

Preliminary Data

Fast Recovery Epitaxial Diode (FRED)

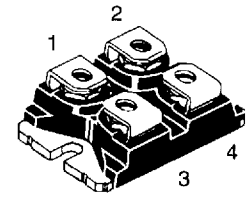
$$V_{RRM} = 200\text{ V}$$

$$I_{FAVM} = 2 \times 100\text{ A}$$

$$t_{rr} = 30\text{ ns}$$

V_{RSM}	V_{RRM}	Type
200 V	200 V	DSEI 2x101-02A

Symbol	Test Conditions	Maximum Ratings (per diode)	
I_{FRMS}	$T_{VJ} = T_{VJM}$	100	A
I_{FAVM}	$T_{VJ} = 125^\circ\text{C}; T_C = 97^\circ\text{C};$ rectangular, $\delta = 0.5$ (Note 1)	28	A
I_{FRM}	$t_p < 10\ \mu\text{s};$ rep. rating, pulse width limited by T_{VJM}	400	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C};$	$t = 10\text{ ms}$ (50 Hz), sine	600 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	660 A
	$T_{VJ} = 150^\circ\text{C};$	$t = 10\text{ ms}$ (50 Hz), sine	540 A
		$t = 8.3\text{ ms}$ (60 Hz), sine	600 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$	$t = 10\text{ ms}$ (50 Hz), sine	1800 A^2s
		$t = 8.3\text{ ms}$ (60 Hz), sine	1825 A^2s
	$T_{VJ} = 150^\circ\text{C};$	$t = 10\text{ ms}$ (50 Hz), sine	1450 A^2s
		$t = 8.3\text{ ms}$ (60 Hz), sine	1500 A^2s
T_{VJ}		-40...+150	$^\circ\text{C}$
T_{VJM}		125	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}; T_{VJ} = T_{VJM}$	250	W
V_{ISOL}	50/60 Hz, RMS	$t = 1\text{ min}$ 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

miniBLOC, SOT-227 B

 1 = Anode 2 = Cathode
 3 = Anode 4 = Cathode

Features

- Low I_{RM} -values
- Soft recovery behavior
- 3000 V~ isolation voltage
- Glass-passivated chips
- Very short recovery time
- Two independent FREDs in one package
- Extremely low losses at high switching frequencies
- International standard package miniBLOC (ISOTOP compatible)

Applications

- Anti-parallel diode for high frequency switching devices
- Anti-saturation diode
- Snubber diode
- Free-wheeling diode in converters and motor control circuits
- Rectifiers in switch-mode power supplies

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	$V_R = V_{RRM}$ $V_R = V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$	300 μA
		$T_{VJ} = 125^\circ\text{C}$	30 mA
V_F	$I_F = 100\text{ A}$ $I_F = 300\text{ A}$	$T_{VJ} = 150^\circ\text{C}$	0.9 V
		$T_{VJ} = 25^\circ\text{C}$	0.97 V
		$T_{VJ} = 25^\circ\text{C}$	1.25 V
V_{TD}	For power-loss calculations only	0.64	V
r_F	$T_{VJ} = T_{VJM}$		2.4 m Ω
R_{thJC}		0.35	K/W
R_{thCK}		0.05	K/W
t_{rr}	$V_R = 100\text{ V}; I_F = 50\text{ A}; di_F/dt = -100\text{ A}/\mu\text{s}$	150	ns
I_{RM}	$L \leq 0.05\ \mu\text{H}$ $T_{VJ} = 25^\circ\text{C}$		A

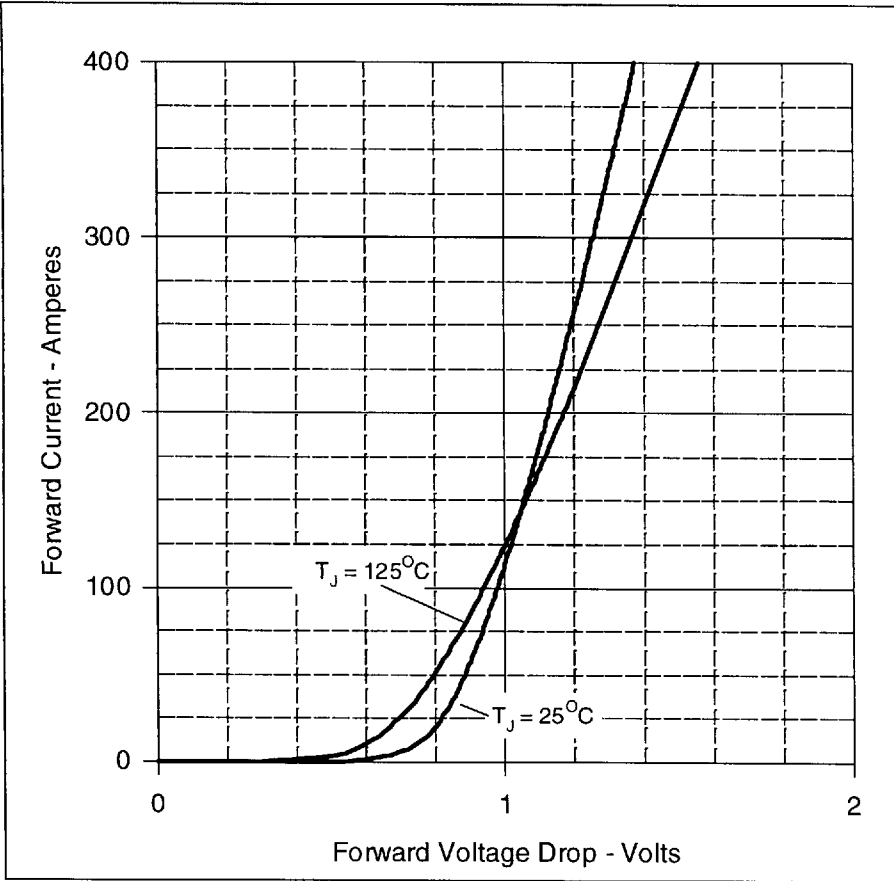
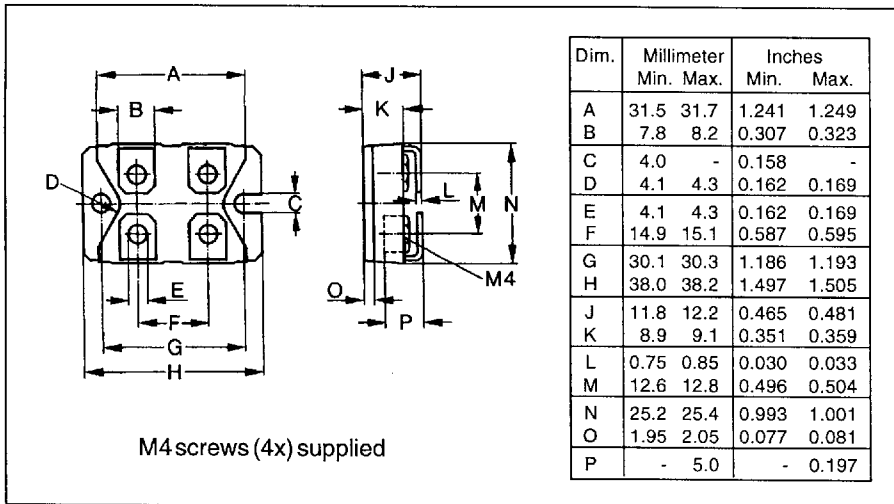


Fig. 1: Forward voltage drop



miniBLOC SOT-227 B package outline

Notes: 1. I_{FAVM} Rating includes reverse blocking losses at T_{VJ} , $V_R = V_{RRM}$, duty cycle $\delta = 0.5$

Data according to DIN/IEC 747

Data contained herein reflects the Objective Technical Specification and characterization data from engineering lots. IXYS reserves the right to change limits, test conditions and dimensions

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