

## Standard Recovery Diodes, (Hockey PUK Version), 1600 A



B-PUK (DO-200AB)


**RoHS  
COMPLIANT**
**FEATURES**

- Wide current range
- High voltage ratings up to 3000 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](http://www.vishay.com/doc?99912)

**TYPICAL APPLICATIONS**

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications

**PRIMARY CHARACTERISTICS**

$I_{T(AV)}$	1600 A
Package	B-PUK (DO-200AB)
Circuit configuration	Single

**MAJOR RATINGS AND CHARACTERISTICS**

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		1600	A
	$T_{hs}$	55	°C
$I_{F(RMS)}$		3010	A
	$T_{hs}$	25	°C
$I_{FSM}$	50 Hz	16 600	A
	60 Hz	17 400	
$I^2t$	50 Hz	1386	kA <sup>2</sup> s
	60 Hz	1265	
$V_{RRM}$	Range	400 to 3000	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 $T_J = T_J$ MAXIMUM mA
VS-SD1500C..L	04	400	500	50
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	25	2500	2600	
	30	3000	3100	



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		1600 (820)	A
				55 (85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled		3010	A
Maximum peak, one cycle, non-repetitive surge current	$I_{FSM}$	t = 10 ms	No voltage reapplied	16 600	
		t = 8.3 ms	No voltage reapplied	17 400	
		t = 10 ms	100 % $V_{RRM}$ reapplied	14 000	
		t = 8.3 ms	100 % $V_{RRM}$ reapplied	14 700	
Maximum $I^2t$ for fusing	$I^2t$	t = 10 ms	No voltage reapplied	1386	kA <sup>2</sup> s
		t = 8.3 ms	No voltage reapplied	1265	
		t = 10 ms	100 % $V_{RRM}$ reapplied	980	
		t = 8.3 ms	100 % $V_{RRM}$ reapplied	895	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		13 860	kA <sup>2</sup> √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		0.83	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$ ), $T_J = T_J$ maximum		0.95	
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		0.27	mΩ
High level value of forward slope resistance	$r_{f2}$	(I > $\pi \times I_{F(AV)}$ ), $T_J = T_J$ maximum		0.25	
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 3000$ A $T_J = T_J$ maximum, $t_p = 10$ ms sinusoidal wave		1.64	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		0.073	K/W
		DC operation double side cooled		0.031	
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-200AB)	

$\Delta R_{thJ-hs}$ 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°	0.035	0.035	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

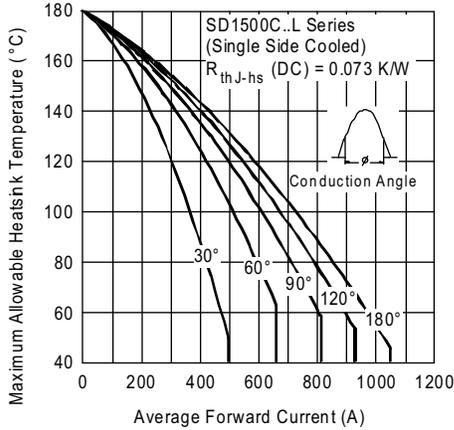


Fig. 1 - Current Ratings Characteristics

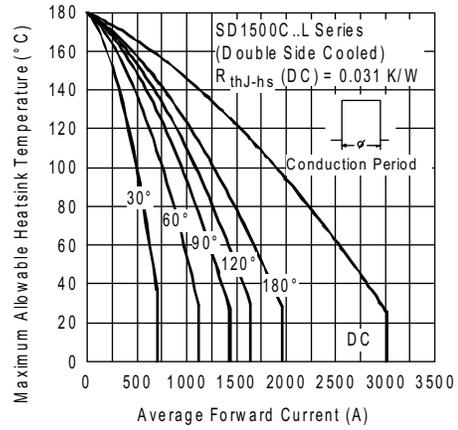


Fig. 4 - Current Ratings Characteristics

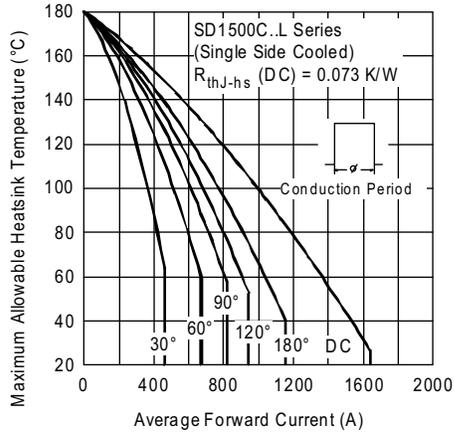


Fig. 2 - Current Ratings Characteristics

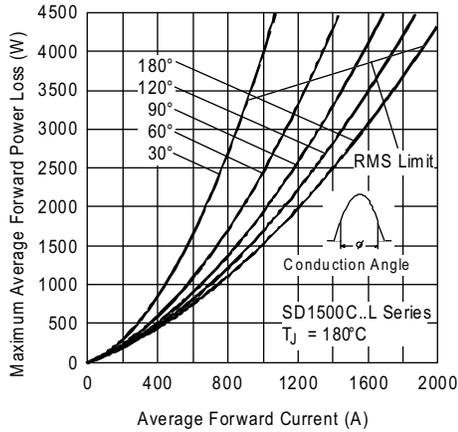


Fig. 5 - Forward Power Loss Characteristics

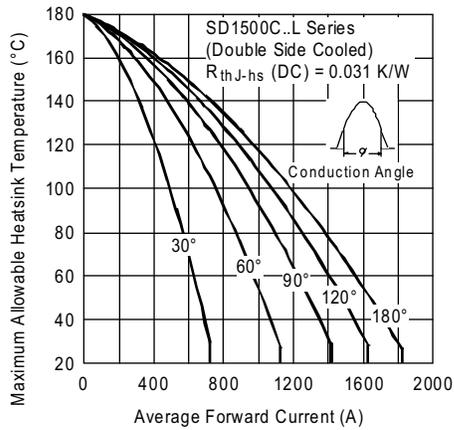


Fig. 3 - Current Ratings Characteristics

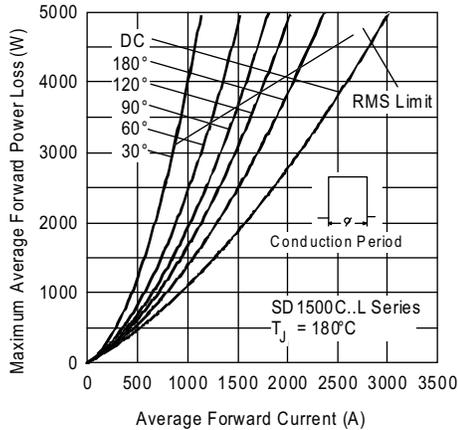


Fig. 6 - Forward Power Loss Characteristics

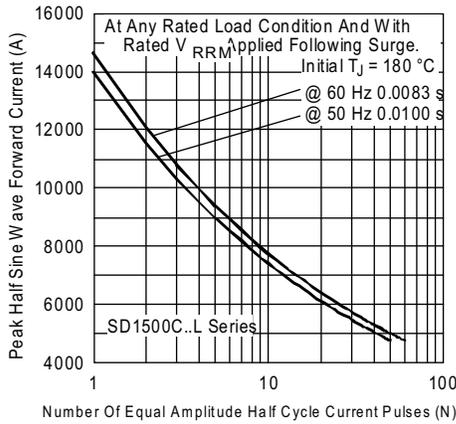


Fig. 7 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

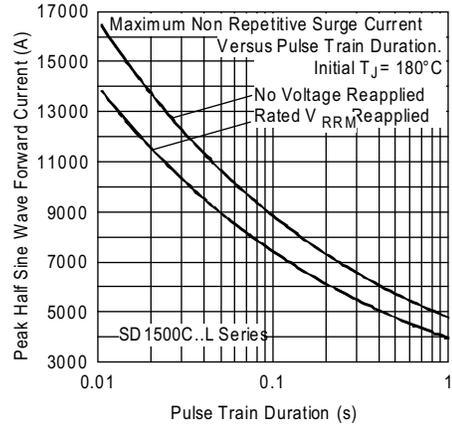


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

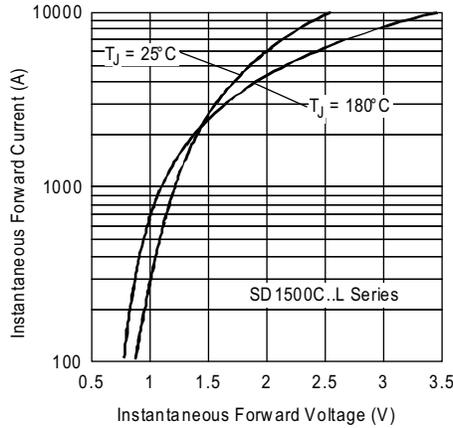


Fig. 9 - Forward Voltage Drop Characteristics

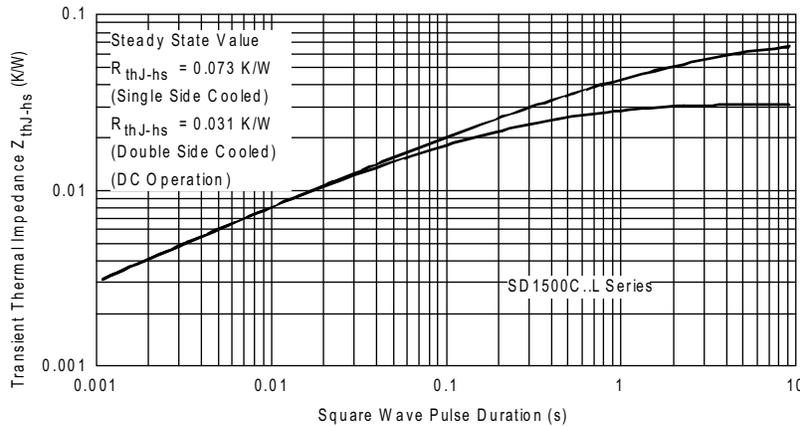


Fig. 10 - Thermal Impedance  $Z_{thJC}$  Characteristics



## ORDERING INFORMATION TABLE

Device code	<b>VS-</b>	<b>SD</b>	<b>150</b>	<b>0</b>	<b>C</b>	<b>30</b>	<b>L</b>
	①	②	③	④	⑤	⑥	⑦

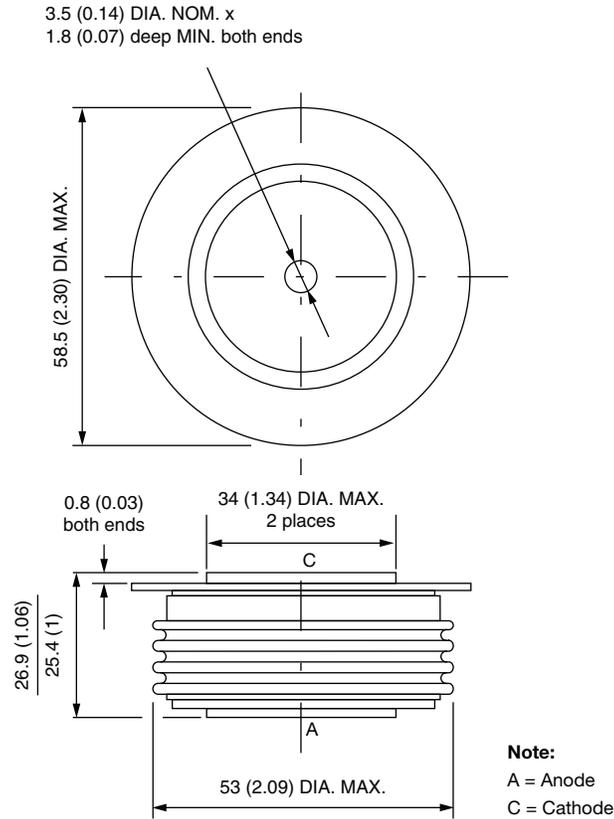
- 1** - Vishay Semiconductors product
- 2** - Diode
- 3** - Essential part number
- 4** - 0 = standard recovery
- 5** - C = ceramic PUK
- 6** - Voltage code x 100 =  $V_{RRM}$  (see Voltage Ratings table)
- 7** - L = PUK case B-PUK (DO-200AB)

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95246">www.vishay.com/doc?95246</a>



## 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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