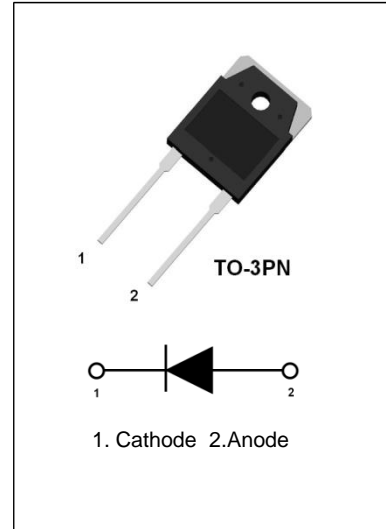


60A, 600V Ultrafast Diode

Description

The AKFA60UP60S is an ultrafast 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: $t_{rr}=100\text{ns}$ (typ.)
- Typical Forward Voltage: $V_F=1.32\text{V}$ @ $I_F=60\text{A}$
- Reverse Voltage: $V_{RRM}=600\text{V}$
- Avalanche Energy Rated

Applications

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

Absolute Maximum Ratings at $T_C=25\text{ }^\circ\text{C}$ 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	at $T_C=120\text{ }^\circ\text{C}$ 60	A
I_{FSM}	Non-repetitive Peak Surge Current	500	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	0.7	$^\circ\text{C/W}$

Electrical Characteristics @ $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage Drop	$I_F=60\text{A}$	-	1.32	1.70	V
		$I_F=60\text{A}, T_C=125^\circ\text{C}$	-	1.2	-	V
I_R	Reverse Leakage Current	$V_R=600\text{V}$	-	-	10	μA
t_{rr}	Reverse Recovery Time	$I_F=60\text{A}, di/dt=-200\text{A}/\mu\text{s}, V_R=300\text{V}$	-	100	130	ns
Q_{rr}	Reverse Recovery Charge		-	198.6	-	nC
I_{RRM}	repetitive peak reverse current		-	6.2	-	A
W_{AVL}	Avalanche Energy	$L=30\text{mH}$	20	-	-	mJ

Electrical Characteristics @ $T_C=125^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_F=60\text{A}, di/dt=-200\text{A}/\mu\text{s}, V_R=300\text{V}$	-	236.4	-	ns
Q_{rr}	Reverse Recovery Charge		-	1860	-	nC
I_{RRM}	repetitive peak reverse current		-	13.8	-	A
t_{rr}	Reverse Recovery Time	$I_F=60\text{A}, di/dt=-1000\text{A}/\mu\text{s}, V_R=300\text{V}$	-	165.4	-	ns
Q_{rr}	Reverse Recovery Charge		-	2880	-	nC
I_{RRM}	repetitive peak reverse current		-	28.2	-	A

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

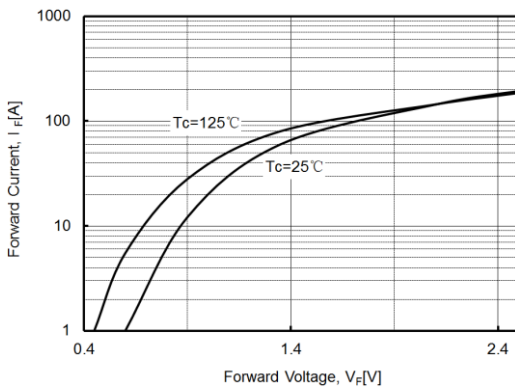


Fig. 2. Typical Characteristics: V_R vs. I_R

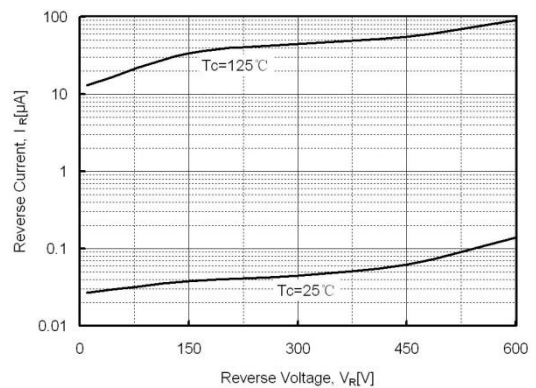


Fig. 3. Typical Reverse Recovery Time vs. di/dt

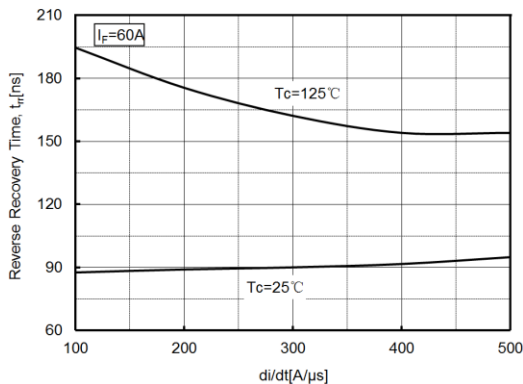
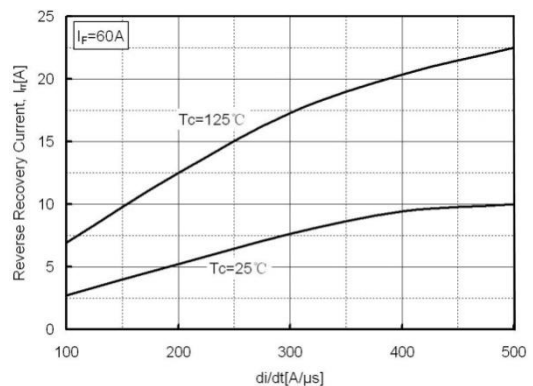


Fig. 4. Typical Reverse Recovery Current vs. di/dt



Package Dimensions

TO-3PN

(Dimensions in Millimeters)

