

Fast Recovery Epitaxial Diodes

DSEI 2x30 DSEI 2x31

$$I_{FAV} = 2 \times 30 \text{ A}$$

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

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

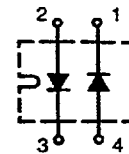
miniBLOC, SOT-227 B

V_{RSM} V	V_{RRM} V	Type	Type
440	400	DSEI 2x30-04C	DSEI 2x31-04C
540	500	DSEI 2x30-05C	DSEI 2x31-05C
640	600	DSEI 2x30-06C	DSEI 2x31-06C

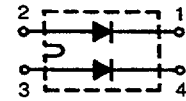
Symbol	Test Conditions	Maximum Ratings (per diode)	
I_{FRMS}	$T_{VJ} = T_{VJM}$	70	A
I_{FAVM} 1)	$T_C = 85^\circ\text{C}$; rectangular, $\delta = 0.5$	30	A
I_{FRM}	$t_p < 10 \mu\text{s}$; rep. rating, pulse width limited by T_{VJM}	375	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	300	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	320	A
	$T_{VJ} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	260	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	280	A
$\int P dt$	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	450	A^2s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	420	A^2s
	$T_{VJ} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	340	A^2s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	320	A^2s
T_{VJ}		-40...+150	$^\circ\text{C}$
T_{VJM}		150	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	100	W
V_{ISOL}	50/60 Hz $t = 1 \text{ min}$	2500	V~
	$I_{ISOL} = 1 \text{ mA}$ $t = 1 \text{ s}$	3000	V~
M_d	Mounting torque (M4)	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	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$	1.5	mA
	$T_{VJ} = 25^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$	250	μA
	$T_{VJ} = 125^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$	7	mA
V_F	$I_F = 43 \text{ A}$; $T_{VJ} = 150^\circ\text{C}$	1.4	V
	$T_{VJ} = 25^\circ\text{C}$	1.6	V
V_{TO}	For power-loss calculations only	1.01	V
r_F	$T_{VJ} = T_{VJM}$	7.1	m Ω
R_{thJC}		1.25	K/W
R_{thCK}		0.05	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}	$V_R = 350 \text{ V}$; $I_F = 30 \text{ A}$; $di_F/dt = -240 \text{ A}/\mu\text{s}$	10	A
	$L \leq 0.05 \mu\text{H}$; $T_{VJ} = 100^\circ\text{C}$	15	A

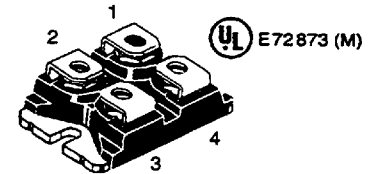
1) I_{FAVM} Rating includes reverse blocking losses at T_{VJM} , $V_R = 0.8 \cdot V_{RRM}$, duty cycle $\delta = 0.5$
Standards: DIN/IEC 747



DSEI 2x30



DSEI 2x31



Features

- International standard package miniBLOC (ISOTOP compatible)
- Isolation voltage 2500 V (RMS)
- 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 switched-mode power supplies
- Inductive heating and melting
- Uninterruptible power systems (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

34 IXYS Corporation
3540 Bassett Street, Santa Clara, CA 95054
Tel: 408-982-0700 • Fax: 408-496-0670

IXYS Semiconductor - GmbH
P.O.B. 1180 • D-68619 Lampertheim, Germany
Tel: +49-6206-5030 • Fax: +49-6206-503627

DSEI 2x30, 400-600 V

DSEI 2x31, 400-600 V

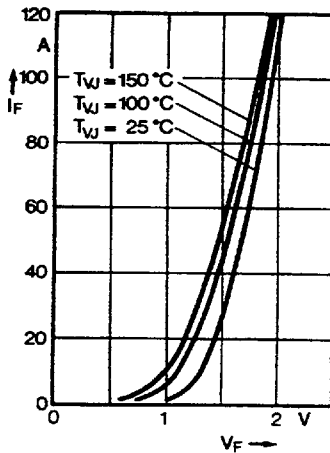


Fig. 1 Forward current versus voltage drop

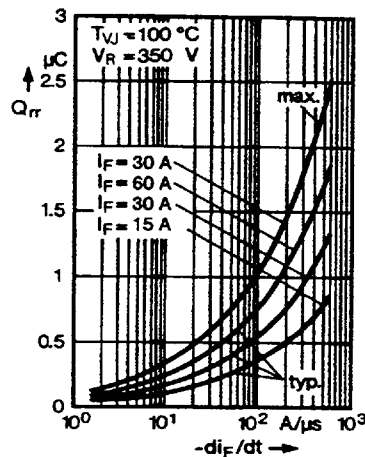


Fig. 2 Recovery charge versus $-di_F/dt$.

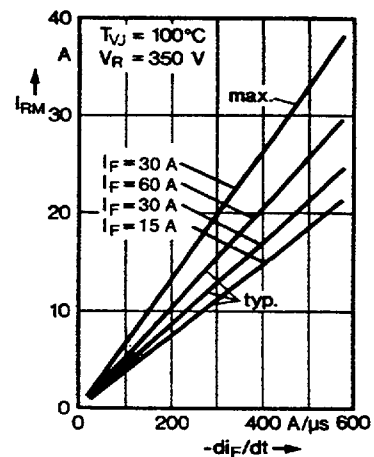


Fig. 3 Peak reverse current versus $-di_F/dt$.

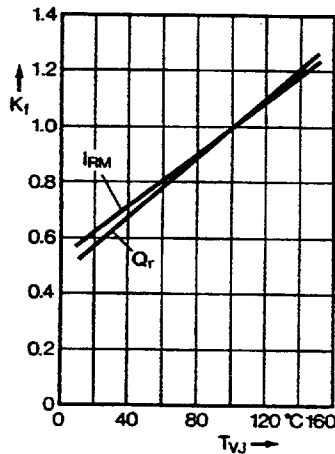


Fig. 4 Dynamic parameters versus junction temperature.

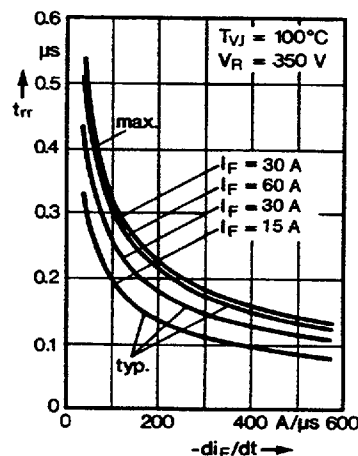


Fig. 5 Recovery time versus $-di_F/dt$.

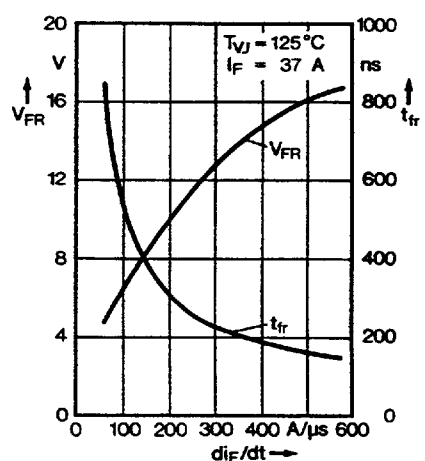


Fig. 6 Peak forward voltage versus di_F/dt .

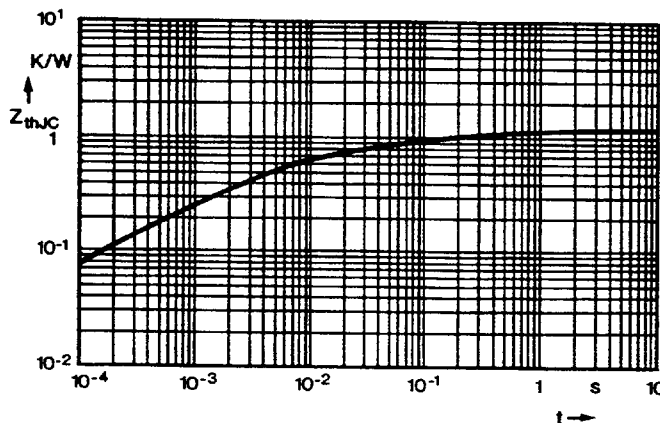
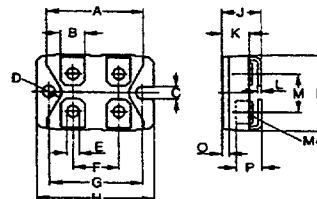


Fig. 7 Transient thermal impedance junction to case.

Dimensions



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

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