



Fast Recovery Epitaxial Diodes

DSEI 2x61

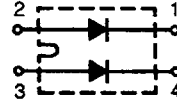
$$I_{FAV} = 2x60 \text{ A}$$

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

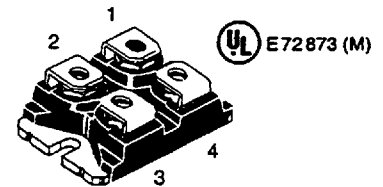
$$t_{IT} \leq 35 \text{ ns}$$

miniBLOC, SOT-227 B

V_{RSM} V	V_{RRM} V	Type
440	400	DSEI 2x61-04C
540	500	DSEI 2x61-05C
640	600	DSEI 2x61-06C



Symbol	Test Conditions	Maximum Ratings (per diode)	
I_{FRMS}	$T_{VJ} = T_{VJM}$	100	A
I_{FAVM} 1)	$T_C = 70^\circ\text{C}$; rectangular, $\delta = 0.5$	60	A
I_{FRM}	$t_p < 10 \mu\text{s}$; rep. rating, pulse width limited by T_{VJM}	800	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (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
J^2dt	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (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...+150	$^\circ\text{C}$
T_{VJM}		150	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	180	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



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_{FRM} -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	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$	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
r_F	$T_{VJ} = T_{VJM}$	4.7	m Ω
R_{thJC}		0.7	K/W
R_{thCK}		0.05	K/W
t_{IT}	$I_F = 1 \text{ A}$; $di/dt = -15 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$	35	ns
I_{FRM}	$V_R = 350 \text{ V}$; $I_F = 60 \text{ A}$; $di/dt = -480 \text{ A}/\mu\text{s}$	19	A
	$L \leq 0.05 \mu\text{H}$; $T_{VJ} = 100^\circ\text{C}$	33	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

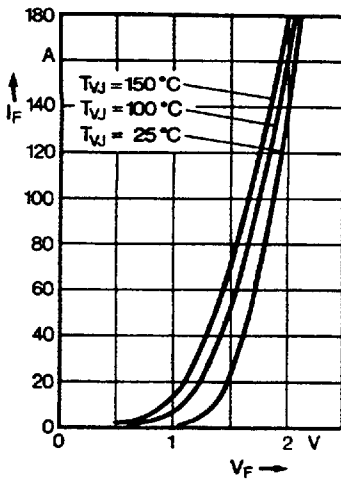


Fig. 1 Forward current versus voltage drop.

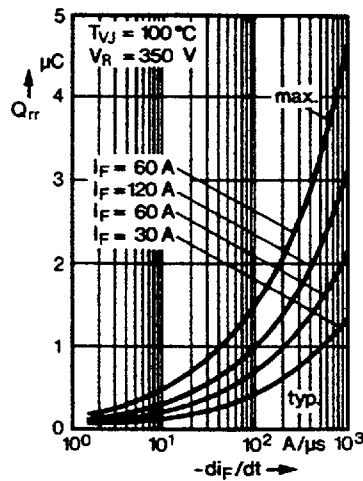


Fig. 2 Recovery charge versus $-di_F/dt$.

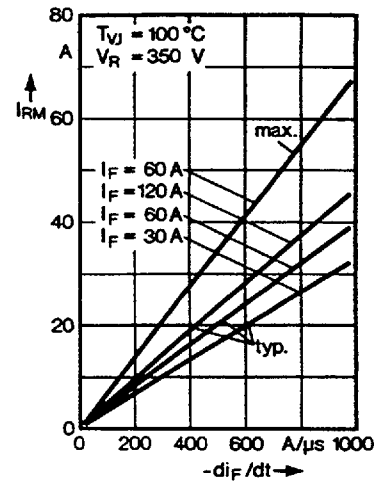


Fig. 3 Peak reverse current versus $-di_F/dt$.

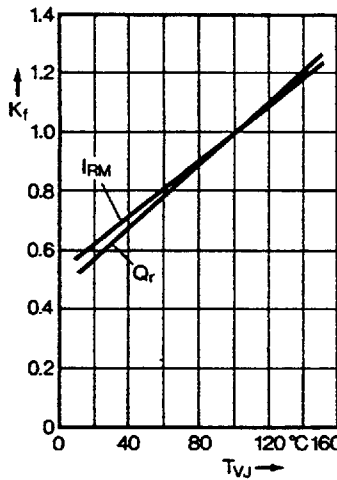


Fig. 4 Dynamic parameters versus junction temperature.

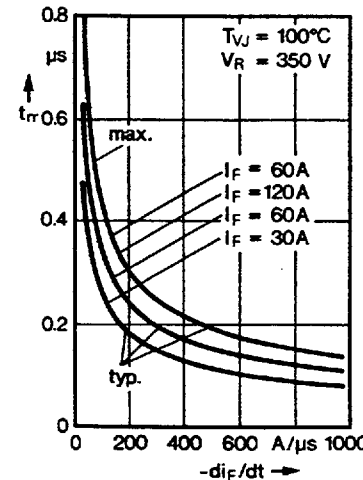


Fig. 5 Recovery time versus $-di_F/dt$.

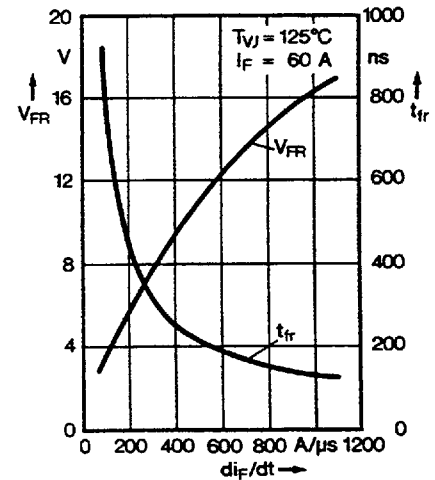


Fig. 6 Peak forward voltage versus di_F/dt .

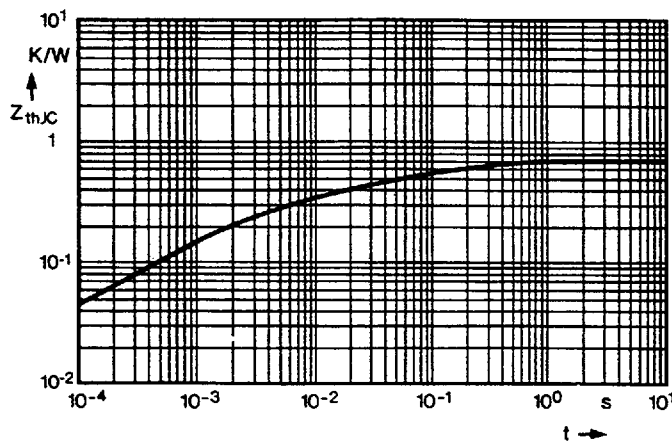
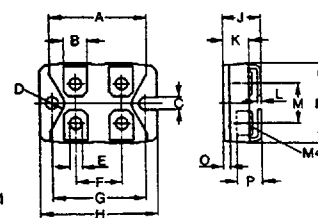


Fig. 7 Transient thermal impedance junction to case.

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