power Supply
- FWD for Motor Application
- Inverter Welding



### 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	600	V
$V_{RWM}$	Working Peak Reverse Voltage	600	V
$V_R$	DC Blocking Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current	per device at $T_C=120^\circ\text{C}$ 30	A
$I_{FSM}$	Non-repetitive Peak Surge Current	150	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	$^\circ\text{C/W}$

**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	$I_F=15\text{A}$	-	1.84	2.2	V
		$I_F=15\text{A}, T_c=125^\circ\text{C}$	-	-	2.1	V
$I_R$	Reverse Leakage Current	$V_R=600\text{V}$	-	-	100	$\mu\text{A}$
$T_{rr}$	Reverse Recovery Time	$I_F=15\text{A}, di/dt=-200\text{A}/\mu\text{s}$	-	-	60	ns
$E_{AS}$	Avalanche Energy	$L=30\text{mH}$	20	-	-	mJ

**Typical Performance Characteristics**

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

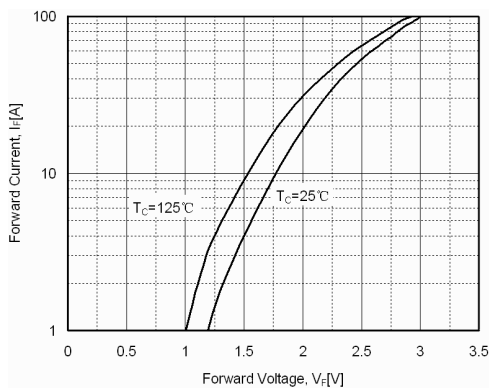


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

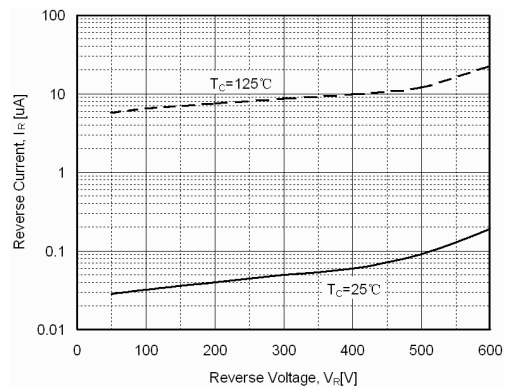


Fig. 3. Typical Reverse Recovery Time vs.  $di/dt$

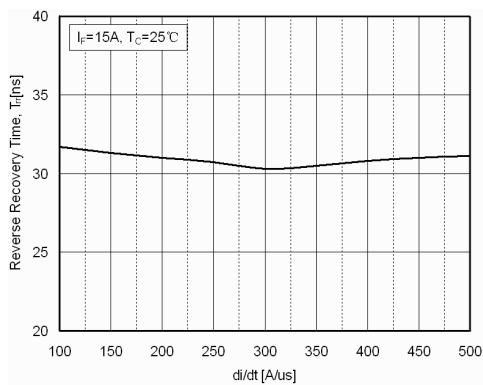
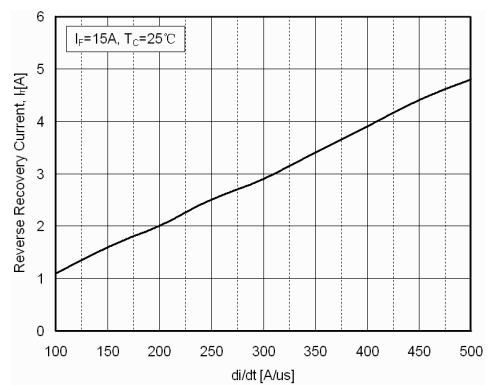


Fig. 4. Typical Reverse Recovery Current vs.  $di/dt$



**Package Dimensions**

**TO-3PN**

(Dimensions in Millimeters)

