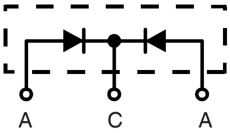
IXYS

Common Cathode Fast Recovery Epitaxial Diode (FRED)

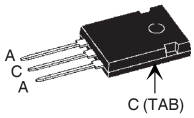
DSEK 60

I_{FAVM} = 2x 34 A
V_{RRM} = 200 V
t_{rr} = 35 ns

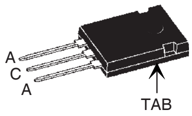
V_{RSM} V	V_{RRM} V	Type
200	200	DSEK 60-02A
200	200	DSEK 60-02AR



TO-247 AD
Version A



ISOPLUS 247™
Version AR



A = Anode, C = Cathode

Symbol	Test Conditions	Maximum Ratings per leg	
I_{FRMS}	$T_{VJ} = T_{VJM}$	50	A
I_{FAVM} ✶	T_C = 115°C; rectangular, d = 0.5	34	A
I_{FRM}	t_P < 10 µs; rep. rating, pulse width limited by T_{VJM}	375	A
I_{FSM}	T_{VJ} = 45°C; t = 10 ms (50 Hz), sine	325	A
	t = 8.3 ms (60 Hz), sine	350	A
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	290	A
	t = 8.3 ms (60 Hz), sine	310	A
I^2t	T_{VJ} = 45°C t = 10 ms (50 Hz), sine	530	A^2s
	t = 8.3 ms (60 Hz), sine	510	A^2s
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	420	A^2s
	t = 8.3 ms (60 Hz), sine	400	A^2s
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+150	°C
P_{tot}	T_C = 25°C	125	W
M_d *	Mounting torque with screw M3	0.45-0.55/4-5	Nm/lb.in.
	Mounting torque with screw M3.5	0.45-0.55/4-5	Nm/lb.in.
V_{ISOL} **	50/60 Hz, RMS, t = 1 minute, leads-to-tab	2500	V~
Weight		6	g

* Verson A only; ** Version AR only

Symbol	Test Conditions	Characteristic Values per leg typ.	max.	
I_R	T_{VJ} = 25°C $V_R = V_{RRM}$		200	µA
	T_{VJ} = 25°C V_R = 0.8 • V_{RRM}		50µA	
	T_{VJ} = 125°C V_R = 0.8 • V_{RRM}		5 mA	
V_F	I_F = 30 A; T_{VJ} = 150°C		0.85	V
	T_{VJ} = 25°C		1.10	V
V_{T0}	For power-loss calculations only		0.72	V
r_T mΩ	$T_{VJ} = T_{VJM}$		4.2	
R_{thJC}			1 K/W	
R_{thCH}		0.5	K/W	
t_{rr}	I_F = 1 A; -di/dt = 100 A/µs; V_R = 30 V; T_{VJ} = 25°C	35	50ns	
I_{RM}	V_R = 100 V; I_F = 30 A; -di_F/dt = 100 A/µs L ≤ 0.05 µH; T_{VJ} = 25°C	4	5 A	

✶ 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 refer to a single diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

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 flammability classification
- Version AR isolated and UL registered E153432

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

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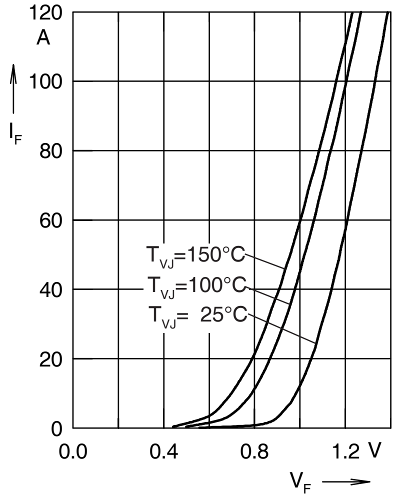

Fig. 1 Forward current I_F versus V_F

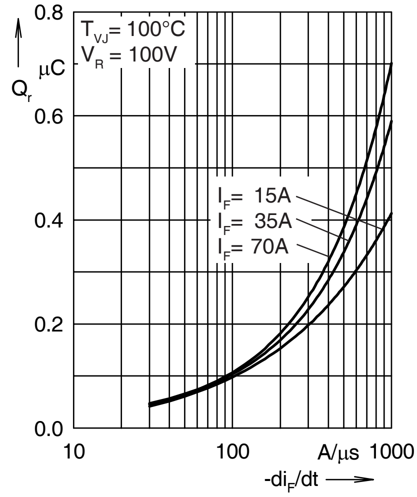

Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

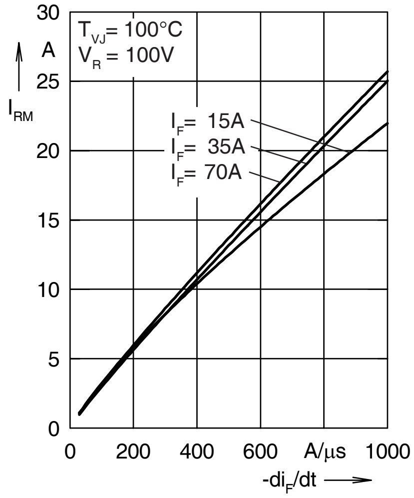

Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

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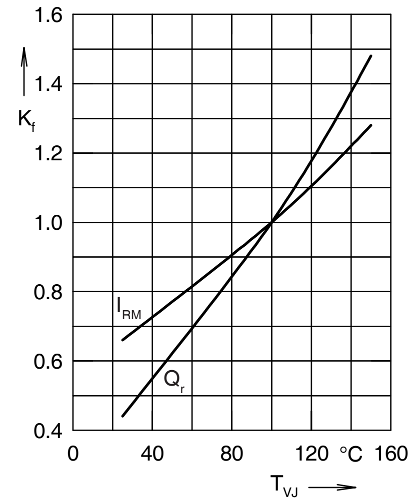


Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

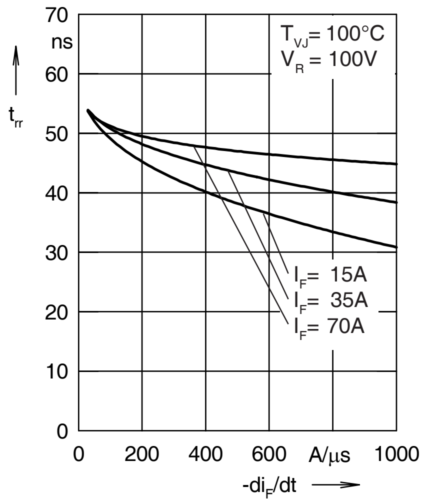


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

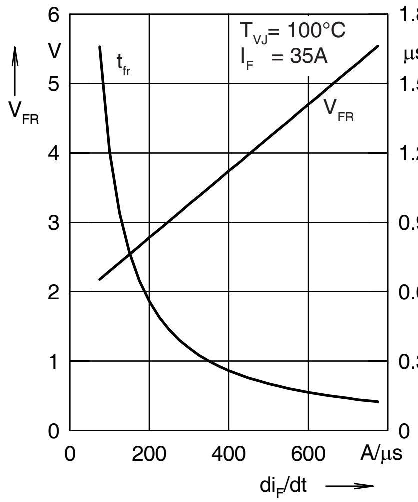


Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

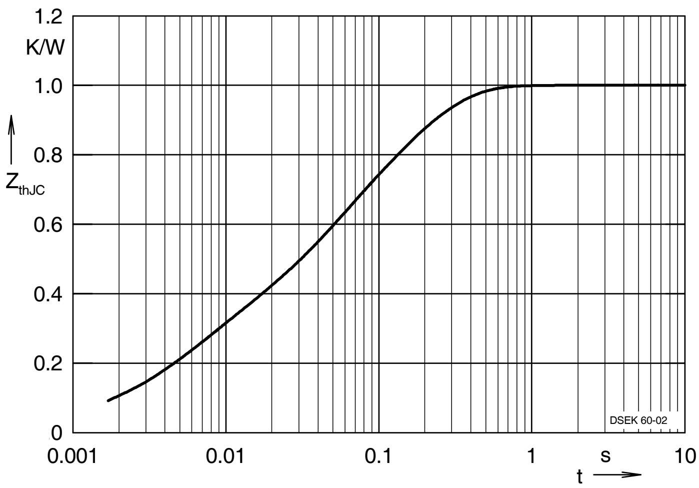
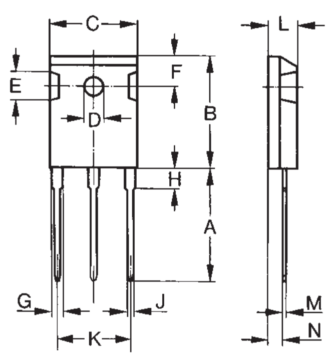


Fig. 7 Transient thermal impedance junction to case

Dimensions



Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches 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

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