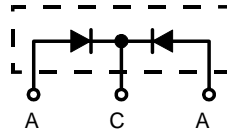


# Common Cathode Fast Recovery Epitaxial Diode (FRED)

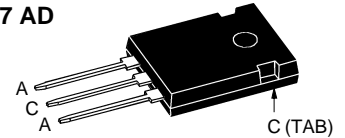
## DSEK 60

$I_{FAVM} = 2 \times 30 \text{ A}$   
 $V_{RRM} = 600 \text{ V}$   
 $t_{rr} = 35 \text{ ns}$

$V_{RSM}$	$V_{RRM}$	Type
V	V	
640	600	DSEK 60-06A



TO-247 AD



A = Anode, C = Cathode, TAB = Cathode

Symbol	Test Conditions	Maximum Ratings	
$I_{FRMS}$	$T_{VJ} = T_{VJM}$	50	A
$I_{FAVM}$ ①	$T_C = 85^\circ\text{C}$ ; rectangular, $d = 0.5$	30	A
$I_{FRM}$	$t_p < 10 \mu\text{s}$ ; rep. rating, pulse width limited by $T_{VJM}$	375	A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine	300	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	320	A
	$T_{VJ} = 150^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine	260	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	280	A
$I^2t$	$T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine	450	A <sup>2</sup> s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	420	A <sup>2</sup> s
	$T_{VJ} = 150^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine	340	A <sup>2</sup> s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	320	A <sup>2</sup> s
$T_{VJ}$		-40...+150	°C
$T_{VJM}$		150	°C
$T_{stg}$		-40...+150	°C
$P_{tot}$	$T_C = 25^\circ\text{C}$	125	W
$M_d$	Mounting torque	0.8...1.2	Nm
Weight		6	g

### Features

- International standard package JEDEC TO-247 AD
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low  $I_{RM}$ -values
- Soft recovery behavior
- Epoxy meets UL 94V-0

### Applications

- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

### Advantages

- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses
- Operating at lower temperature or space saving by reduced cooling

Symbol	Test Conditions	Characteristic Values	
		typ.	max.
$I_R$	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$	100	$\mu\text{A}$
	$T_{VJ} = 25^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$	50	$\mu\text{A}$
	$T_{VJ} = 125^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$	7	mA
$V_F$	$I_F = 37 \text{ A}$ ; $T_{VJ} = 150^\circ\text{C}$	1.4	V
	$T_{VJ} = 25^\circ\text{C}$	1.6	V
$V_{T0}$	For power-loss calculations only	1.01	V
$r_T$	$T_{VJ} = T_{VJM}$	7.1	m $\Omega$
$R_{thJC}$	0.25	1	K/W
$R_{thCK}$			K/W
$R_{thJA}$		70	K/W
$t_{rr}$	$I_F = 1 \text{ A}$ ; $-di/dt = 100 \text{ A}/\mu\text{s}$ ; $V_R = 30 \text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$	35	50 ns
$I_{RM}$	$V_R = 350 \text{ V}$ ; $I_F = 30 \text{ A}$ ; $-di_F/dt = 240 \text{ A}/\mu\text{s}$ $L \leq 0.05 \mu\text{H}$ ; $T_{VJ} = 100^\circ\text{C}$	10	11 A

①  $I_{FAVM}$  rating includes reverse blocking losses at  $T_{VJM}$ ,  $V_R = 0.8 V_{RRM}$ , duty cycle  $d = 0.5$   
 Data according to IEC 60747 and refer to a single diode unless otherwise stated.  
 IXYS reserves the right to change limits, test conditions and dimensions

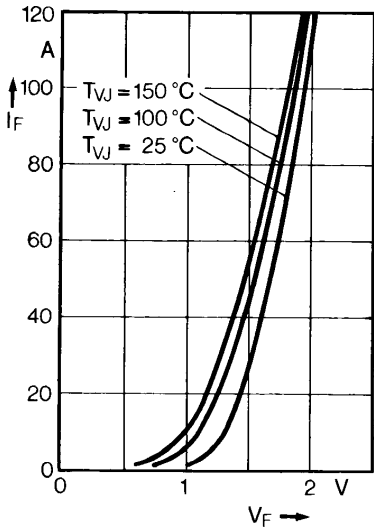


Fig. 1 Forward current versus voltage drop.

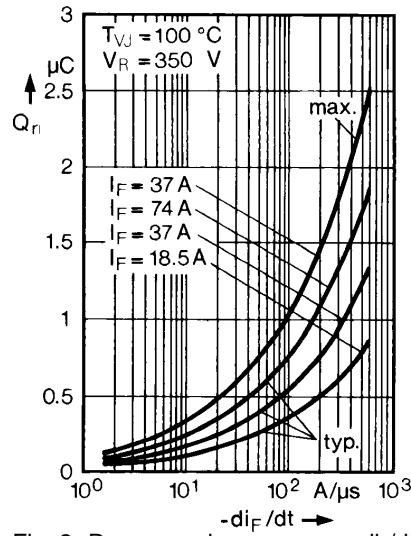


Fig. 2 Recovery charge versus  $-di_F/dt$ .

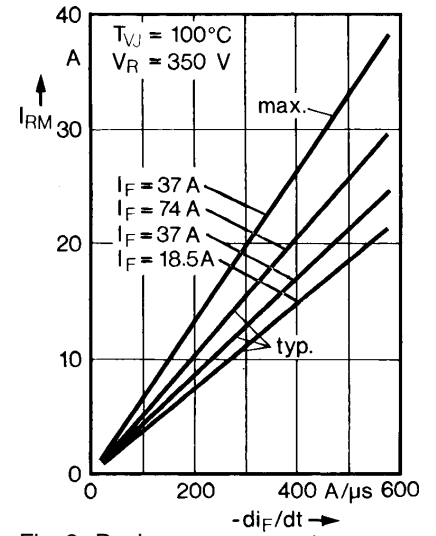


Fig. 3 Peak reverse current versus  $-di_F/dt$ .

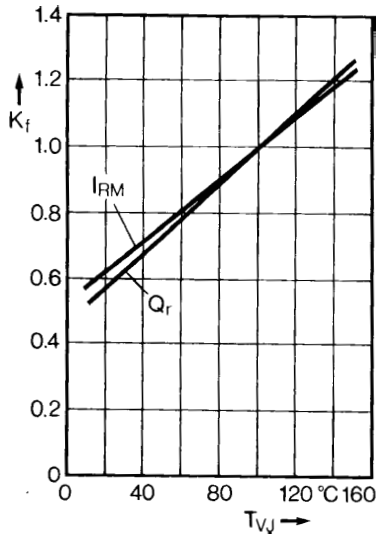


Fig. 4 Dynamic parameters versus junction temperature.

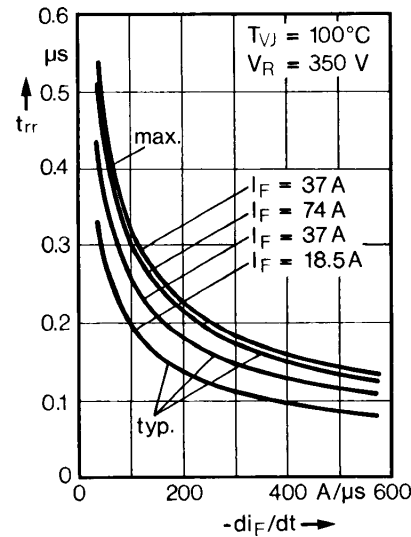


Fig. 5 Recovery time versus  $-di_F/dt$ .

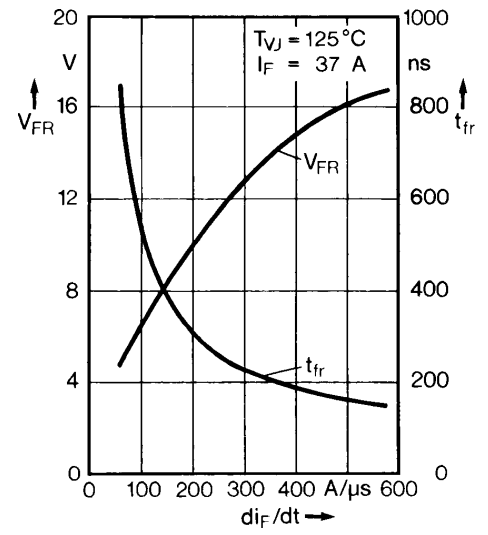


Fig. 6 Peak forward voltage versus  $di_F/dt$ .

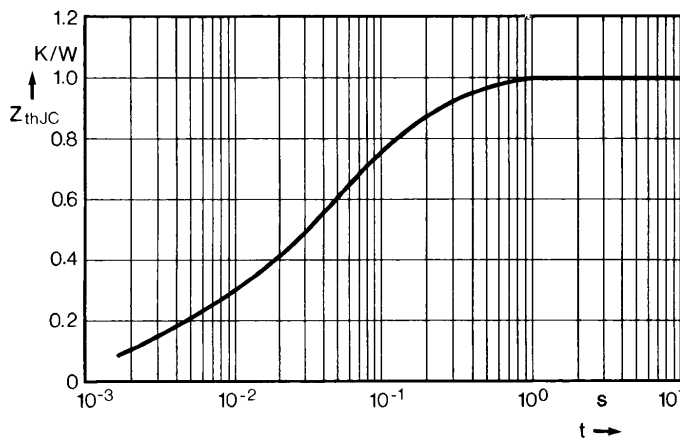
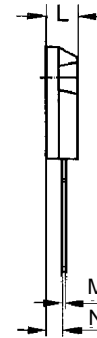
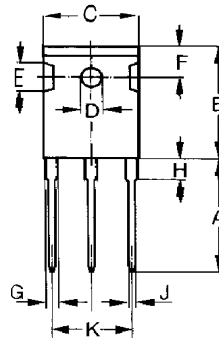


Fig. 7 Transient thermal impedance junction to case.

### Dimensions



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	2.2	2.54	0.087	0.102



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

[LittleDiode.com](http://LittleDiode.com)

Looking forward to providing you with the best possible service.