



Schottky Diode

 V_{RRM} 100 V

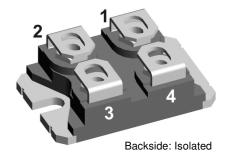
I_{FAV} 300 A

V_E 0.88 V

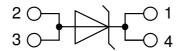
High Performance Schottky Diode Low Loss and Soft Recovery Single Diode

Part number

DSA300I100NA







Features / Advantages:

- Very low Vf
- Extremely low switching losses
- Low Irm values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

Package: SOT-227B (minibloc)

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

Terms and Conditions of Usage

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact your local sales office.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact your local sales office.

Should you intend to use the product in aviation, in health or life endangering or life support applications, please notify. For any such application we urgently recommend

to perform joint risk and quality assessments;
the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

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

Data according to IEC 60747 and per semiconductor unless otherwise specified

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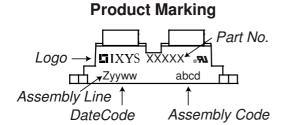


Schottky					Ratings		
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V _{RSM}	max. non-repetitive reverse blocki	ing voltage	$T_{VJ} = 25^{\circ}C$			100	V
V _{RRM}	max. repetitive reverse blocking v	oltage	$T_{VJ} = 25^{\circ}C$			100	V
IR	reverse current, drain current	$V_R = 100 \text{ V}$	$T_{VJ} = 25^{\circ}C$			3	mA
		$V_R = 100 V$	$T_{VJ} = 150$ °C			30	mΑ
V _F	forward voltage drop	I _F = 300 A	$T_{VJ} = 25^{\circ}C$			0.99	٧
		$I_F = 600 A$				1.30	٧
		$I_F = 300 \text{ A}$	T _{vJ} = 125°C			0.88	٧
		$I_F = 600 \text{ A}$				1.21	٧
I _{FAV}	average forward current	$T_c = 95^{\circ}C$	T _{vJ} = 150°C			300	Α
		rectangular $d = 0.5$					i ! !
V _{F0}	threshold voltage		T _{VJ} = 150°C			0.53	V
r _F	slope resistance } for power lo	oss calculation only				1.09	mΩ
R _{thJC}	thermal resistance junction to cas	e				0.15	K/W
R _{thCH}	thermal resistance case to heatsing	nk			0.10		K/W
P _{tot}	total power dissipation		$T_C = 25^{\circ}C$			830	W
I _{FSM}	max. forward surge current	$t = 10 \text{ ms}$; (50 Hz), sine; $V_R = 0 \text{ V}$	$T_{VJ} = 45^{\circ}C$			4.80	kA
C	junction capacitance	$V_R = 12V f = 1 MHz$	$T_{VJ} = 25^{\circ}C$		4.86		nF



Package SOT-227B (minibloc)			Ratings					
Symbol	Definition	Conditions			min.	typ.	max.	Unit
I _{RMS}	RMS current	per terminal 1)					150	Α
T _{VJ}	virtual junction temperature	е			-40		150	°C
T _{op}	operation temperature	operation temperature					125	°C
T _{stg}	storage temperature				-40		150	°C
Weight						30		g
M _D	mounting torque				1.1		1.5	Nm
\mathbf{M}_{T}	terminal torque				1.1		1.5	Nm
d _{Spp/App}	creepage distance on surface striking distance through air		10.5	3.2			mm	
d _{Spb/Apb}			terminal to backside	8.6	6.8			mm
V _{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; IsoL ≤ 1 mA		3000			٧
.002		t = 1 minute			2500			٧

¹⁾ l_{nuss} is typically limited by the pin-to-chip resistance (1); or by the current capability of the chip (2). In case of (1) and a product with multiple pins for one chip-potential, the current capability can be increased by connecting the pins as one contact.



Part description

D = Diode S = Schottky Diode

A = low VF

300 = Current Rating [A]

I = Single Diode

100 = Reverse Voltage [V] NA = SOT-227B (minibloc)

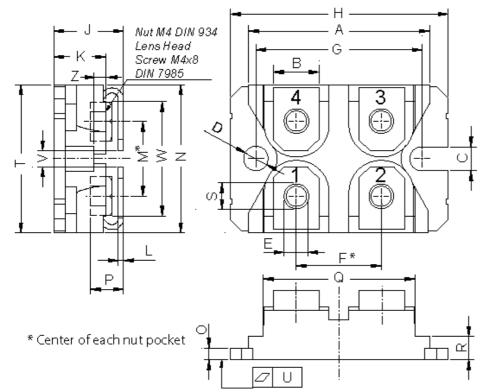
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA300I100NA	DSA300I100NA	Tube	10	509813

Similar Part	Package	Voltage class	
DSA300I45NA	SOT-227B (minibloc)	45	
DSA300I200NA	SOT-227B (minibloc)	200	

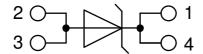
Equiva	alent Circuits for	Simulation	* on die level	T _{vJ} = 150 °C
$I \rightarrow V_0$	R _o -	Schottky		
V _{0 max}	threshold voltage	0.53		V
$R_{0 \text{ max}}$	slope resistance *	0.25		$m\Omega$



Outlines SOT-227B (minibloc)



Dim.	Millimeter		Inches		
DIIII.	min	max	min	max	
Α	31.50	31.88	1.240	1.255	
В	7.80	8.20	0.307	0.323	
С	4.09	4.29	0.161	0.169	
D	4.09	4.29	0.161	0.169	
Е	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	
Н	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	
0	1.95	2.13	0.077	0.084	
Р	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	
Т	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	
Ζ	2.50	2.70	0.098	0.106	





Schottky

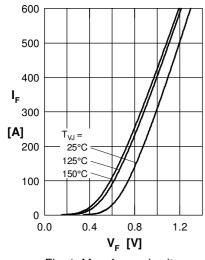


Fig. 1 Max. forward voltage drop characteristics

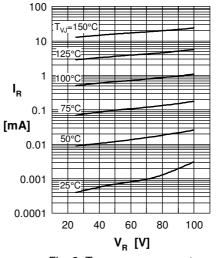


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

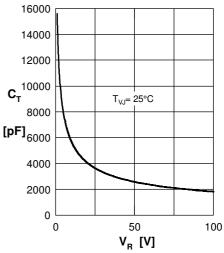


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

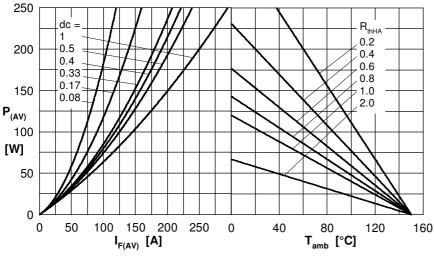


Fig. 4a Power dissipation versus direct output current Fig. 4b and ambient temperature

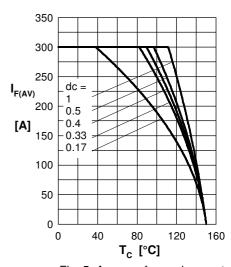


Fig. 5 Average forward current $I_{F(AV)}$ vs. case temp. T_{C}

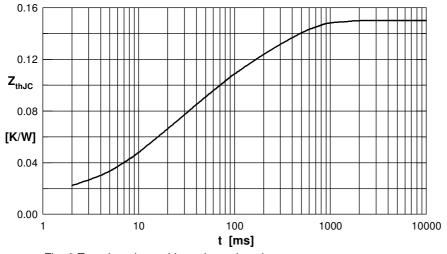


Fig. 6 Transient thermal impedance junction to case

R_{thi} [K/W]	t _i [s]
0.017	0.01
0.013	0.00001
0.02	0.01
0.05	0.045
0.05	0.3