IXYS

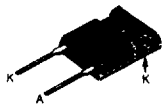
Fast Recovery Epitaxial Diode

DSEI 60

I_{FAV} = 60 A
V_{RRM} = 800-1000 V
t_{rr} ≤ 50 ns

V_{RSM} V	V_{RRM} V	Type
800	800	DSEI 60-08A
1000	1000	DSEI 60-10A

TO-247 AD



A = Anode K = Cathode

Symbol	Test conditions	Maximum ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$	100	A
I_{FAVM} 1)	T_C = 60°C; rectangular, δ = 0.5	60	A
I_{FRM}	t_P < 10 µs; rep. rating, pulse width limited by T_{VJM}	800	A
I_{FSM}	T_{VJ} = 45°C; t = 10 ms (50 Hz), sine	500	A
	t = 8.3 ms (60 Hz), sine	540	A
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	450	A
	t = 8.3 ms (60 Hz), sine	480	A
$\int i^2dt$	T_{VJ} = 45°C t = 10 ms (50 Hz), sine	1250	A^2s
	t = 8.3 ms (60 Hz), sine	1200	A^2s
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	1000	A^2s
	t = 8.3 ms (60 Hz), sine	950	A^2s
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+150	°C
P_{tot}	T_C = 60°C	136	W
M_d	Mounting torque	45-55	Ncm
Weight		6	g

Symbol	Test conditions	Characteristics typ.	max.	
I_R	T_{VJ} = 25°C $V_R = V_{RRM}$		3	mA
	T_{VJ} = 25°C $V_R = 0.8 \cdot V_{RRM}$		500	µA
	T_{VJ} = 125°C $V_R = 0.8 \cdot V_{RRM}$		14	mA
V_F	I_F = 60 A; T_{VJ} = 150°C		1.8	V
	T_{VJ} = 25°C		2.3	V
V_{TO}	For power-loss calculations only		1.43	V
r_F	$T_{VJ} = T_{VJM}$		6.1	mΩ
R_{thJC}			0.66	K/W
R_{thJA}			35	K/W
t_{rr}	I_F = 1 A; di/dt = -15 A/µs; V_R = 30 V; T_{VJ} = 25°C		50	ns
I_{RM}	V_R = 540 V; I_F = 60 A; di_F/dt = -480 A/µs	32	36	A
	L ≤ 0.05 µH; T_{VJ} = 100°C			

1) I_{FAVM} Rating includes reverse blocking losses at T_{VJM}, $V_R = 0.8\ V_{RRM}$, duty cycle δ = 0.5
Standards: DIN/IEC 747

Features
- International standard package
- Glass passivated chips
- Very short recovery time
- Extremely low losses at high switching frequencies
- Low I_{RM}-values
- Soft recovery behaviour

Applications
- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies
- Inductive heating and melting
- 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

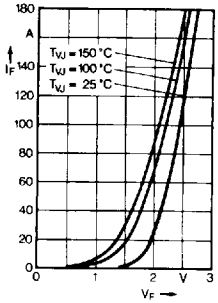


Fig. 1 Forward current versus voltage drop.

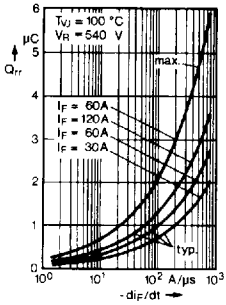


Fig. 2 Recovery charge versus $-di_F/dt$.

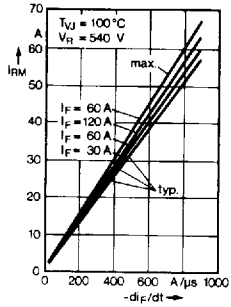


Fig. 3 Peak reverse current versus $-di_F/dt$.

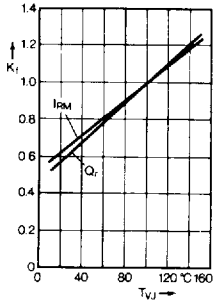


Fig. 4 Dynamic parameters versus junction temperature.

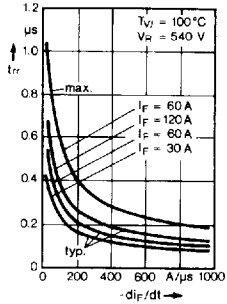


Fig. 5 Recovery time versus $-di_F/dt$.

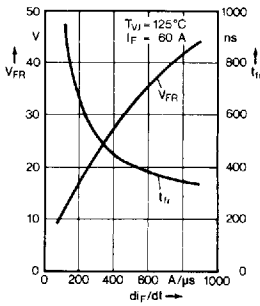


Fig. 6 Peak forward voltage versus $-di_F/dt$.

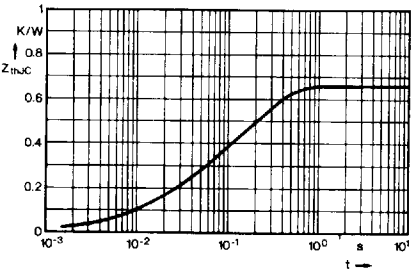
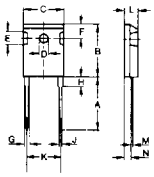


Fig. 7 Transient thermal impedance junction to case.

Dimensions



Dim.	Millimeter Min.	Max.	Inches 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	5.2	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	1.5	2.49	0.087	0.102