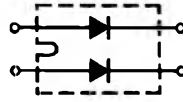


Fast Recovery Epitaxial Diodes (FRED)

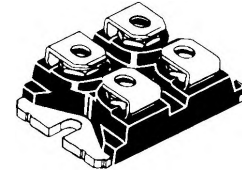
DSEI 2x121

$I_{FAVM} = 2x123 \text{ A}$
 $V_{RRM} = 200 \text{ V}$
 $t_{rr} = 35 \text{ ns}$

V_{RSM}	V_{RRM}	Type
V	V	
200	200	DSEI 2x121-02A



miniBLOC, SOT-227 B



Symbol	Test Conditions	Maximum Ratings (per diode)	
I_{FRMS}	$T_{VJ} = T_{VJM}$	150	A
I_{FAVM}^*	$T_C = 70^\circ\text{C}$; rectangular, $d = 0.5$	123	A
I_{FRM}	$t_p < 10 \mu\text{s}$; rep. rating, pulse width limited by T_{VJM}	600	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	1200	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	1300	A
	$T_{VJ} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	1080	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	1170	A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	7200	A^2s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	7100	A^2s
	$T_{VJ} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine	5800	A^2s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	5700	A^2s

T_{VJ}		-40...+150	$^\circ\text{C}$
T_{VJM}		150	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	250	W
V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq 1 \text{ mA}$	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	$T_{VJ} = 25^\circ\text{C}$	$V_R = V_{RRM}$	1 mA
	$T_{VJ} = 25^\circ\text{C}$	$V_R = 0.8 \cdot V_{RRM}$	0.5 mA
	$T_{VJ} = 125^\circ\text{C}$	$V_R = 0.8 \cdot V_{RRM}$	20 mA
V_F	$I_F = 120 \text{ A}$; $T_{VJ} = 150^\circ\text{C}$	0.89	0.95 V
	$T_{VJ} = 25^\circ\text{C}$		1.10 V
V_{T0}	For power-loss calculations only		0.7 V
r_T	$T_{VJ} = T_{VJM}$		2.1 $\text{m}\Omega$
R_{thJC}		0.1	0.5 K/W
R_{thCK}			K/W
t_{rr}	$I_F = 1 \text{ A}$; $-di/dt = 400 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$	35	50 ns
	$V_R = 100 \text{ V}$; $I_F = 100 \text{ A}$; $-di_F/dt = 200 \text{ A}/\mu\text{s}$ $L \leq 0.05 \mu\text{H}$; $T_{VJ} = 100^\circ\text{C}$	12	15 A

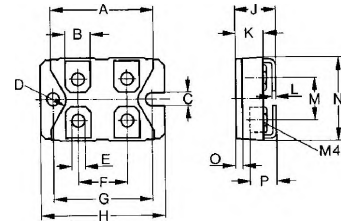
* I_{FAVM} rating includes reverse blocking losses at T_{VJM} , $V_R = 0.8 V_{RRM}$, duty cycle $d = 0.5$
Data according to DIN/IEC 747

IXYS reserves the right to change limits, test conditions and dimensions

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

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

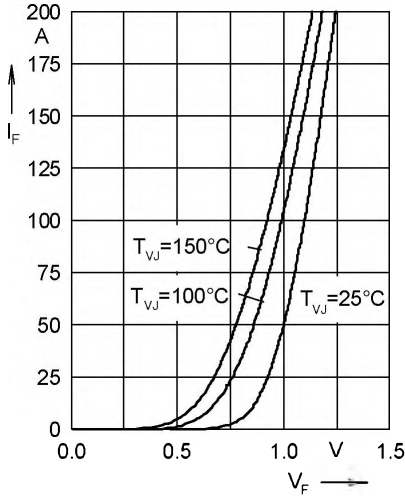


Fig. 1 Forward current I_F versus V_F

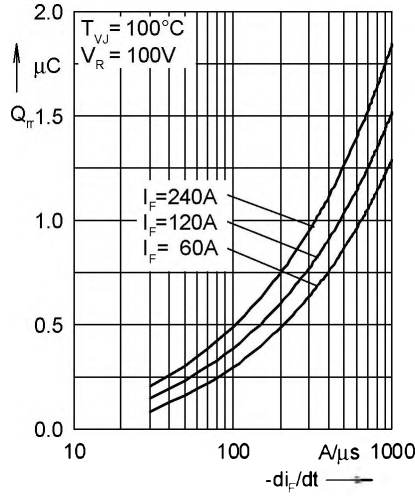


Fig. 2 Reverse recovery charge Q_{rr} versus $-di_F/dt$

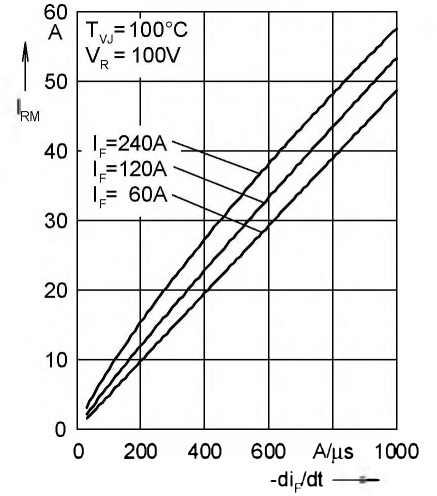


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

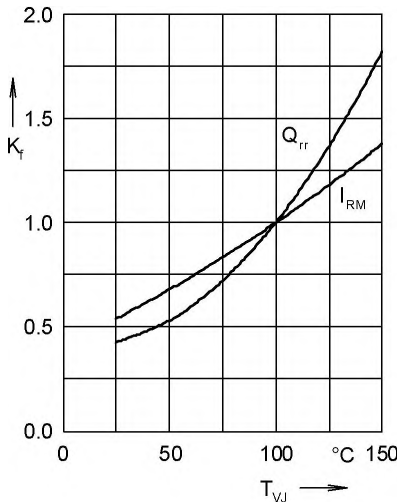


Fig. 4 Dynamic parameters Q_{rr} , I_{RM} versus T_{VJ}

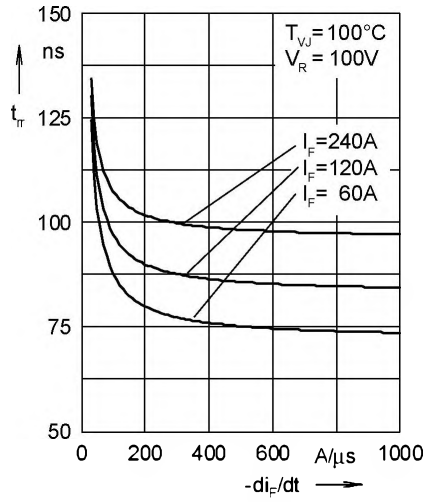


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

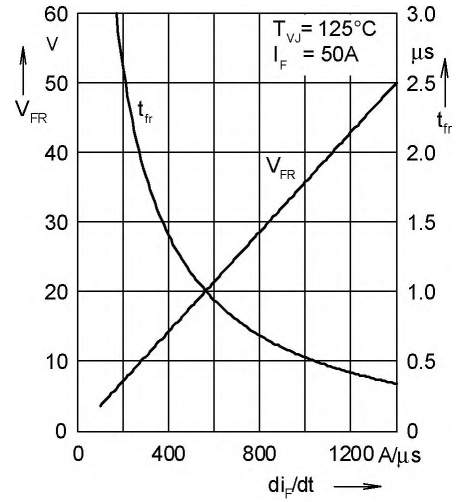


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

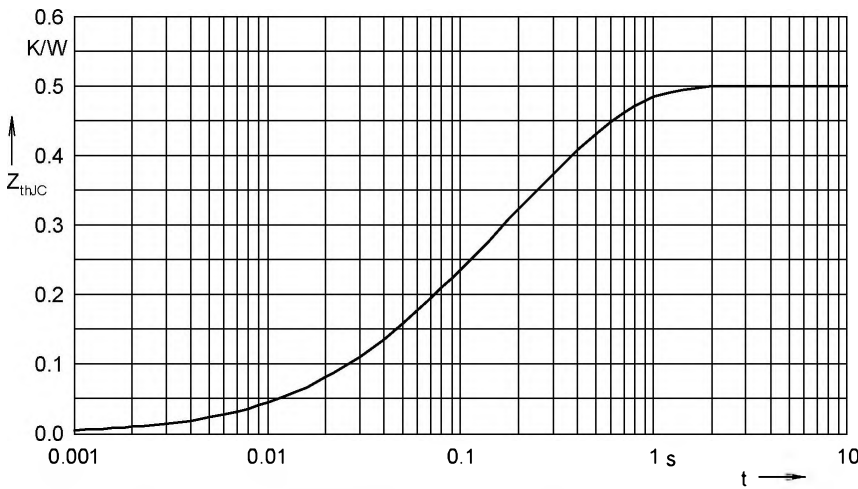


Fig. 7 Transient thermal impedance junction to case

Constants for Z_{thJS} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.109	0.028
2	0.214	0.092
3	0.429	0.35