

IXYS

Fast Recovery Epitaxial Diode

DSEI 60

$$I_{FAV} = 60 \text{ A}$$

$$V_{RRM} = 400-600 \text{ V}$$

$$t_{rr} \leq 35 \text{ ns}$$

V_{RSM}	V_{RRM}	Type
V	V	
440	400	DSEI 60-04A
540	500	DSEI 60-05A
640	600	DSEI 60-06A



Symbol	Test conditions	Maximum ratings
I_{PRM}	$T_{vj} = T_{vjM}$	100 A
I_{FAVM} 1)	$T_c = 70^\circ\text{C}$; rectangular, $\delta = 0.5$	60 A
I_{PRM}	$I_p < 10 \mu\text{s}$; rep. rating, pulse width limited by T_{vjM}	800 A
I_{PRM}	$T_{vj} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	550 A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	600 A
	$T_{vj} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	480 A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	520 A
f_{Tdt}	$T_{vj} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	1510 A ² s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	1490 A ² s
	$T_{vj} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	1150 A ² s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	1120 A ² s
T_{vj}		$-40 \dots +150^\circ\text{C}$
T_{vjM}		150°C
T_{stg}		$-40 \dots +150^\circ\text{C}$
P_{tot}	$T_c = 70^\circ\text{C}$	107 W
M_o	Mounting torque	45-55 Ncm
Weight		6 g

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_{PRM} -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

Symbol	Test conditions	Characteristics
		typ. max.
I_n	$T_{vj} = 25^\circ\text{C}$; $V_R = V_{RRM}$	3 mA
	$T_{vj} = 25^\circ\text{C}$; $V_R = 0.8 \cdot V_{RRM}$	500 μA
	$T_{vj} = 125^\circ\text{C}$; $V_R = 0.8 \cdot V_{RRM}$	14 mA
V_F	$I_F = 70 \text{ A}$; $T_{vj} = 150^\circ\text{C}$	1.5 V
	$T_{vj} = 25^\circ\text{C}$	1.8 V
V_{TO}	For power-loss calculations only	1.13 V
	$T_{vj} = T_{vjM}$	4.7 m Ω
R_{thJC}		0.75 K/W
R_{thJA}		35 K/W
t_{rr}	$I_F = 1 \text{ A}$; $di/dt = -15 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{vj} = 25^\circ\text{C}$	35 ns
I_{RM}	$V_R = 350 \text{ V}$; $I_F = 60 \text{ A}$; $di/dt = -480 \text{ A}/\mu\text{s}$	19 A
	$L \leq 0.05 \mu\text{H}$; $T_{vj} = 100^\circ\text{C}$	35 A

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

DSEI 60, 400-600 V

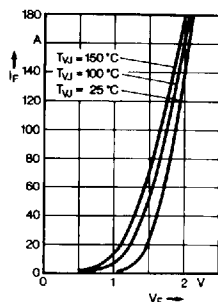


Fig. 1 Forward current versus voltage drop.

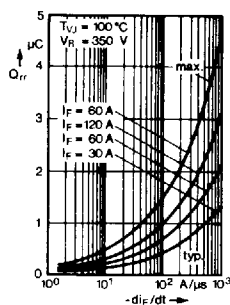
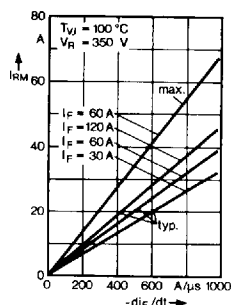
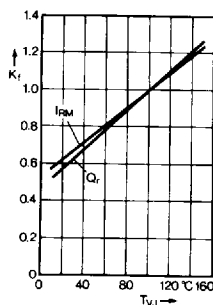
Fig. 2 Recovery charge versus $-di_F/dt$.Fig. 3 Peak reverse current versus $-di_F/dt$.

Fig. 4 Dynamic parameters versus junction temperature.

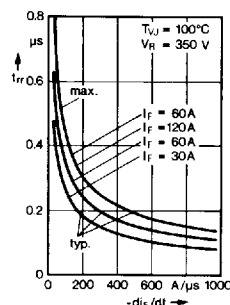
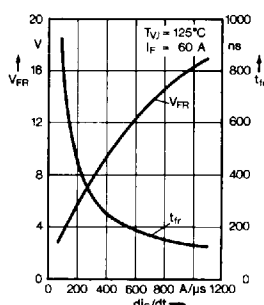
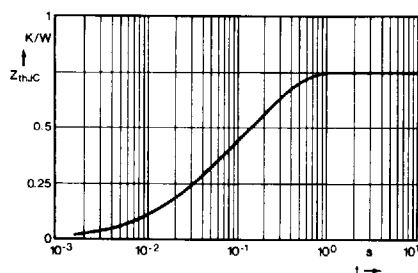
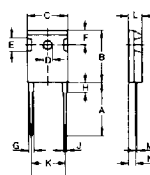
Fig. 5 Recovery time versus $-di_F/dt$.Fig. 6 Peak forward voltage versus di_F/dt .

Fig. 7 Transient thermal impedance junction to case.

Dimensions



Dim.	Millimeter	Min.	Max.	Inches	Min.	Max.
A	19.81	20.32	0.790	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	0.067	0.102		