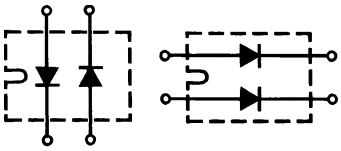
IXYS

Fast Recovery Epitaxial Diodes (FRED)

DSEI 2x30
DSEI 2x31

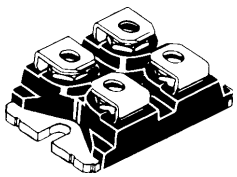
I_{FAVM} = 2x30 A
V_{RRM} = 400/600 V
t_{rr} = 35 ns

V_{RSM} V	V_{RRM} V	Type	
440	400	DSEI 2x30-04C	DSEI 2x31-04C
640	600	DSEI 2x30-06C	DSEI 2x31-06C



DSEI 2x30 DSEI 2x31

miniBLOC, SOT-227 B



Symbol	Test Conditions		Maximum Ratings (per diode)	
I_{FRMS}	$T_{VJ} = T_{VJM}$		70	A
I_{FAVM} ★	T_C = 85°C; rectangular, d = 0.5		30	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 = 25°C		100	W
V_{ISOL}	50/60 Hz, RMS I_{ISOL} ≤ 1 mA		2500	V~
M_d	Mounting torque		1.5/13	Nm/lb.in.
	Terminal connection torque (M4)		1.5/13	Nm/lb.in.
Weight			30	g

Symbol	Test Conditions		Characteristic Values (per diode) typ.	max.	
I_R	T_{VJ} = 25°C	$V_R = V_{RRM}$		100	µA
	T_{VJ} = 25°C	$V_R = 0.8 \cdot V_{RRM}$		50	µA
	T_{VJ} = 125°C	$V_R = 0.8 \cdot V_{RRM}$		7	mA
V_F	I_F = 30 A;	T_{VJ} = 150°C		1.4	V
		T_{VJ} = 25°C		1.6	V
V_{T0}	For power-loss calculations only			1.01	V
r_T	$T_{VJ} = T_{VJM}$			7.1	mΩ
R_{thJC}				1.25	K/W
R_{thCK}			0.05		K/W
t_{rr}	I_F = 1 A; -di/dt = 100 A/µs; V_R = 30 V; T_{VJ} = 25°C		35	50	ns
I_{RM}	V_R = 350 V; I_F = 30 A; $-di_F/dt$ = 240 A/µs L ≤ 0.05 µH; T_{VJ} = 100°C		10	11	A

Features

- International standard package miniBLOC (ISOTOP compatible)
- Isolation voltage 2500 V~
- UL registered E 72873
- 2 independent FRED in 1 package
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- 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 (SMPS)
- 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

★ I_{FAVM} rating includes reverse blocking losses at T_{VJM}, $V_R = 0.8\ V_{RRM}$, duty cycle d = 0.5
Data according to DIN/IEC 747
IXYS reserves the right to change limits, test conditions and dimensions

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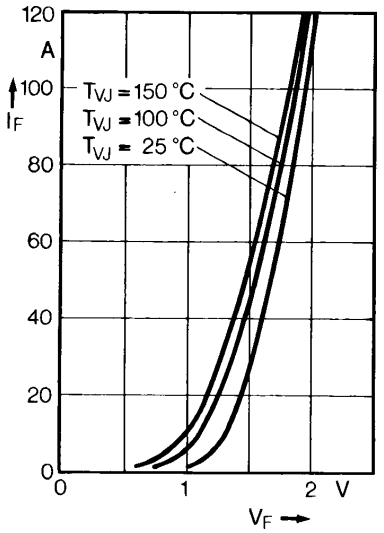


Fig. 1 Forward current versus voltage drop.

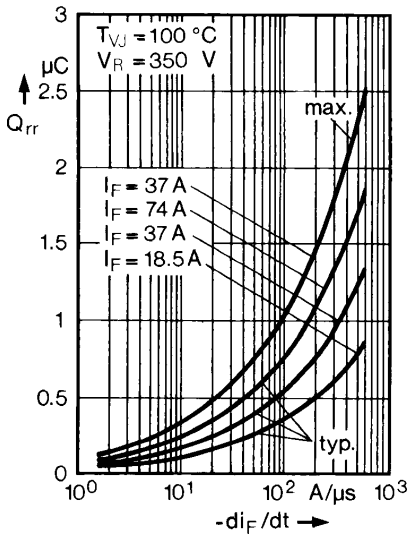


Fig. 2 Recovery charge versus $-di_F/dt$.

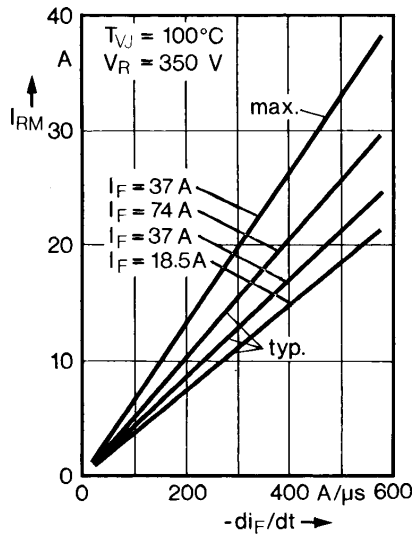


Fig. 3 Peak reverse current versus $-di_F/dt$.

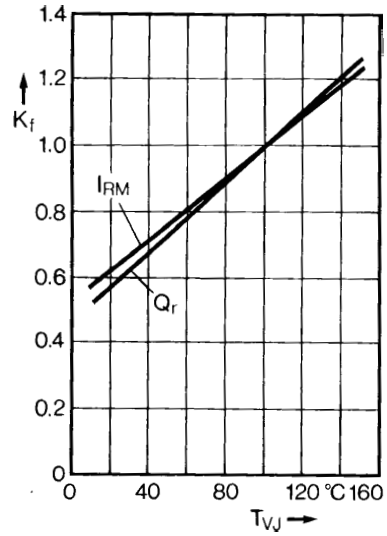


Fig. 4 Dynamic parameters versus junction temperature.

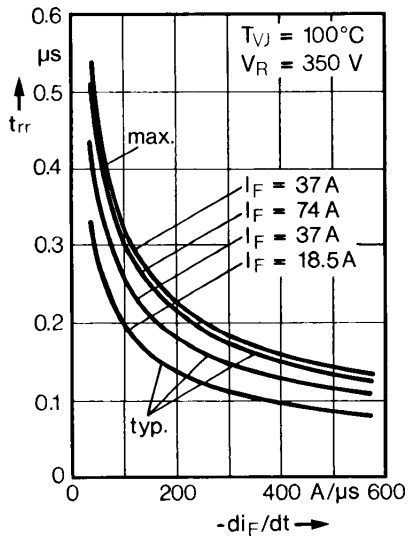


Fig. 5 Recovery time versus $-di_F/dt$.

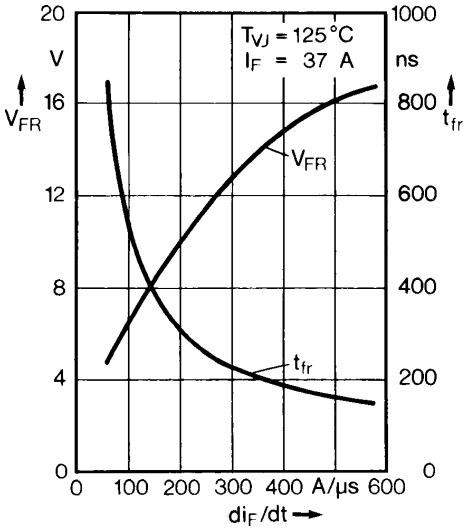


Fig. 6 Peak forward voltage versus $-di_F/dt$.

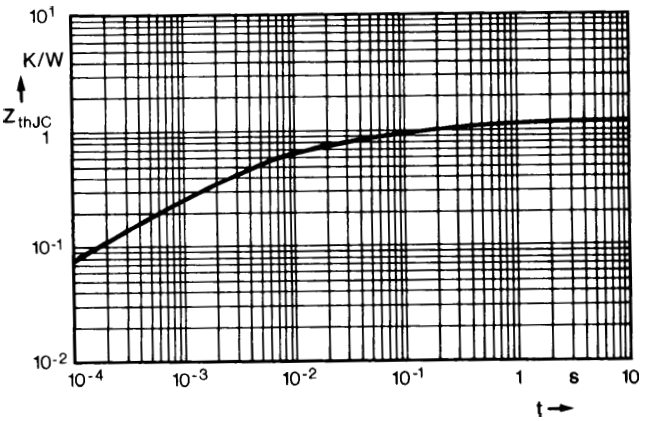
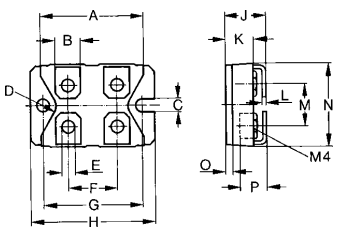


Fig. 7 Transient thermal impedance junction to case.

Dimensions



miniBLOC SOT-227 B
M4 screws (4x) supplied

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	31.5	31.7	1.241	1.249
B	7.8	8.2	0.307	0.323
C	4.0	-	0.158	-
D	4.1	4.3	0.162	0.169
E	4.1	4.3	0.162	0.169
F	14.9	15.1	0.587	0.595
G	30.1	30.3	1.186	1.193
H	38.0	38.2	1.497	1.505
J	11.8	12.2	0.465	0.481
K	8.9	9.1	0.351	0.359
L	0.75	0.85	0.030	0.033
M	12.6	12.8	0.496	0.504
N	25.2	25.4	0.993	1.001
O	1.95	2.05	0.077	0.081
P	-	5.0	-	0.197