# VS-SD2000C..L Series

**Vishay Semiconductors** 

# Standard Recovery Diodes, (Hockey PUK Version), 2100 A



B-PUK (DO-200AB)

PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub> 2100 A					
Package	B-PUK (DO-200AB)				
Circuit configuration Single					

## FEATURES

- Wide current range
- High voltage ratings up to 1000 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style B-PUK (DO-200AB)
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

## **TYPICAL APPLICATIONS**

- Converters
- Power supplies
- High power drives
- · Auxiliary system supplies for traction applications

MAJOR RATINGS AND CHARACTERISTICS						
PARAMETER	TEST CONDITIONS	VALUES	UNITS			
1		2100	A			
IF(AV)	T <sub>hs</sub>	55	°C			
1		3900	A			
IF(RMS)	T <sub>hs</sub>	25	°C			
I <sub>FSM</sub>	50 Hz	23 900				
	60 Hz	25 000	— A			
l <sup>2</sup> t	50 Hz	2857	– kA <sup>2</sup> s			
1-1	60 Hz	2608	KA2S			
V <sub>RRM</sub>	Range	400 to 1000	V			
TJ		-40 to +180	°C			

#### **ELECTRICAL SPECIFICATIONS**

VOLTAGE RATINGS								
TYPE NUMBER	VOLTAGE CODE	V <sub>RRM</sub> , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V <sub>RSM</sub> , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I <sub>RRM</sub> MAXIMUM AT T <sub>J</sub> = 180 °C mA				
	04	400	500					
VS-SD2000CL	08	800	900	60				
	10	1000	1100					

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FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS			VALUES	UNITS
Maximum average forward current	1	180° conduction, half sine wave			2100 (1040)	А
at heatsink temperature	I <sub>F(AV)</sub>	Double side (s	single side) coole	ed	55 (85)	°C
Maximum RMS forward current	I <sub>F(RMS)</sub>	25 °C heatsin	k temperature de	ouble side cooled	3900	
		t = 10 ms	No voltage		23 900	A kA <sup>2</sup> s
Maximum peak, one-cycle forward,		t = 8.3 ms	reapplied		25 000	
non-repetitive surge current	I <sub>FSM</sub>	t = 10 ms	100 % V <sub>RRM</sub>		20 100	
		t = 8.3 ms	reapplied	Sinusoidal half wave, initial T <sub>J</sub> = T <sub>J</sub> maximum	21 000	
	l <sup>2</sup> t	t = 10 ms	No voltage		2857	
Maximum I <sup>2</sup> t for fusing		t = 8.3 ms	reapplied		2608	
		t = 10 ms	100 % V <sub>RRM</sub> reapplied		2020	
		t = 8.3 ms			1844	
Maximum I <sup>2</sup> √t for fusing	l²√t	t = 0.1 to 10 n	ns, no voltage re	applied	28 570	kA²√s
Low level value of threshold voltage	V <sub>F(TO)1</sub>	(16.7 % x π x	$I_{F(AV)} < I < \pi \times I_{F(AV)}$	0.74	V	
High level value of threshold voltage	V <sub>F(TO)2</sub>	$(I > \pi \times I_{F(AV)}),$	T <sub>J</sub> = T <sub>J</sub> maximur	0.86	v	
Low level value of forward slope resistance	r <sub>f1</sub>	(16.7 % x $\pi$ x I <sub>F(AV)</sub> < I < $\pi$ x I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> maximum			0.13	mW
High level value of forward slope resistance	r <sub>f2</sub>	$(I > \pi \times I_{F(AV)}),$	T <sub>J</sub> = T <sub>J</sub> maximur	n	0.12	11177
Maximum forward voltage drop	V <sub>FM</sub>	I <sub>pk</sub> = 6000 A, T	J = TJ maximum	, t <sub>p</sub> = 10 ms sinusoidal wave	1.55	V

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction operating temperature range	TJ		-40 to +180	°C	
Maximum storage temperature range	T <sub>Stg</sub>		-55 to +200		
Maximum thermal resistance,		DC operation single side cooled	0.073	K/W	
unction to heatsink R <sub>thJ-hs</sub>		DC operation double side cooled	0.031	r\/ vv	
Mounting force, ± 10 %			14 700 (1500)	N (kg)	
Approximate weight			255	g	
Case style		See dimensions - link at the end of datasheet B-PUK (DO-200AE		-200AB)	

CONDUCTION ANGLE	SINUSOIDAL CONDUCTION RECTANGULAR CONDUCTION						
CONDUCTION ANGLE	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE	TEST CONDITIONS	UNITS	
180°	0.009	0.009	0.006	0.006			
120°	0.011	0.011	0.011	0.011		K/W	
90°	0.014	0.014	0.015	0.015	$T_J = T_J maximum$		
60°	0.020	0.020	0.021	0.021			
30°	0.036	0.036	0.036	0.036			

Note

• The table above shows the increment of thermal resistance R<sub>thJ-hs</sub> when devices operate at different conduction angles than DC



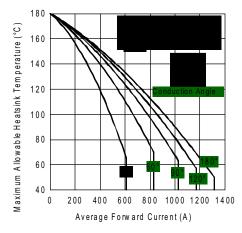


Fig. 1 - Current Ratings Characteristics

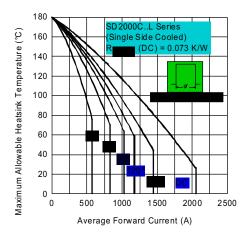


Fig. 2 - Current Ratings Characteristics

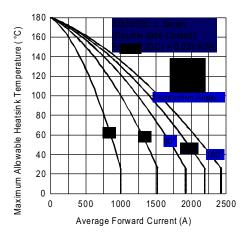


Fig. 3 - Current Ratings Characteristics

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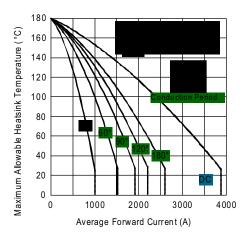


Fig. 4 - Current Ratings Characteristics

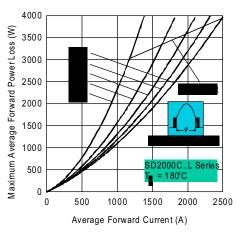


Fig. 5 - Forward Power Loss Characteristics

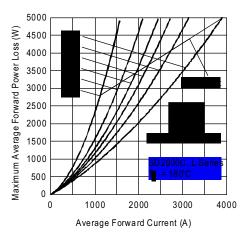


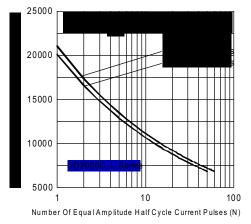
Fig. 6 - Forward Power Loss Characteristics

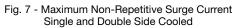
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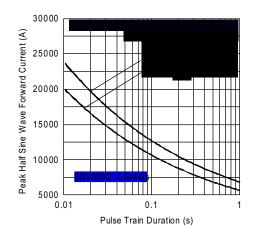


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

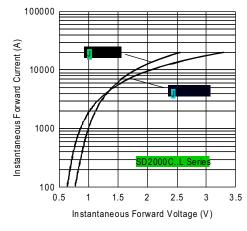


Fig. 9 - Forward Voltage Drop Characteristics

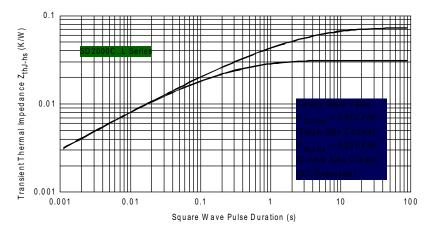


Fig. 10 - Thermal Impedance Z<sub>thJ-hs</sub> Characteristics

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Device code	VS-	SD	200	0	с	10	L
	1	2	3	4	5	6	7
ļ	1 -		-	niconduc	ctors pro	oduct	
	<ul> <li>2 - Diode</li> <li>3 - Essential part number</li> </ul>						
[	-	- 0 = standard recovery					
l	5 - 6 -	-	ceramic	c PUK le x 100		(see V	oltage F
[	<del>-</del> 7 -		•	se B-PU		• •	•

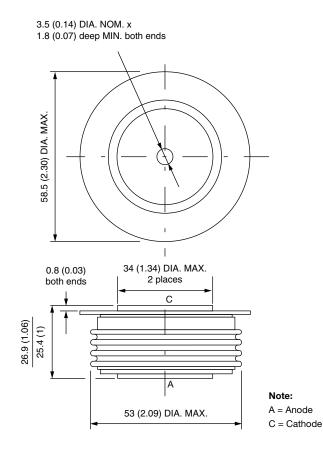
LINKS TO RELATED DOCUMENTS				
Dimensions	www.vishay.com/doc?95246			





B-PUK (DO-200AB)

#### **DIMENSIONS** in millimeters (inches)



Quote between upper and lower pole pieces has to be considered after application of mounting force (see Thermal and Mechanical Specifications)



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