

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



B-PUK (DO-200AB)

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 www.vishay.com/doc?99912



RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2100 A
Package	B-PUK (DO-200AB)
Circuit configuration	Single

MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		2100	A
	T_{hs}	55	°C
$I_{F(RMS)}$		3900	A
	T_{hs}	25	°C
I_{FSM}	50 Hz	23 900	A
	60 Hz	25 000	
I^2t	50 Hz	2857	kA ² s
	60 Hz	2608	
V_{RRM}	Range	400 to 1000	V
T_J		-40 to +180	°C

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS

TYPE NUMBER	VOLTAGE CODE	V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT $T_J = 180$ °C mA
VS-SD2000C..L	04	400	500	60
	08	800	900	
	10	1000	1100	

**FORWARD CONDUCTION**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current at heatsink temperature	$I_{F(AV)}$	180° conduction, half sine wave Double side (single side) cooled	2100 (1040) 55 (85)	A °C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled	3900	
Maximum peak, one-cycle forward, non-repetitive surge current	I_{FSM}	$t = 10\text{ ms}$ $t = 8.3\text{ ms}$ No voltage reapplied 100 % V_{RRM} reapplied	23 900 25 000 20 100 21 000	A
Maximum I^2t for fusing	I^2t	$t = 10\text{ ms}$ $t = 8.3\text{ ms}$ No voltage reapplied 100 % V_{RRM} reapplied	2857 2608 2020 1844	kA^2s
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ to 10 ms , no voltage reapplied	28 570	$kA^2\sqrt{s}$
Low level value of threshold voltage	$V_{F(TO)1}$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ maximum	0.74	V
High level value of threshold voltage	$V_{F(TO)2}$	$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ maximum	0.86	
Low level value of forward slope resistance	r_{f1}	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ maximum	0.13	mW
High level value of forward slope resistance	r_{f2}	$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ maximum	0.12	
Maximum forward voltage drop	V_{FM}	$I_{pk} = 6000\text{ A}$, $T_J = T_J$ maximum, $t_p = 10\text{ ms}$ sinusoidal wave	1.55	V

THERMAL AND MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating temperature range	T_J		-40 to +180	°C
Maximum storage temperature range	T_{Stg}		-55 to +200	
Maximum thermal resistance, junction to heatsink	R_{thJ-hs}	DC operation single side cooled DC operation double side cooled	0.073 0.031	K/W
Mounting force, $\pm 10\%$			14 700 (1500)	N (kg)
Approximate weight			255	g
Case style		See dimensions - link at the end of datasheet	B-PUK (DO-200AB)	

 ΔR_{thJ-hs} CONDUCTION

CONDUCTION ANGLE	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.009	0.009	0.006	0.006	$T_J = T_J$ maximum	K/W
120°	0.011	0.011	0.011	0.011		
90°	0.014	0.014	0.015	0.015		
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_{thJ-hs} when devices operate at different conduction angles than DC

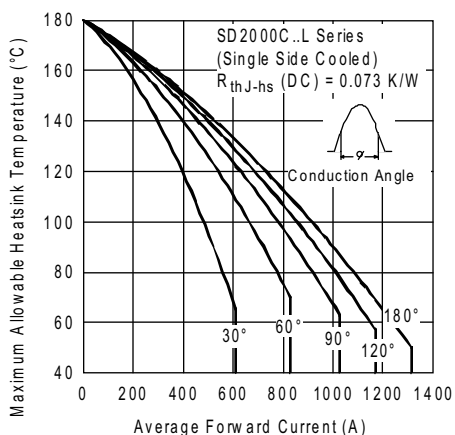


Fig. 1 - Current Ratings Characteristics

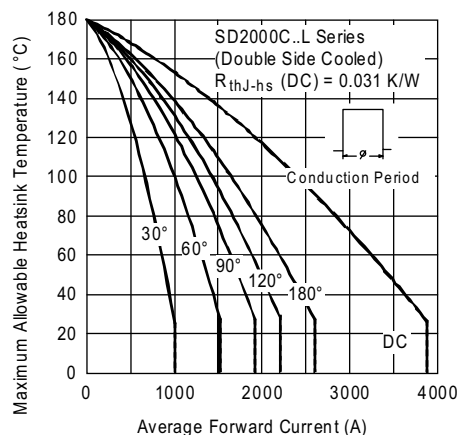


Fig. 4 - Current Ratings Characteristics

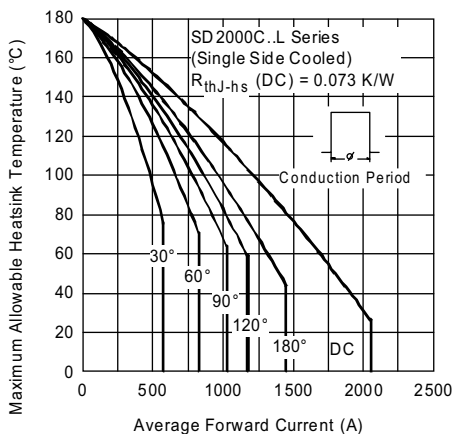


Fig. 2 - Current Ratings Characteristics

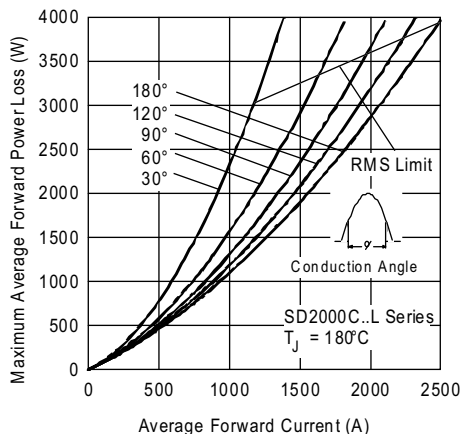


Fig. 5 - Forward Power Loss Characteristics

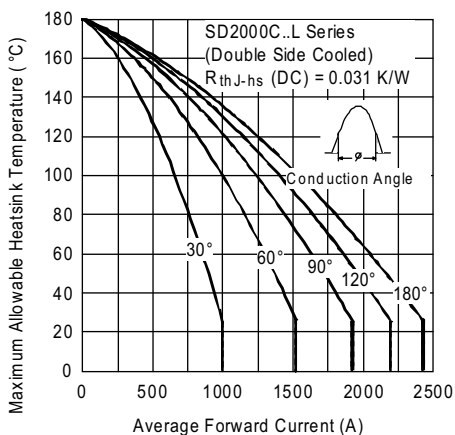


Fig. 3 - Current Ratings Characteristics

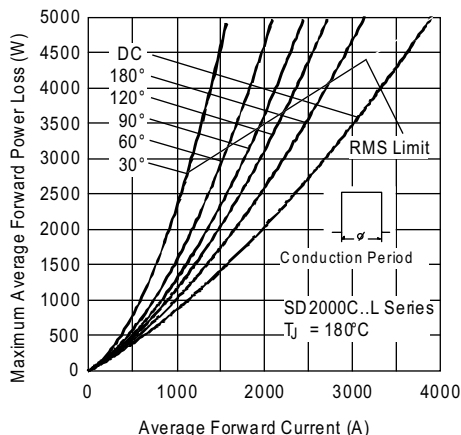


Fig. 6 - Forward Power Loss Characteristics

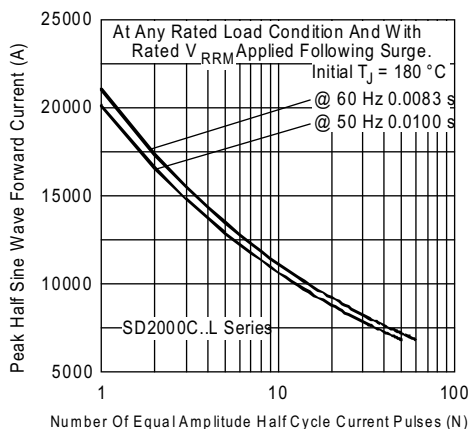


Fig. 7 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

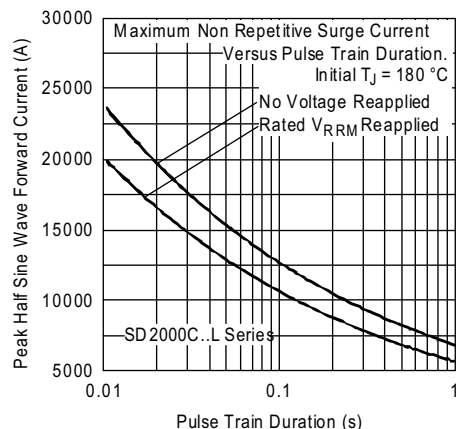


Fig. 8 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

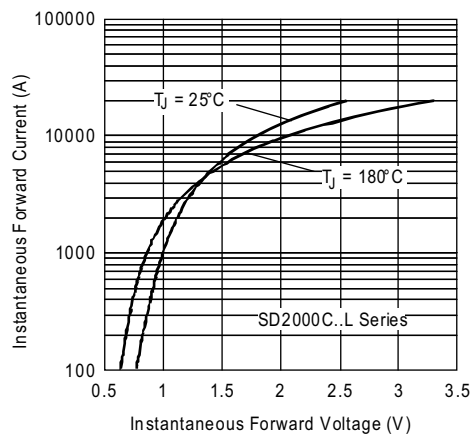


Fig. 9 - Forward Voltage Drop Characteristics

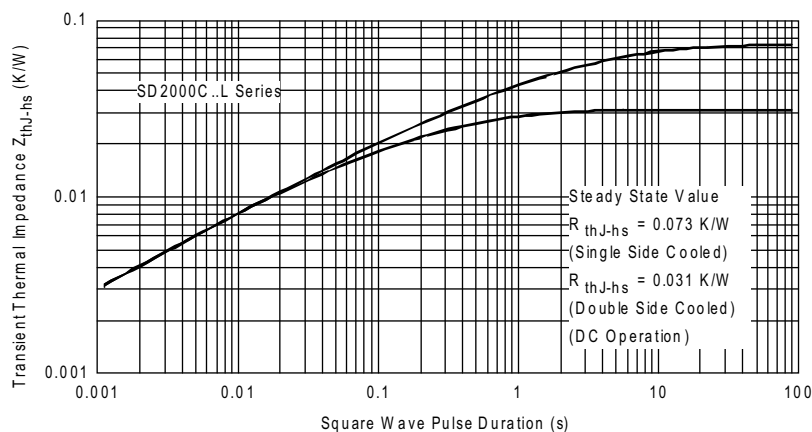


Fig. 10 - Thermal Impedance Z_{thJ-hs} Characteristics



ORDERING INFORMATION TABLE

Device code	VS-	SD	200	0	C	10	L
	1	2	3	4	5	6	7

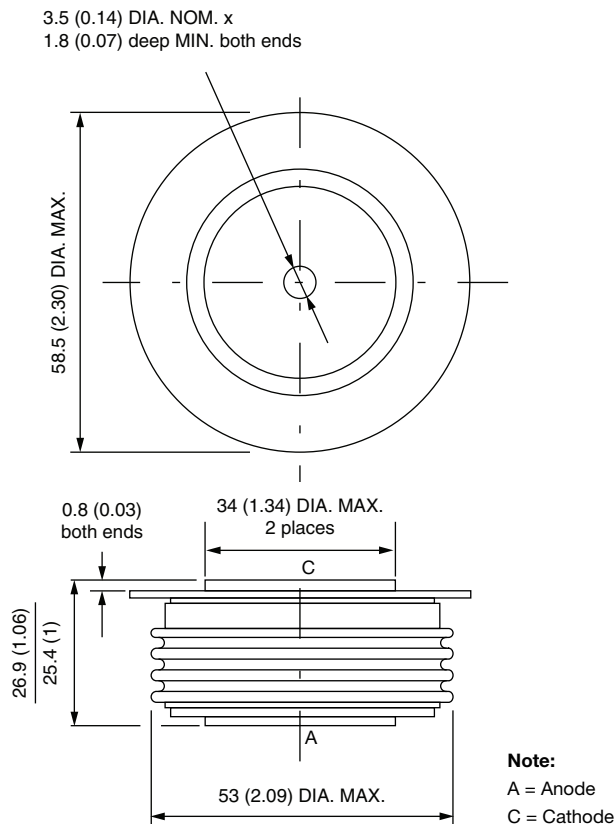
- | | | |
|---|---|--|
| 1 | - | Vishay Semiconductors product |
| 2 | - | Diode |
| 3 | - | Essential part number |
| 4 | - | 0 = standard recovery |
| 5 | - | C = ceramic PUK |
| 6 | - | Voltage code x 100 = V_{RRM} (see Voltage Ratings table) |
| 7 | - | L = PUK case B-PUK (DO-200AB) |

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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