

1200V 75A Fast Recovery Diode
AKDK2N075WBF

Features:

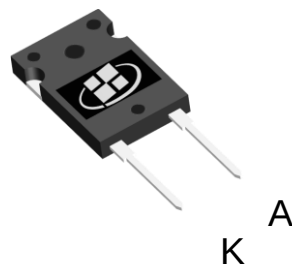
- Ultrafast recovery times
- Soft recovery characteristics
- Low forward voltage
- Low leakage current
- Avalanche energy rated
- RoHS compliant

Applications:

- Power factor correction (PFC)
- Anti-parallel diode
- Switch-mode power supply
- Inverters/converters
- Motor controllers
- Freewheeling diode
- Snubber/clamp diode

Key Performance Parameters:

Parameter	Value	Unit
V_{RRM}	1200	V
I_F	75	A
P_D	428	W
T_J	175	°C



Ordering Information:

Ordering Code	Package Type	Marking Code	Form	Packing
AKDK2N075WBF	TO-247-2L	DK2N075WBF	Tube	See the detail package information

Thermal and Mechanical Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case, Steady-State	0.35	°C/W
Torque	Maximum Mounting Torque	1.1	N·m

Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_R	Maximum DC Reverse Voltage	1200	V
V_{RRM}	Maximum Repetitive Peak Reverse Voltage	1200	V
V_{RWM}	Maximum Working Peak Reverse Voltage	1200	V
$I_{F(AV)}$	Maximum Average Forward Current ($T_C = 112^\circ\text{C}$, Duty Cycle = 0.5)	75	A
$I_{F(RMS)}$	RMS Forward Current	120	A
I_{FSM}	Non-repetitive Forward Surge Current($T_J = 45^\circ\text{C}$, 8.3 ms)	450	A
E_{AVL}	Avalanche Energy (40 mH)	20	mJ
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +175	$^\circ\text{C}$
T_L	Lead Temperature for 10 Senconds	300	$^\circ\text{C}$

Static Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
V_F	Forward Voltage	$I_F = 75\text{ A}, T_J = 25^\circ\text{C}$	-	2	2.6	V
		$I_F = 150\text{ A}, T_J = 25^\circ\text{C}$	-	2.85	-	V
		$I_F = 75\text{ A}, T_J = 125^\circ\text{C}$	-	2.2	-	V
I_{RM}	Reverse Maximum Leakage Current	$V_R = 1200\text{ V}, T_J = 25^\circ\text{C}$	-	-	100	μA
		$V_R = 1200\text{ V}, T_J = 125^\circ\text{C}$	-	-	500	μA
C_T	Junction Capacitance	$V_R = 200\text{ V}, f = 1\text{ MHz}$	-	31	-	pF

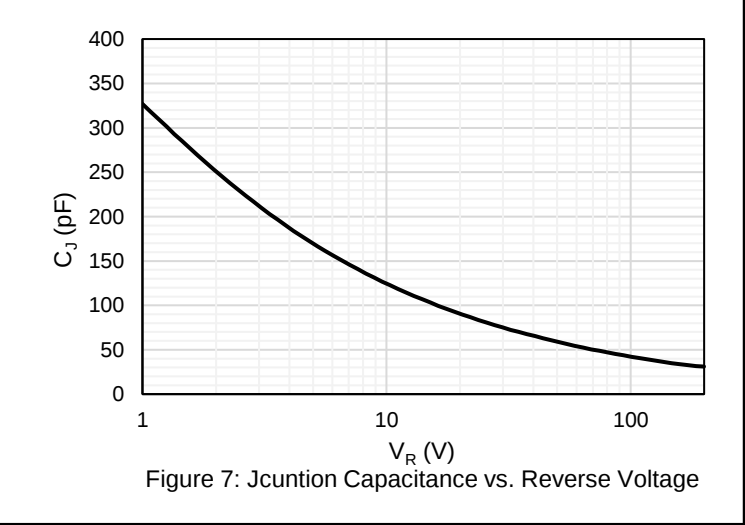
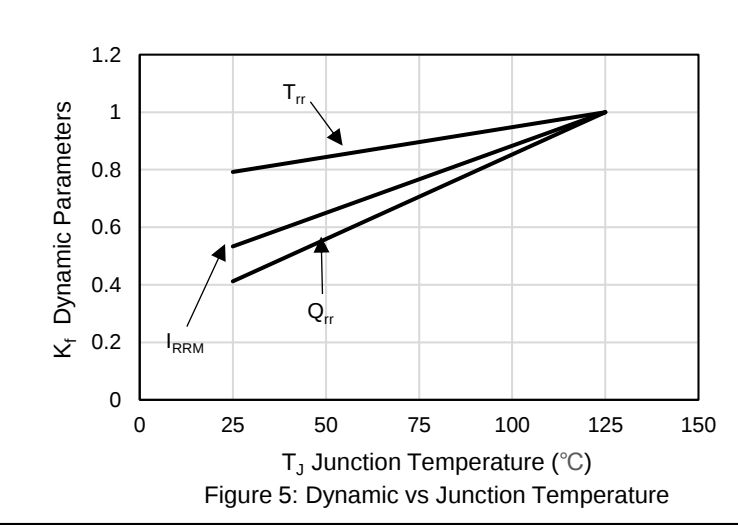
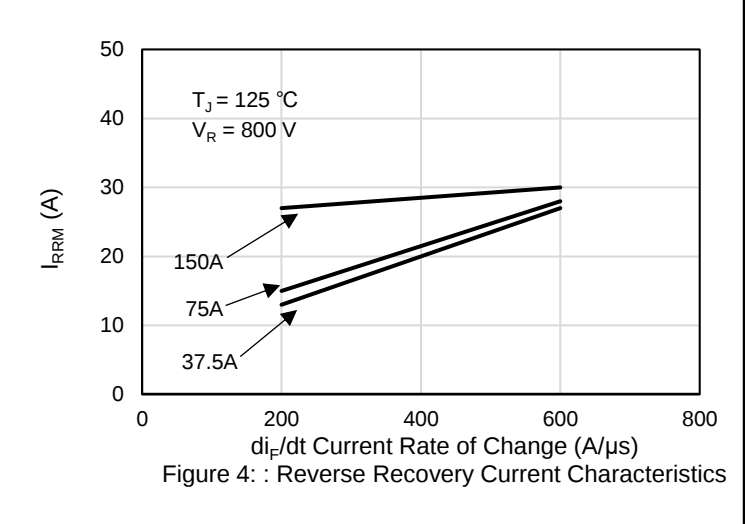
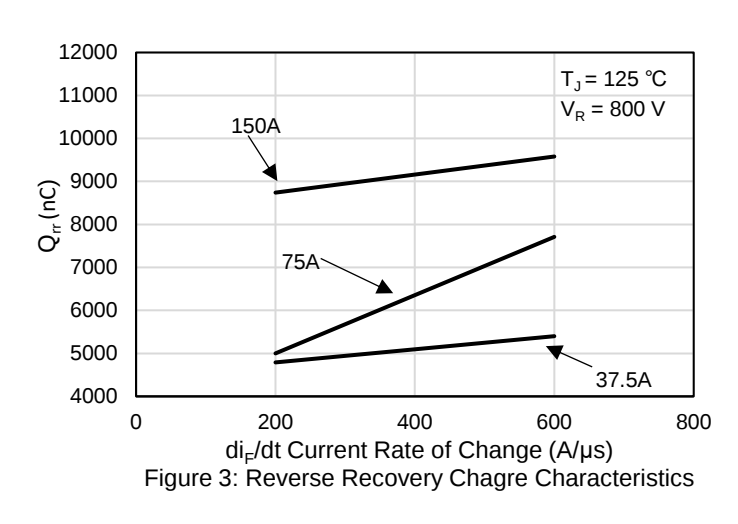
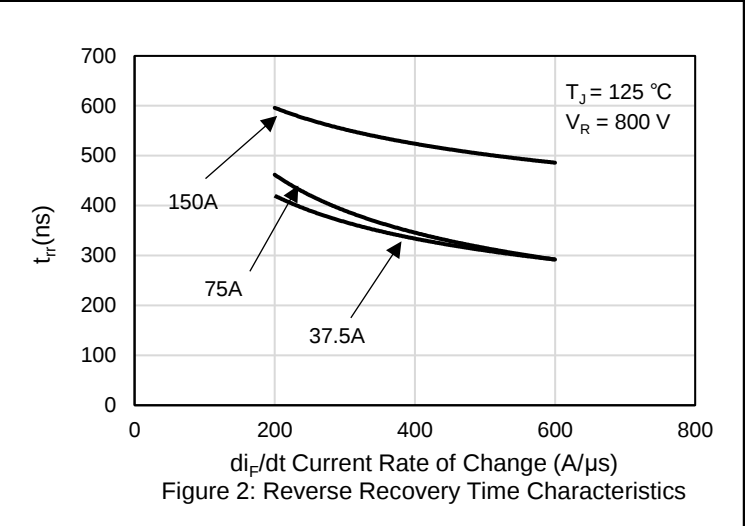
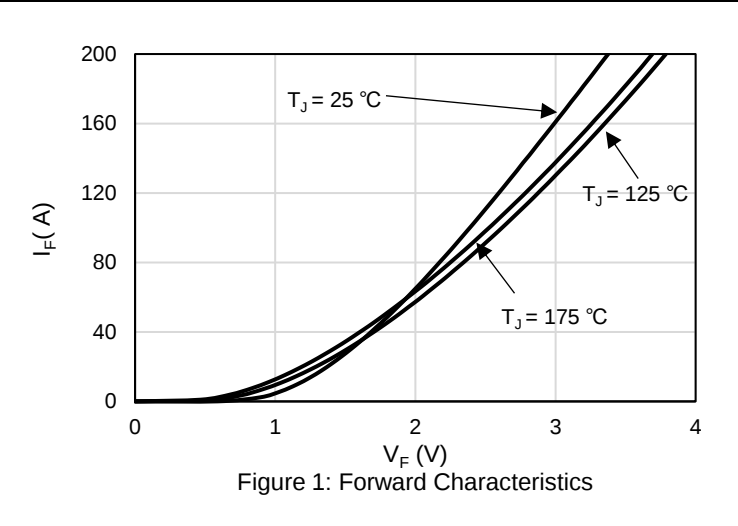
Dynamic Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
t_{rr}	Reverse Recovery Time	$I_F = 75\text{ A}$, $di_F/dt = 200\text{ A}/\mu\text{s}$ $V_R = 800\text{ V}$, $T_C = 25^\circ\text{C}$		366		ns
t_{rr}	Reverse Recovery Time	$I_F = 75\text{ A}$, $di_F/dt = 200\text{ A}/\mu\text{s}$ $V_R = 800\text{ V}$, $T_C = 125^\circ\text{C}$		462		ns
Q_{rr}	Reverse Recovery Charge			5000		nC
I_{rrm}	Maximum Reverse Recovery Current			15		A
t_{rr}	Reverse Recovery Time	$I_F = 75\text{ A}$, $di_F/dt = 600\text{ A}/\mu\text{s}$ $V_R = 800\text{ V}$, $T_C = 125^\circ\text{C}$		368		ns
Q_{rr}	Reverse Recovery Charge			7710		nC
I_{rrm}	Maximum Reverse Recovery Current			28		A
t_{rr}	Reverse Recovery Time	$I_F = 75\text{ A}$, $di_F/dt = 1000\text{ A}/\mu\text{s}$ $V_R = 800\text{ V}$, $T_C = 125^\circ\text{C}$		360		ns
Q_{rr}	Reverse Recovery Charge			8800		nC
I_{rrm}	Maximum Reverse Recovery Current			42		A

Notes:

1. Contact ALKAIDSEMI sales for detail information

Electrical Characteristics Diagrams



Revision History

Revision	Release Date	Remark
Rev.1.0	2023/3/23	Initial Release

Disclaimer

The information given in this document describes the independent performance of the product, but similar performance is not guaranteed under other working conditions, and cannot be guaranteed when installed with other products or equipment. To achieve the required performance of the product in actual scenarios, the customer should conduct a complete application test to assess the functionality of the product.

Alkaidsemi assumes no responsibility for equipment failures result from using products at values that exceed the ratings, operating conditions, or other parameters listed in the product specifications.

The product described in this specification is not applicable for aerospace or other applications which requires high reliability. Customers using or selling these products for use in medical, life-saving, or life-sustaining applications do so at their own risk and agree to fully indemnify.

Due to product or technical improvements, the information described or contained herein may be changed without prior notice.