

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

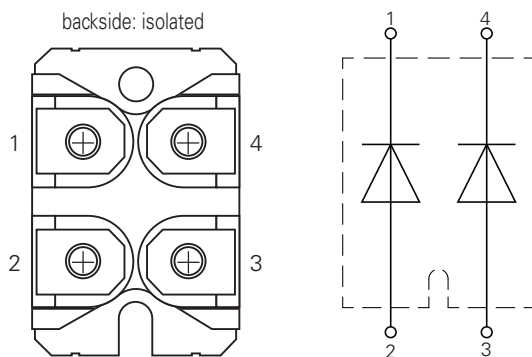
Package SOT-227B (miniBLOC)

- 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 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	mΩ
T_{stg}	Storage Temperature Range	–	-55 to +150	°C
T_{vj}	Virtual Junction Temperature Range	–	-55 to +150	°C
T_{op}	Operating Temperature Range	–	-55 to +125	°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 sec	50/60 Hz, RMS; isol ≤ 1 mA	3000	–	–	V
		t = 1 minute		2500	–	–	V
G	Weight	–		–	30	–	g

Characteristic Curves

Figure 1. Maximum Forward Characteristics

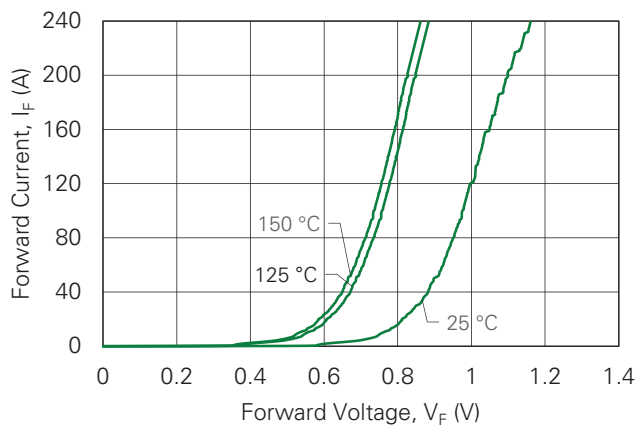


Figure 2. Typical Reverse Current vs. Reverse Voltage

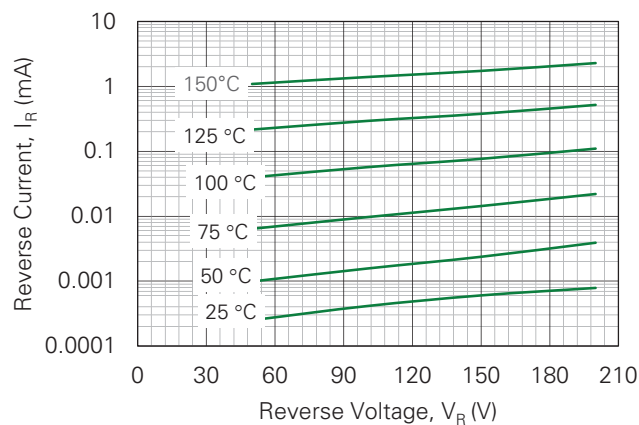


Figure 3. Typical Junction Capacitance vs. Reverse Voltage

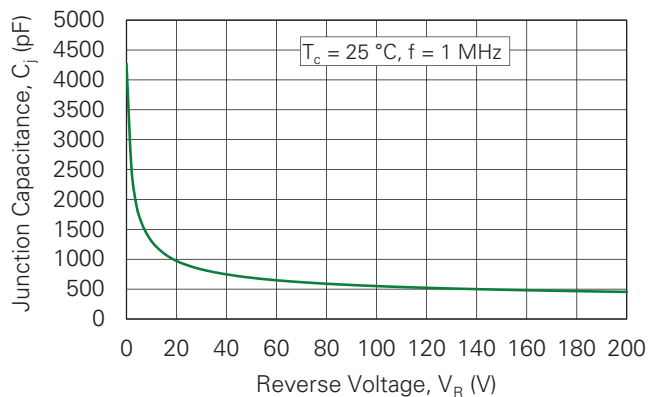


Figure 4. Average Forward Current vs. Case Temperature

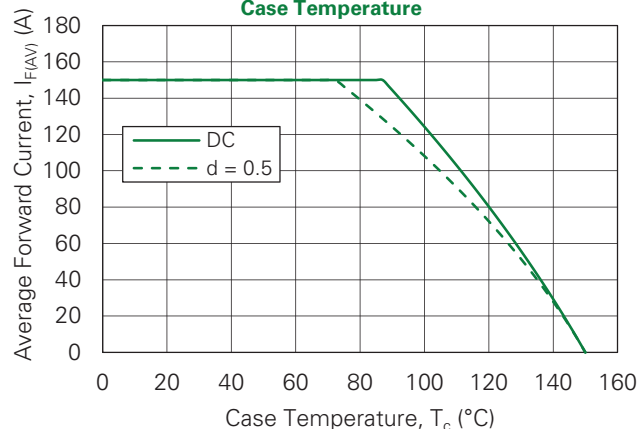


Figure 5. Forward Power Loss Characteristics

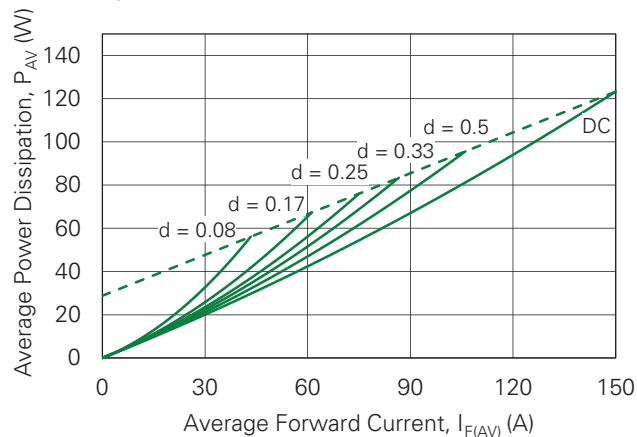
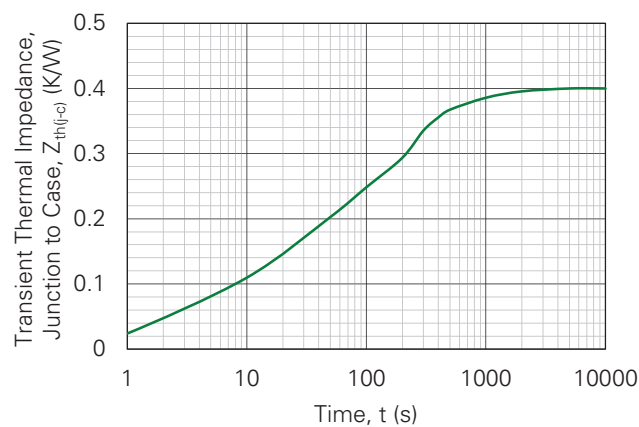
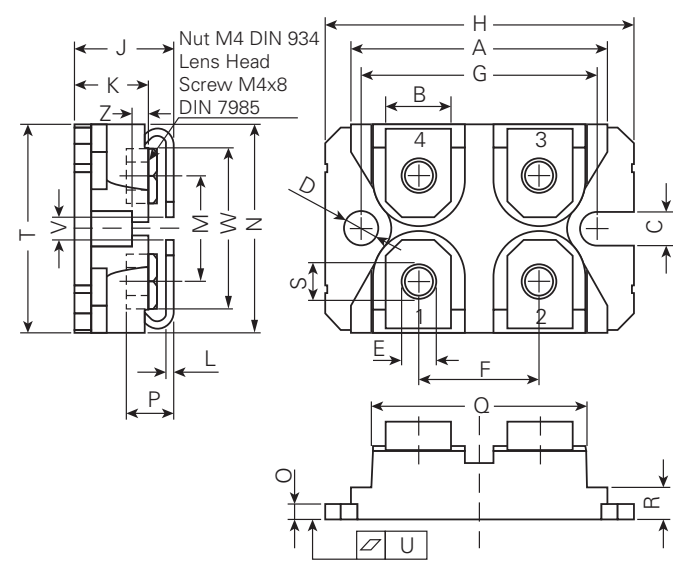


Figure 6. Transient Thermal Impedance

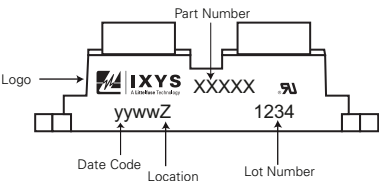


Part Outline Drawing SOT-227B (miniBLOC)



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:

