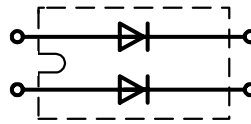


HiPerDynFRED™ Epitaxial Diode

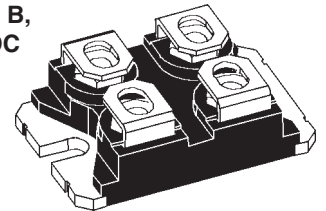
with soft recovery

$I_{FAV} = 2x25 \text{ A}$
 $V_{RRM} = 1200 \text{ V}$
 $t_{rr} = 30 \text{ ns}$

V_{RSM}	V_{RRM}	Type
V	V	
1200	1200	DSEP 2x 25-12C



SOT-227 B,
miniBLOC



Symbol	Test Conditions	Maximum Ratings	
I_{FRMS}		100	A
I_{FAVM}	$T_C = 90^\circ\text{C}$; rectangular, $d = 0.5$	25	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	250	A
E_{AS}	$T_{VJ} = 25^\circ\text{C}$; non-repetitive $I_{AS} = 1.3 \text{ A}$; $L = 180 \mu\text{H}$	0.2	mJ
I_{AR}	$V_A = 1.5 \cdot V_R$ typ.; $f = 10 \text{ kHz}$; repetitive	0.1	A
T_{VJ}		-40...+150	$^\circ\text{C}$
T_{VJM}		150	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	210	W
V_{ISOL}	50/60 Hz, RMS, $I_{ISOL} \leq 1 \text{ mA}$	2500	V~
M_d	mounting torque (M4)	1.1-1.5/9-13	Nm/lb.in.
	terminal connection torque (M4)	1.1-1.5/9-13	Nm/lb.in.
Weight	typical	30	g

Features

- International standard package miniBLOC
- 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

Applications

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{RM} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

Dimensions see Outlines.pdf

Symbol	Test Conditions	Characteristic Values	
		typ.	max.
I_R ①	$V_R = V_{RRM}$; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 150^\circ\text{C}$	0.25	mA
		2.0	mA
V_F ②	$I_F = 25 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$	3.0	V
		4.7	V
R_{thJC}		0.6	K/W
R_{thCH}	with heatsink compound	0.1	K/W
t_{rr}	$I_F = 1 \text{ A}$; $-di/dt = 200 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$	30	ns
I_{RM}	$V_R = 100 \text{ V}$; $I_F = 50 \text{ A}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$; $T_{VJ} = 100^\circ\text{C}$	3.0	4.0 A

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0%

② Pulse Width = 300 μs , Duty Cycle < 2.0%

Data according to IEC 60747 and per diode unless otherwise specified.

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

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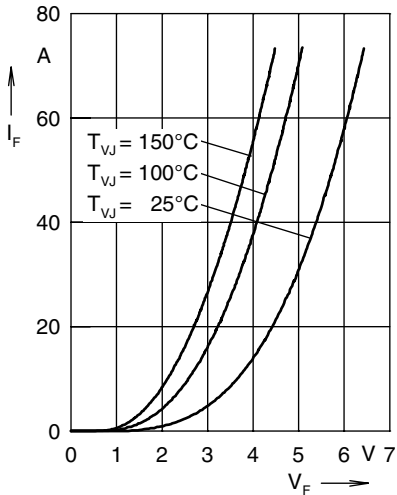


Fig. 1 Forward current I_F versus V_F

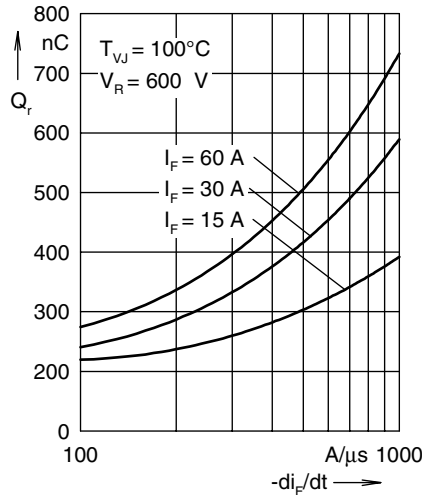


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

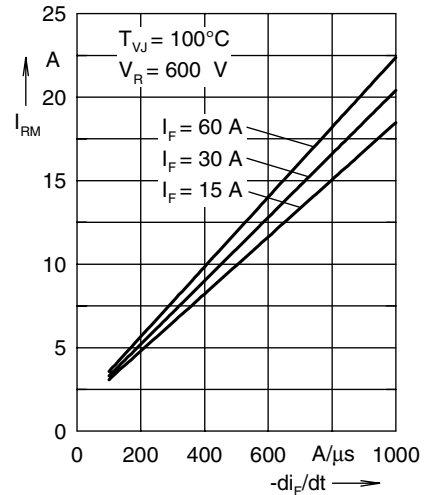


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

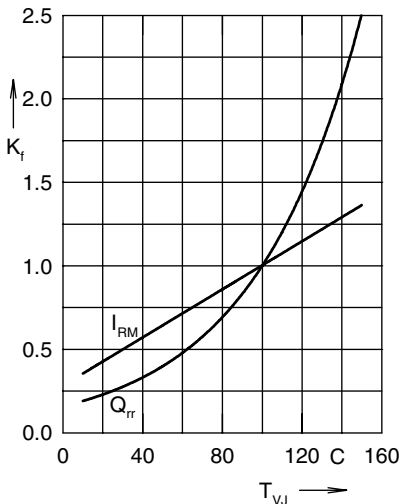


Fig. 4 Dynamic parameters Q_{fr} , I_{RM} versus T_{VJ}

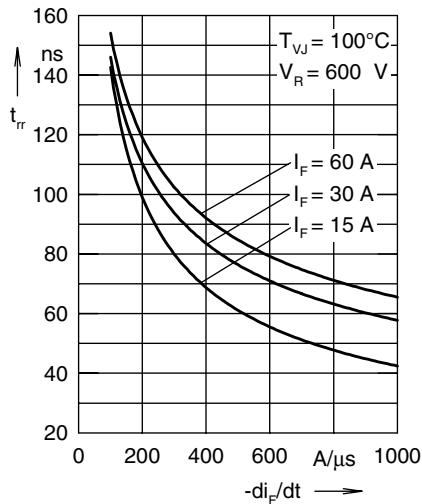


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

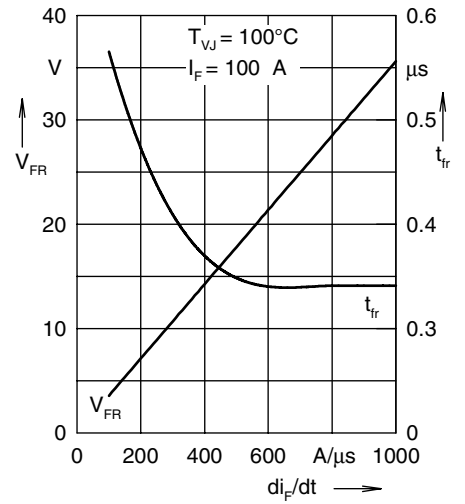


Fig. 6 Peak forward voltage V_{FR} , t_{tr} versus di_F/dt

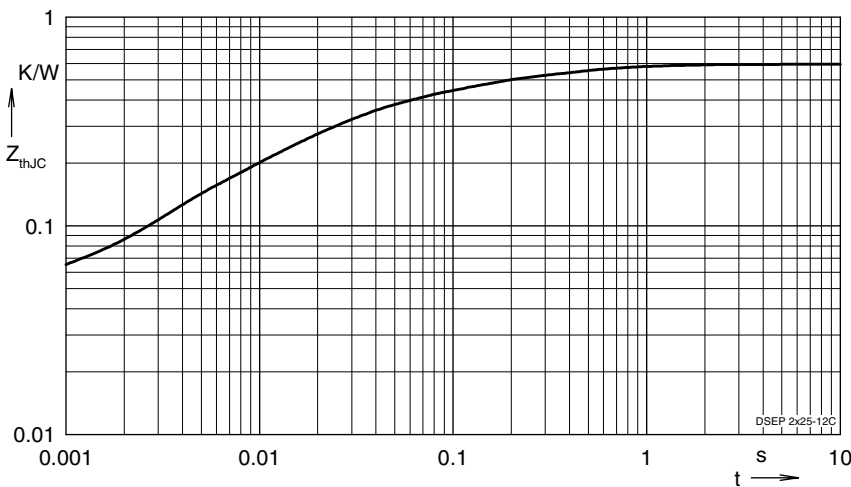


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.037	0.00024
2	0.07	0.0036
3	0.246	0.0235
4	0.176	0.142
5	0.07	0.7