IXYS

Fast Recovery Epitaxial Diode

DSEI 30

I_{FAV} = 37 A
V_{RRM} = 400-600 V
t_{rr} ≤ 35 ns

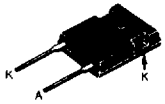
V_{RSM} V	V_{RRM} V	Type
440	400	DSEI 30-04A
540	500	DSEI 30-05A
640	600	DSEI 30-06A

Symbol	Test conditions	Maximum ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$	70	A
I_{FAVM} 1)	T_C = 85°C; rectangular, δ = 0.5	37	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	300	A
	t = 8.3 ms (60 Hz), sine	320	A
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	260	A
	t = 8.3 ms (60 Hz), sine	280	A
$\int i^2dt$	T_{VJ} = 45°C t = 10 ms (50 Hz), sine	450	A^2s
	t = 8.3 ms (60 Hz), sine	420	A^2s
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	340	A^2s
	t = 8.3 ms (60 Hz), sine	320	A^2s
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+150	°C
P_{tot}	T_C = 85°C	65	W
M_d	Mounting torque	45-55	Ncm
Weight		6	g

Symbol	Test conditions	Characteristics typ.	max.	
I_R	T_{VJ} = 25°C $V_R = V_{RRM}$		1.5	mA
	T_{VJ} = 25°C $V_R = 0.8 \cdot V_{RRM}$		250	µA
	T_{VJ} = 125°C $V_R = 0.8 \cdot V_{RRM}$		7	mA
V_F	I_F = 43 A; T_{VJ} = 150°C		1.4	V
	T_{VJ} = 25°C		1.6	V
V_{TO}	For power-loss calculations only		1.01	V
r_F	$T_{VJ} = T_{VJM}$		7.1	mΩ
R_{thJC}			1	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		35	ns
I_{RM}	V_R = 350 V; I_F = 30 A; di_F/dt = -240 A/µs	10	15	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

TO-247 AD



A = Anode **K = Cathode**

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

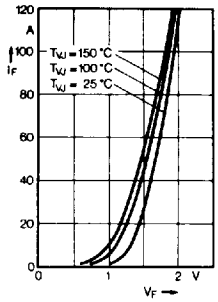


Fig. 1 Forward current versus voltage drop.

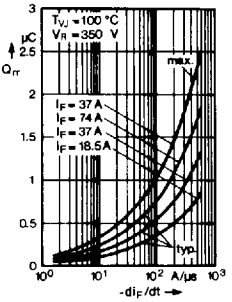


Fig. 2 Recovery charge versus $-di_F/dt$.

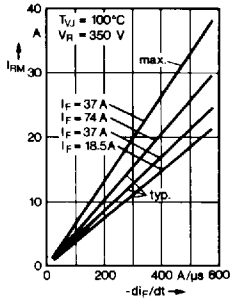


Fig. 3 Peak reverse current versus $-di_F/dt$.

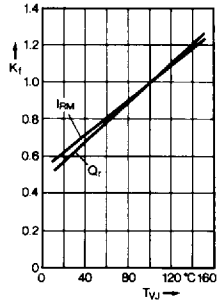


Fig. 4 Dynamic parameters versus junction temperature.

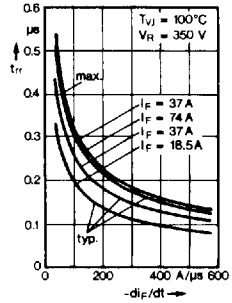


Fig. 5 Recovery time versus $-di_F/dt$.

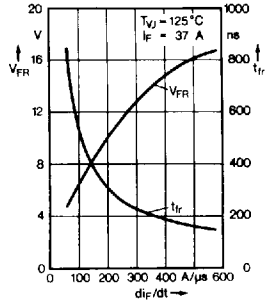


Fig. 6 Peak forward voltage versus $-di_F/dt$.

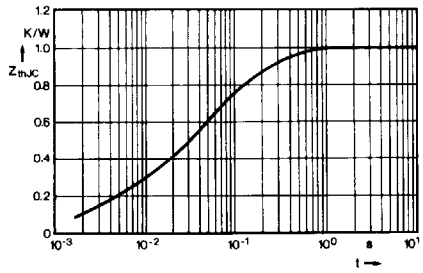
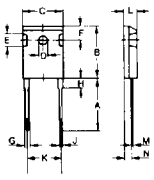


Fig. 7 Transient thermal impedance junction to case.

Dimensions



Dim.	Millimeter Min.	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	1.5	2.49	0.087	0.102