

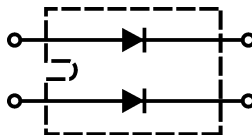
Fast Recovery Epitaxial Diode (FRED)

DSEI 2x 101

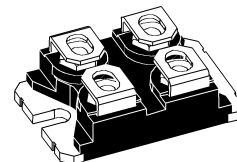
$V_{RRM} = 600\text{ V}$
 $I_{FAVM} = 2 \times 96\text{ A}$
 $t_{rr} = 35\text{ ns}$

Preliminary data

V_{RSM} V	V_{RRM} V	Type
600	600	DSEI 2x 101-06A



miniBLOC, SOT-227 B
E72873



Symbol	Test Conditions	Maximum Ratings (per diode)	
$I_{F(RMS)}$	$T_{VJ} = T_{VJM}$	150	A
$I_{F(AVIM)}^{①}$	$T_C = 70^\circ\text{C}$; rectangular, $d = 0.5$	96	A
I_{FRM}	$t_p < 10\text{ }\mu\text{s}$; rep. rating, pulse width limited by T_{VJM}	TBD	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
I^2t	$T_{VJ} = 45^\circ\text{C}$; $t = 10\text{ ms}$ (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	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$	3	mA
	$T_{VJ} = 25^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$	1	mA
	$T_{VJ} = 125^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$	20	mA
V_F	$I_F = 100\text{ A}$; $T_{VJ} = 150^\circ\text{C}$	1.17	V
	$T_{VJ} = 25^\circ\text{C}$	1.25	V
V_{T0}	For power-loss calculations only	0.70	V
r_T		4.7	$\text{m}\Omega$
R_{thJC}		0.5	K/W
R_{thCH}		0.05	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	ns
I_{RM}	$V_R = 100\text{ V}$; $I_F = 80\text{ A}$; $-di/dt = 200\text{ A}/\mu\text{s}$	19	A
	$L \leq 0.05\text{ mH}$; $T_{VJ} = 100^\circ\text{C}$	24	A

① I_{FAVM} rating includes reverse blocking losses at T_{VJM} , $V_R = 0.8 V_{RRM}$, duty cycle $d = 0.5$

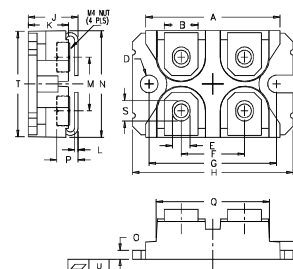
Data according to IEC 60747

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

Features

- International standard package
- miniBLOC (ISOTOP compatible)
- Isolation voltage 2500 V~
- matched diodes f. parallel operation
- Planar passivated chips
- two independent diodes
- 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	9.7	0.351	0.382
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

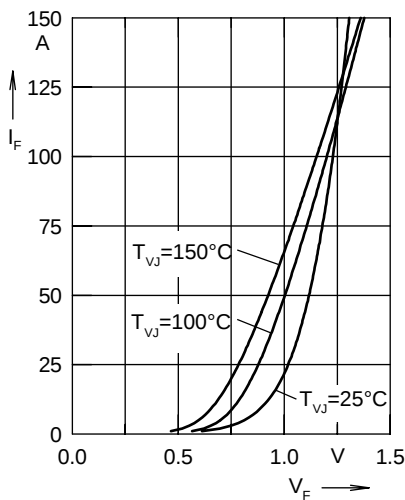


Fig. 1 Forward current I_F versus V_F

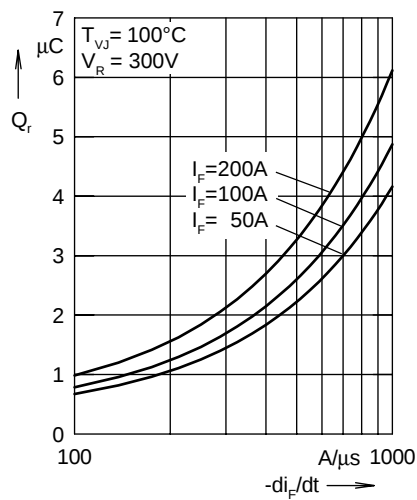


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

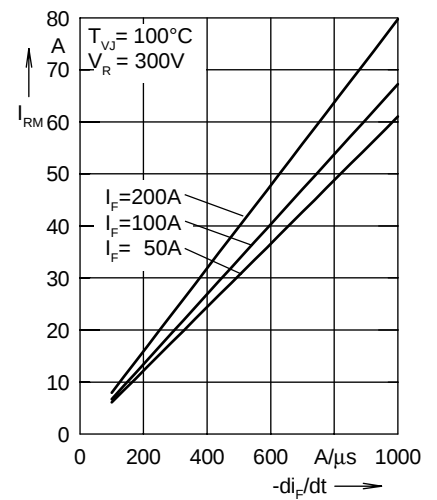


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

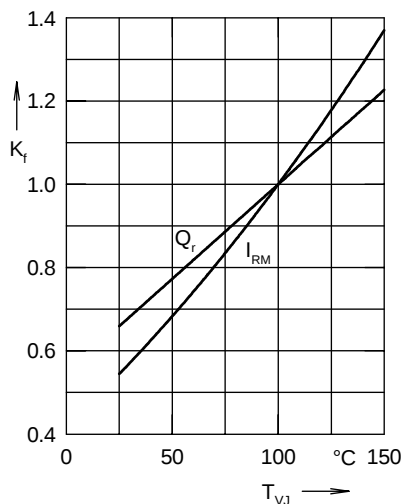


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

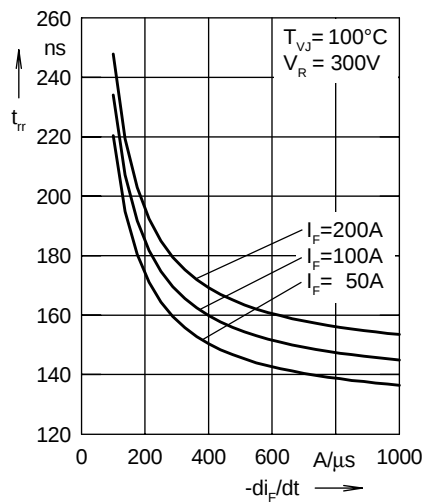


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

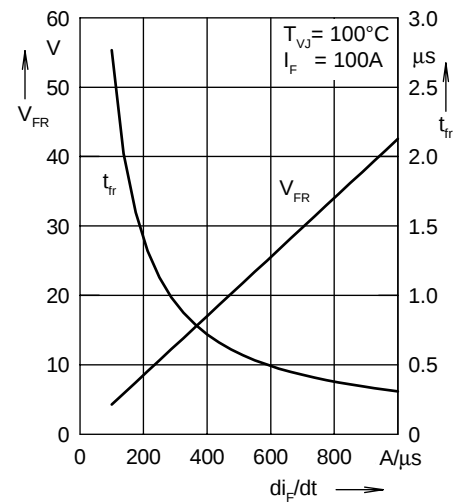


Fig. 6 Peak forward voltage V_{FR} and t_{rr} versus di_F/dt

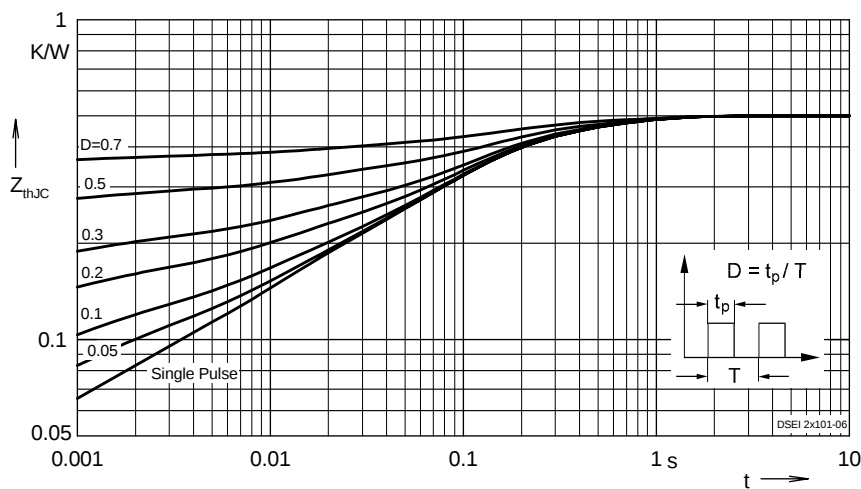


Fig. 7 Transient thermal impedance junction to case at various duty cycles

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.02	0.00002
2	0.05	0.00081
3	0.076	0.01
4	0.24	0.94
5	0.114	0.45