



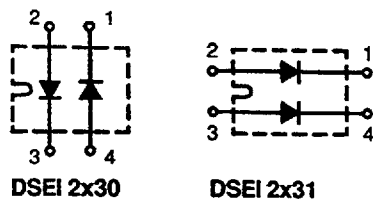
# Fast Recovery Epitaxial Diodes

# DSEI 2x30 DSEI 2x31

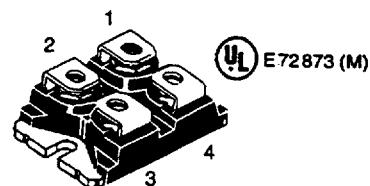
$I_{FAV} = 2x30\text{ A}$   
 $V_{RRM} = 600-1000\text{ V}$   
 $t_{rr} \leq 50\text{ ns}$

miniBLOC, SOT-227 B

$V_{RSM}$ V	$V_{RRM}$ V	Type	Type
640	600	DSEI 2x30-06B	DSEI 2x31-06B
800	800	DSEI 2x30-08B	DSEI 2x31-08B
1000	1000	DSEI 2x30-10B	DSEI 2x31-10B



Symbol	Test Conditions	Maximum Ratings (per diode)	
$I_{FRMS}$ $I_{FAVM}$ 1) $I_{FRM}$	$T_{VJ} = T_{VJM}$ $T_C = 50^\circ\text{C}$ ; rectangular, $\delta = 0.5$ $t_p < 10\ \mu\text{s}$ ; rep. rating, pulse width limited by $T_{VJM}$	70 30 375	A A A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ ; $t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	200 210	A A
	$T_{VJ} = 150^\circ\text{C}$ ; $t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	185 195	A A
$fPd$	$T_{VJ} = 45^\circ\text{C}$ $t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	200 180	A <sup>2</sup> s A <sup>2</sup> s
	$T_{VJ} = 150^\circ\text{C}$ ; $t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	170 160	A <sup>2</sup> s A <sup>2</sup> s
$T_{VJ}$ $T_{VJM}$ $T_{stg}$		-40...+150 150 -40...+150	°C °C °C
$P_{tot}$	$T_C = 25^\circ\text{C}$	100	W
$V_{ISOL}$	50/60 Hz $t = 1\text{ min}$ $I_{ISOL} = 1\text{ mA}$ $t = 1\text{ s}$	2500 3000	V~ V~
	$M_d$ Mounting torque (M4) Terminal connection torque (M4)	1.5/13 1.5/13	Nm/lb.in. Nm/lb.in.
Weight		30	g



### 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

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 $\mu\text{A}$
	$T_{VJ} = 125^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$		7 mA
$V_F$	$I_F = 36\text{ A}$ ; $T_{VJ} = 150^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$		2 V
			2.4 V
$V_{TO}$	For power-loss calculations only		1.5 V
$r_F$	$T_{VJ} = T_{VJM}$		12.5 m $\Omega$
$R_{thJC}$ $R_{thCK}$			1.25 K/W 0.05 K/W
$t_{rr}$	$I_F = 1\text{ A}$ ; $di/dt = -15\text{ A}/\mu\text{s}$ ; $V_R = 30\text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$		50 ns
$I_{RM}$	$V_R = 540\text{ V}$ ; $I_F = 30\text{ A}$ ; $di_F/dt = -240\text{ A}/\mu\text{s}$ $L \leq 0.05\ \mu\text{H}$ ; $T_{VJ} = 100^\circ\text{C}$	16	18 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, 600-1000 V  
DSEI 2x31, 600-1000 V

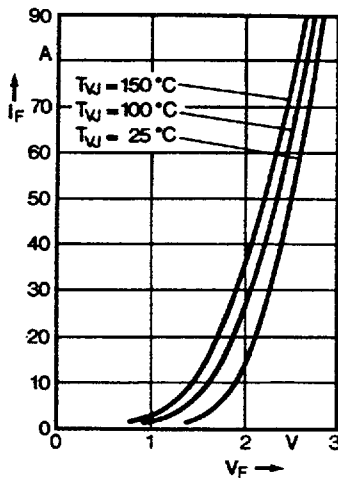


Fig. 1 Forward current versus voltage drop.

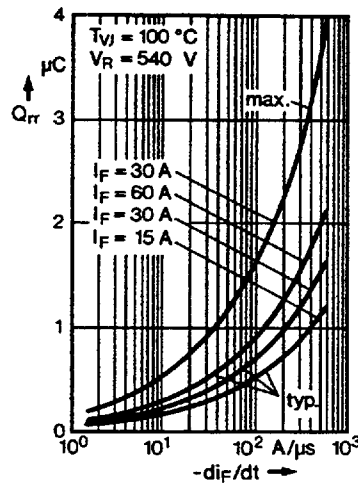


Fig. 2 Recovery charge versus  $-di_F/dt$ .

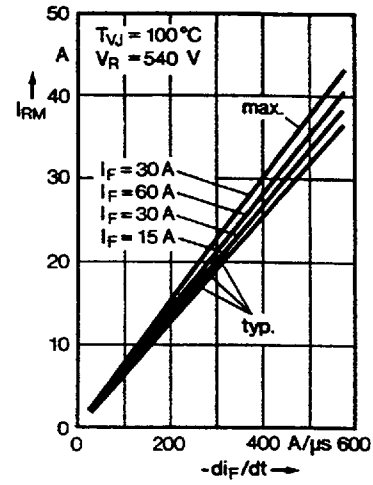


Fig. 3 Peak reverse current versus  $-di_F/dt$ .

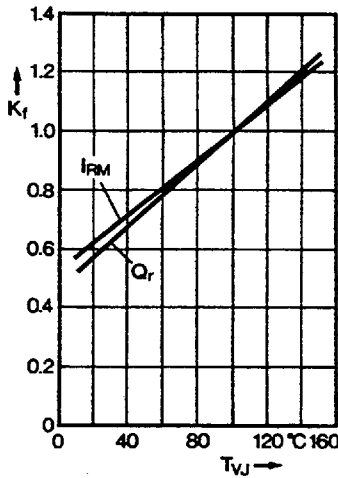


Fig. 4 Dynamic parameters versus junction temperature.

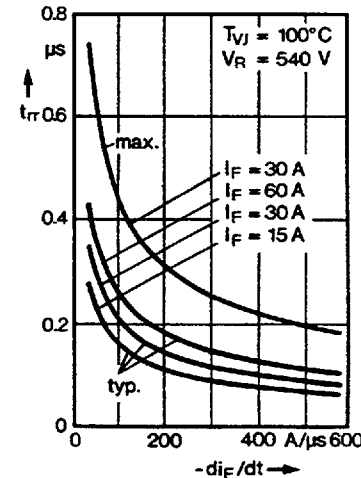


Fig. 5 Recovery time versus  $-di_F/dt$ .

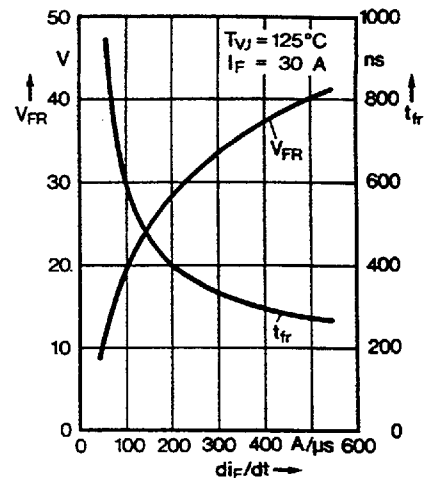


Fig. 6 Peak forward voltage versus  $-di_F/dt$ .

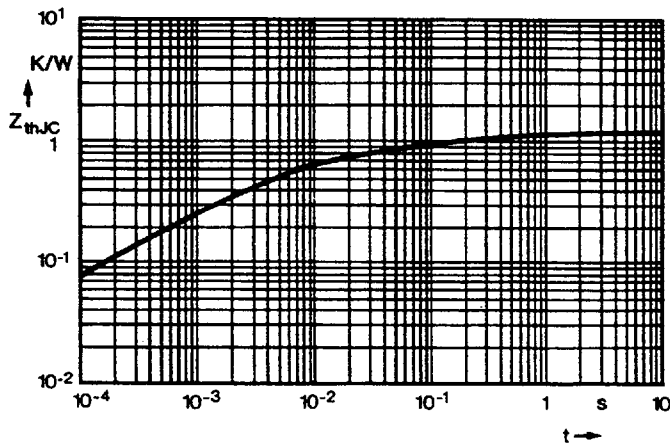
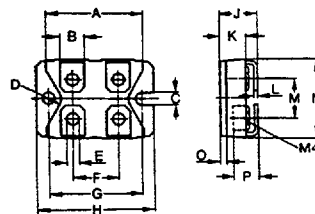


Fig. 7 Transient thermal impedance junction to case.

Dimensions



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

Dim.	Millimeter		Inches	
	Min.	Max.	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