

DSA240X200NA

200 V, 2 x 120 A High-Performance Schottky Diode

Low Loss and Soft Recovery Parallel Legs

RoHS



Features

- Very low V_F
- Extremely low switching losses
- High reliability circuit operation
- Low-noise switching

Benefits

- Low voltage peaks for reduced protection circuits
- Improved thermal behavior
- Longer lifetime of the system

Applications

- Rectifiers in Switch Mode Power Supplies (SMPS)
- Free wheeling diode in low voltage converters

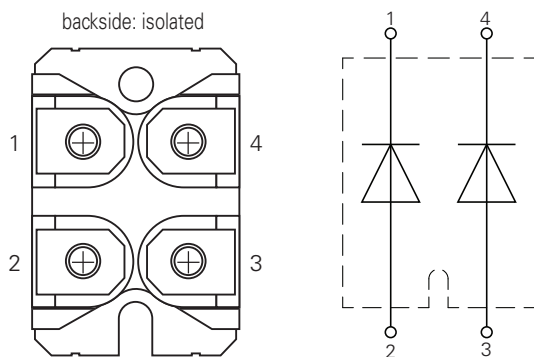
Package SOT-227B (miniBLOC)

- Isolation voltage: 3000 V ~
- RoHS compliant
- Epoxy meets UL 94V-0
- Industry standard outline
- Base plate: Copper internally DCB isolated
- Advanced power cycling

Product Summary

Characteristic	Value	Unit
V_{RRM}	200	V
$I_{F(AV)}$	2 x 120	A
V_F	0.87	V

Pinout Diagram SOT-227B (miniBLOC™)



1: Cathode; 2: Anode; 3: Anode; 4: Cathode

Maximum Ratings

Symbol	Characteristics	Condition	Value	Units
V_{RRM}	Repetitive Reverse Blocking Voltage	$T_{vj} = 25\text{ }^{\circ}\text{C}$	200	V
$I_{F(AV)}$	Average Forward Current	$T_c = 110\text{ }^{\circ}\text{C}, T_{vj} = 150\text{ }^{\circ}\text{C}$, rectangular $d = 0.5$	120	A
I_{FSM}	Non-repetitive Forward Surge Current	$t = 10\text{ ms}$, (50 Hz), sine, $V_R = 0\text{ V}, T_{vj} = 45\text{ }^{\circ}\text{C}$	1.4	kA
P_{tot}	Total Power Dissipation	$T_c = 25\text{ }^{\circ}\text{C}$	250	W
$V_{(FO)}$	Threshold Voltage	–	0.63	V
r_F	Slope Resistance	–	1.52	m Ω
T_{stg}	Storage Temperature Range	–	-55 to +150	$^{\circ}\text{C}$
T_{vj}	Virtual Junction Temperature Range	–	-55 to +150	$^{\circ}\text{C}$
T_{op}	Operating Temperature Range	–	-55 to +125	$^{\circ}\text{C}$

Electrical Characteristics – Static

Symbol	Characteristics	Conditions	Value			Units
			Min.	Typ.	Max.	
I_R	Reverse Current	$V_R = 200\text{ V}, T_{vj} = 25\text{ }^{\circ}\text{C}$	–	–	1.5	mA
		$V_R = 200\text{ V}, T_{vj} = 125\text{ }^{\circ}\text{C}$	–	–	15	
V_F	Forward Voltage	$I_F = 120\text{ A}$; Pulse, $T_{vj} = 25\text{ }^{\circ}\text{C}$	–	–	1.00	V
		$I_F = 240\text{ A}$; Pulse, $T_{vj} = 25\text{ }^{\circ}\text{C}$	–	–	1.26	
		$I_F = 120\text{ A}$; Pulse, $T_{vj} = 125\text{ }^{\circ}\text{C}$	–	–	0.87	
		$I_F = 240\text{ A}$; Pulse, $T_{vj} = 125\text{ }^{\circ}\text{C}$	–	–	1.17	
C_j	Junction Capacitance	$V_R = 24\text{ V}, f = 1\text{ MHz}$	–	902	–	pF

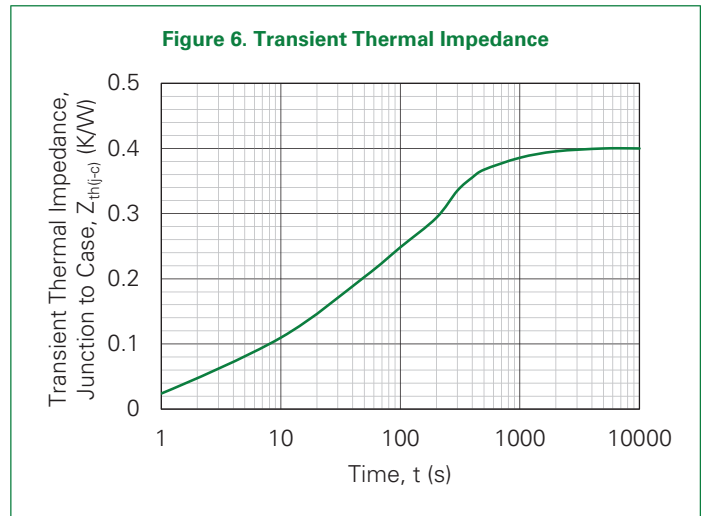
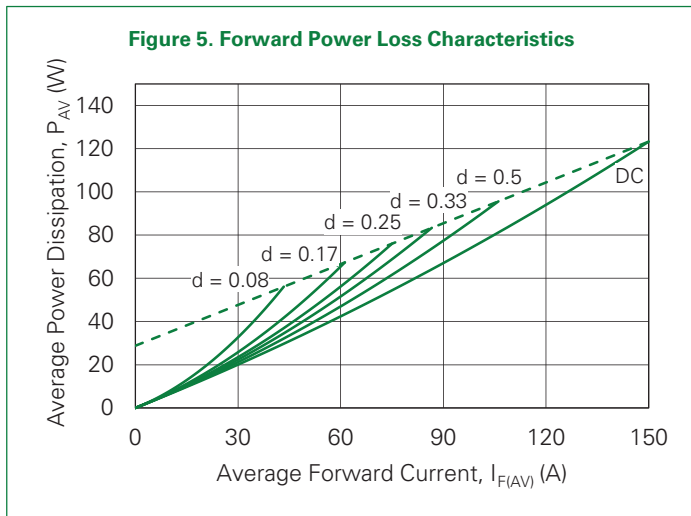
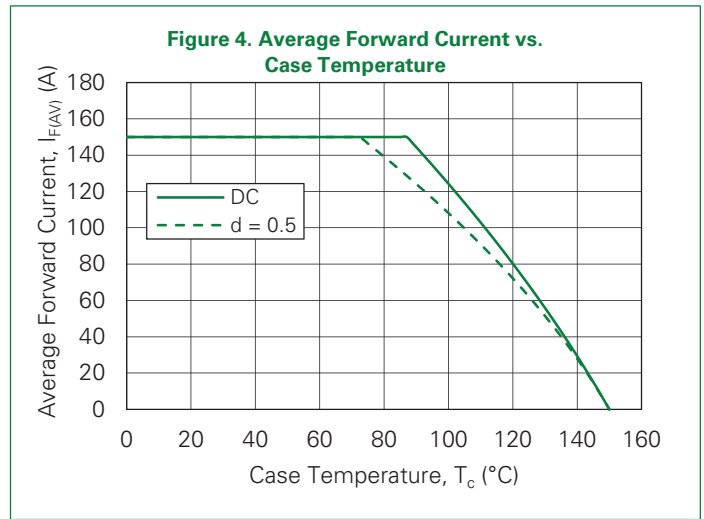
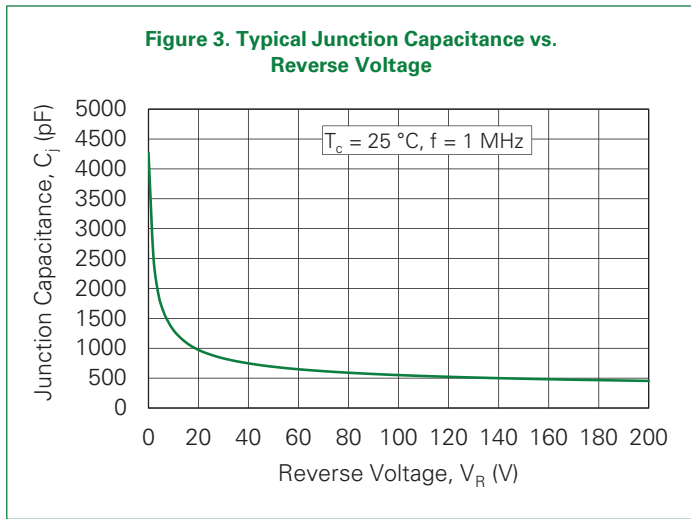
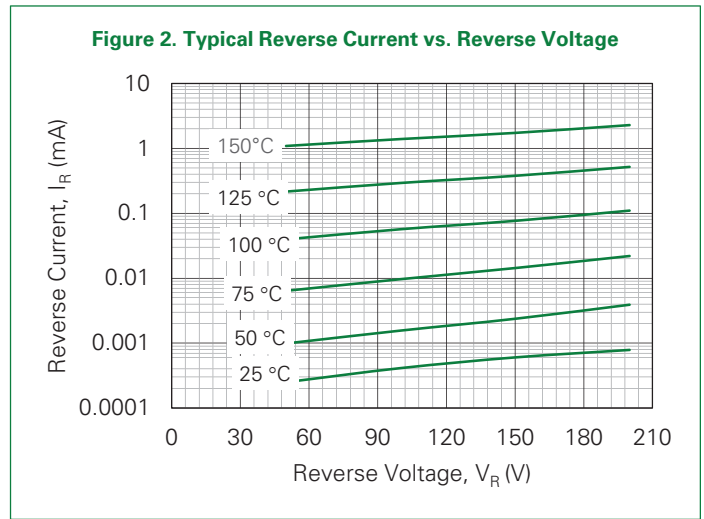
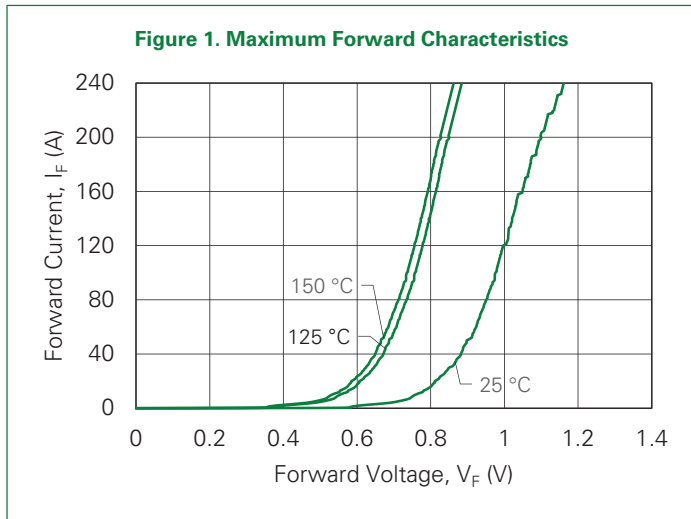
Thermal Specifications

Symbol	Characteristics	Value			Units
		Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	–	–	0.5	K/W
$R_{th(c-h)}$	Thermal Resistance, Case to Heatsink	–	0.3	–	K/W

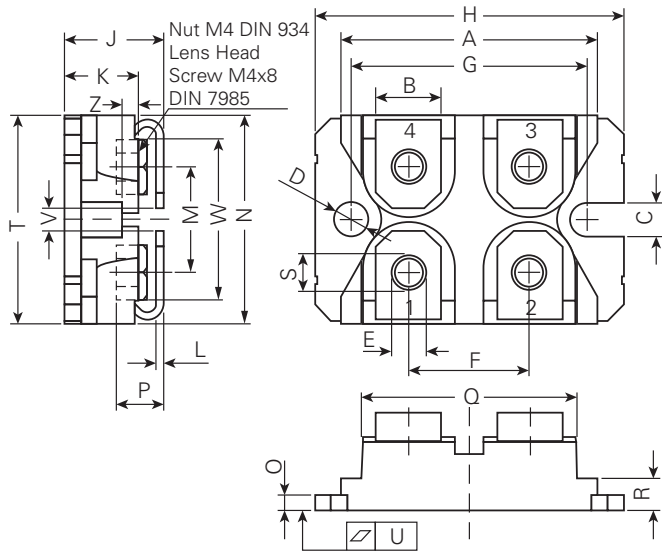
Package SOT-227B (miniBLOC)

Symbol	Characteristics	Conditions	Value			Units	
			Min.	Typ.	Max.		
I_{RMS}	RMS Current	per terminal	–	–	150	A	
M_s	Mounting Torque for Screw to Heatsink	–	1.1	–	1.5	Nm	
M_t	Mounting Torque for Terminal Screws	–	1.1	–	1.5	Nm	
$d_{spp/app}$	Creepage Distance along the Surface/ Clearance Distance in Air	terminal to terminal	3.2	–	–	mm	
$d_{spb/apb}$		terminal to backside	6.8	–	–	mm	
V_{isol}	Isolation Voltage	$t = 1\text{ sec}$	50/60 Hz, RMS; $isol \leq 1\text{ mA}$	3000	–	–	V
		$t = 1\text{ minute}$		2500	–	–	V
G	Weight	–	–	30	–	g	

Characteristic Curves

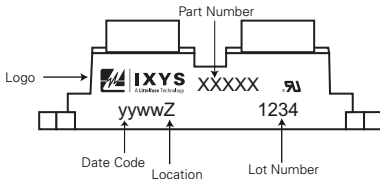


Part Outline Drawing SOT-227B (miniBLOC)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.167
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

Part Number and Marking



- D = Diode
- S = Schottky Diode
- A = Low V_F
- 240 = Current (240 A)
- X = Parallel Legs
- 200 = Voltage (200 V)
- NA = SOT-227B (miniBLOC)
- YY = Year
- WW = Work Week
- Z = Plant Location Code
- xxxx = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSA240X200NA	DSA240X200NA	Tube	10 pcs/ tube

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Part of:

