



# Schottky Diode

200 V 10 A

 $0.75 \, V$ 

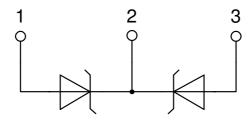
High Performance Schottky Diode Low Loss and Soft Recovery Common Cathode

Part number

#### DSA20C200PB



Backside: cathode



### 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: TO-220

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

#### 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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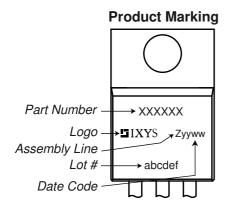




Schottky			Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V <sub>RSM</sub>	max. non-repetitive reverse blocki	ing voltage	$T_{VJ} = 25^{\circ}C$			200	V
V <sub>RRM</sub>	max. repetitive reverse blocking v	oltage	$T_{VJ} = 25^{\circ}C$			200	٧
I <sub>R</sub>	reverse current, drain current	$V_R = 200 \text{ V}$	$T_{VJ} = 25^{\circ}C$			200	μΑ
		$V_R = 200 \text{ V}$	$T_{VJ} = 125^{\circ}C$			2	mΑ
V <sub>F</sub>	forward voltage drop	I <sub>F</sub> = 10 A	$T_{VJ} = 25^{\circ}C$			0.91	٧
		$I_F = 20 \text{ A}$				1.06	٧
		I <sub>F</sub> = 10 A	T <sub>vJ</sub> = 125°C			0.75	٧
		$I_F = 20 \text{ A}$				0.90	٧
I <sub>FAV</sub>	average forward current	T <sub>C</sub> = 155°C	T <sub>vJ</sub> = 175°C			10	Α
		rectangular $d = 0.5$					i 
V <sub>F0</sub>	threshold voltage		T <sub>vJ</sub> = 175°C			0.53	٧
r <sub>F</sub>	slope resistance } for power lo	oss calculation only				14	mΩ
R <sub>thJC</sub>	thermal resistance junction to cas	e				2.4	K/W
R <sub>thCH</sub>	thermal resistance case to heatsing	nk			0.50		K/W
P <sub>tot</sub>	total power dissipation		$T_{C} = 25^{\circ}C$			65	W
I <sub>FSM</sub>	max. forward surge current	$t = 10 \text{ ms}$ ; (50 Hz), sine; $V_R = 0 \text{ V}$	$T_{VJ} = 45^{\circ}C$			220	Α
CJ	junction capacitance	$V_R = 24 V f = 1 MHz$	$T_{VJ} = 25^{\circ}C$		44		pF



Package	Package TO-220			Ratings				
Symbol	Definition	Conditions	min.	typ.	max.	Unit		
I <sub>RMS</sub>	RMS current	per terminal 1)			35	Α		
T <sub>VJ</sub>	virtual junction temperature		-55		175	°C		
T <sub>op</sub>	operation temperature		-55		150	°C		
T <sub>stg</sub>	storage temperature		-55		150	°C		
Weight				2		g		
M <sub>D</sub>	mounting torque		0.4		0.6	Nm		
F <sub>c</sub>	mounting force with clip		20		60	Ν		



#### Part description

D = Diode

S = Schottky Diode

A = low VF

20 = Current Rating [A]

C = Common Cathode

200 = Reverse Voltage [V]

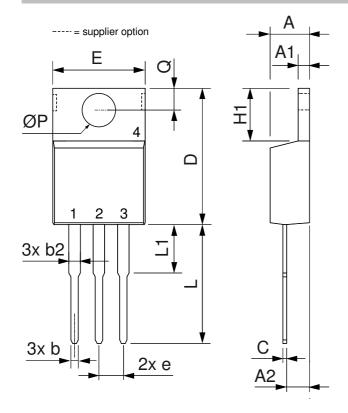
PB = TO-220AB (3)

Ordering	Ordering Number	Marking on Product	Delivery Wode	Quantity	Code No.	Ĺ
Standard	DSA20C200PB	DSA20C200PB	Tube	50	521975	

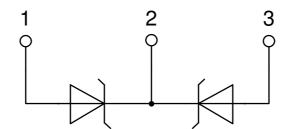
<b>Equivalent Circuits for Simulation</b>			* on die level	$T_{VJ} = 175 ^{\circ}\text{C}$
$I \rightarrow V_0$	)—[R_o]-	Schottky		
V <sub>0 max</sub>	threshold voltage	0.53		V
$R_{0  max}$	slope resistance *	10.8		$m\Omega$



## Outlines TO-220



Dim.	Millimeter		Inches		
	Min.	Max.	Min.	Max.	
Α	4.32	4.82	0.170	0.190	
A1	1.14	1.39	0.045	0.055	
A2	2.29	2.79	0.090	0.110	
b	0.64	1.01	0.025	0.040	
b2	1.15	1.65	0.045	0.065	
С	0.35	0.56	0.014	0.022	
D	14.73	16.00	0.580	0.630	
Е	9.91	10.66	0.390	0.420	
е	2.54	BSC	0.100	BSC	
H1	5.85	6.85	0.230	0.270	
L	12.70	13.97	0.500	0.550	
L1	2.79	5.84	0.110	0.230	
ØP	3.54	4.08	0.139	0.161	
Q	2.54	3.18	0.100	0.125	





## Schottky

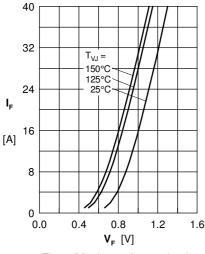


Fig. 1 Maximum forward voltage drop characteristics

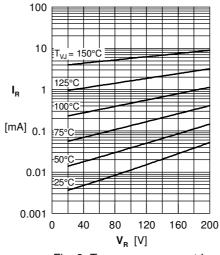


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$ 

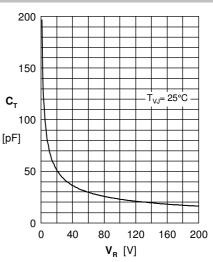


Fig. 3 Typ. junction capacitance  $C_T$  versus reverse voltage  $V_R$ 

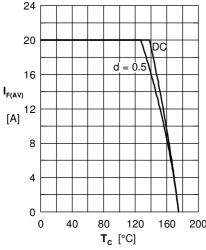


Fig. 4 Avg: forward current  $I_{F(AV)}$ vs. case temperature  $T_C$ 

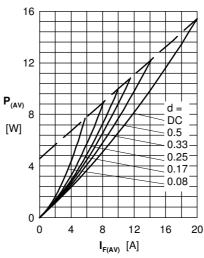


Fig. 5 Forward power loss characteristics

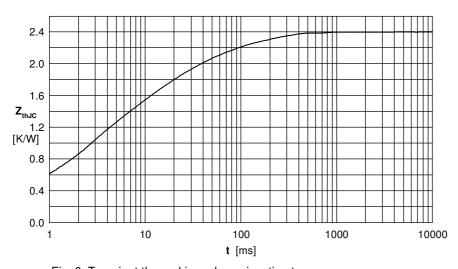


Fig. 6 Transient thermal impedance junction to case