

## Standard Recovery Diodes, (Hockey PUK Version), 700 A



B-PUK (DO-200AB)

### FEATURES

- Wide current range
- High voltage ratings
- 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)



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	700 A
Package	B-PUK (DO-200AB)
Circuit configuration	Single

### MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		700	A
	$T_{hs}$	55	°C
$I_{F(RMS)}$		1310	A
	$T_{hs}$	25	°C
$I_{FSM}$	50 Hz	7500	A
	60 Hz	7850	
$I^2t$	50 Hz	281	kA <sup>2</sup> s
	60 Hz	257	
$V_{RRM}$	Range	3000	V
$T_J$		-40 to +150	°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-SD700C..L	30	3000	3100	50

**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	700 (345) 55 (85)	A °C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled	1310	
Maximum peak, one-cycle forward, non-repetitive surge current	$I_{FSM}$	<div> <div> <math>t = 10\text{ ms}</math>  <math>t = 8.3\text{ ms}</math> </div> <div> No voltage reapplied  100 % <math>V_{RRM}</math> reapplied </div> </div>	<div> 7500 7850 6310 6600 </div>	A
Maximum $I^2t$ for fusing	$I^2t$	<div> <div> <math>t = 10\text{ ms}</math>  <math>t = 8.3\text{ ms}</math> </div> <div> No voltage reapplied  100 % <math>V_{RRM}</math> reapplied </div> </div>	<div> 281 257 199 182 </div>	$kA^2s$
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ to 10 ms, no voltage reapplied	2810	$kA^2\sqrt{s}$
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	0.88	V
High level value of threshold voltage	$V_{F(TO)2}$	$(I > \pi \times I_{F(AV)})$ , $T_J = T_J$ maximum	0.99	
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	0.78	$m\Omega$
High level value of forward slope resistance	$r_{f2}$	$(I > \pi \times I_{F(AV)})$ , $T_J = T_J$ maximum	0.73	
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 1000\text{ A}$ , $T_J = T_J$ maximum, $t_p = 10\text{ ms}$ sinusoidal wave	1.66	V

**THERMAL AND MECHANICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating temperature range	$T_J$		-40 to +150	°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	0.11 0.05	K/W
Mounting force, $\pm 10\%$			9800 (1000)	N (kg)
Approximate weight			250	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°	0.011	0.011	0.008	0.008	$T_J = T_J$ maximum	K/W
120°	0.014	0.015	0.014	0.014		
90°	0.018	0.018	0.019	0.019		
60°	0.026	0.026	0.027	0.028		
30°	0.045	0.046	0.046	0.046		

**Note**

- The table above shows the increment of thermal resistance  $R_{thJ-hs}$  when devices operate at different conduction angles than DC

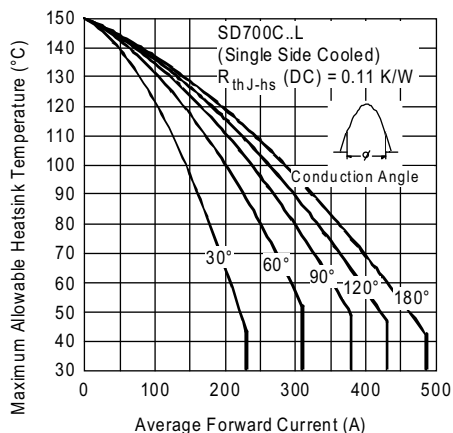


Fig. 1 - Current Ratings Characteristics

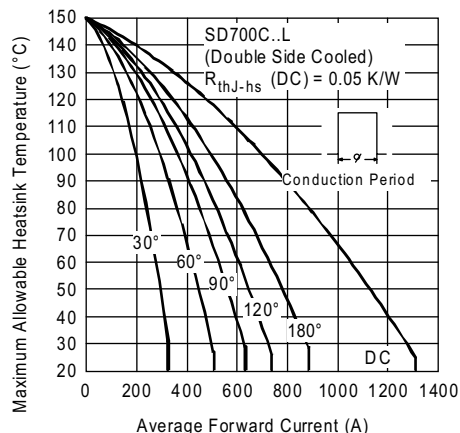


Fig. 4 - Current Ratings Characteristics

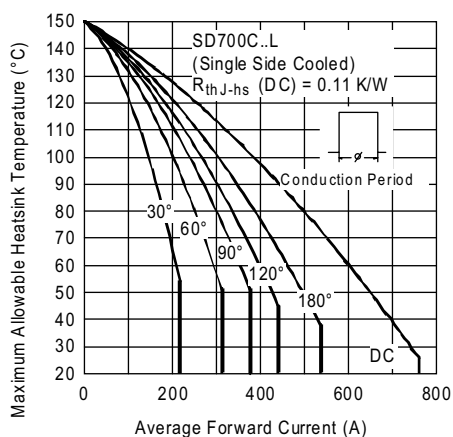


Fig. 2 - Current Ratings Characteristics

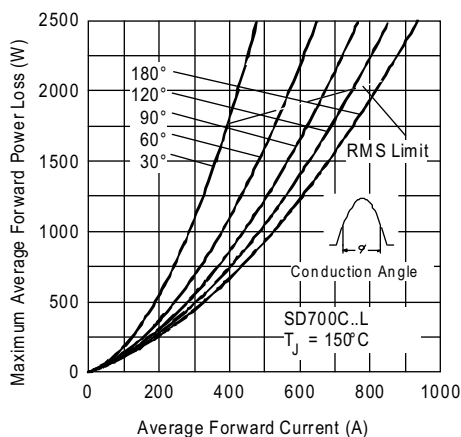


Fig. 5 - Forward Power Loss Characteristics

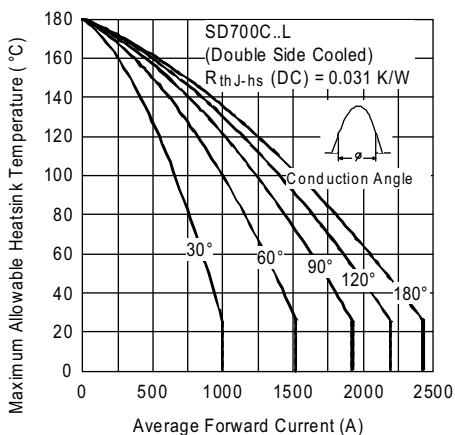


Fig. 3 - Current Ratings Characteristics

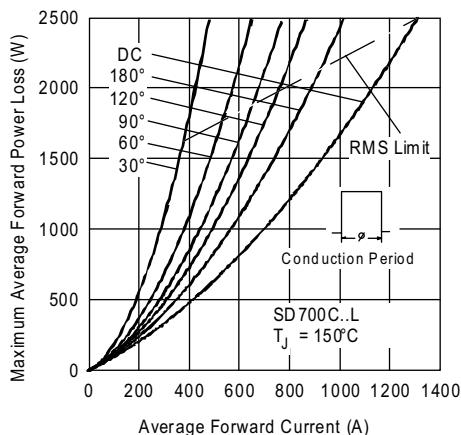


Fig. 6 - Forward Power Loss Characteristics

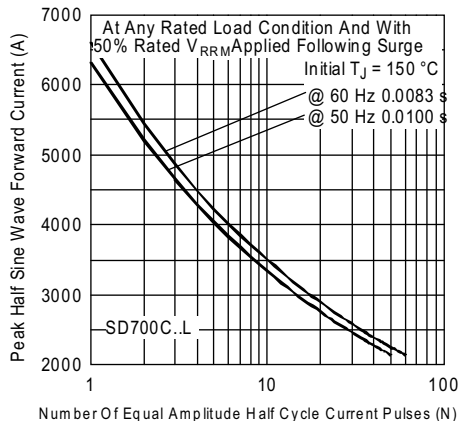


Fig. 7 - Maximum Non-Repetitive Surge Current  
Single and Double Side Cooled

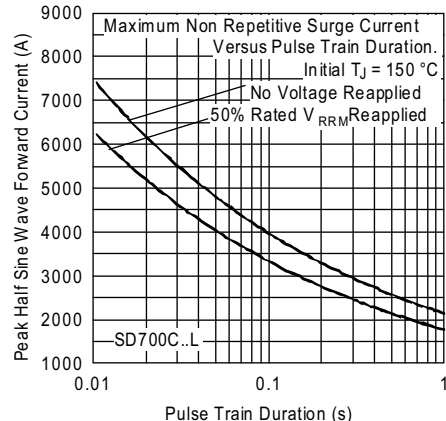


Fig. 8 - Maximum Non-Repetitive Surge Current  
Single and Double Side Cooled

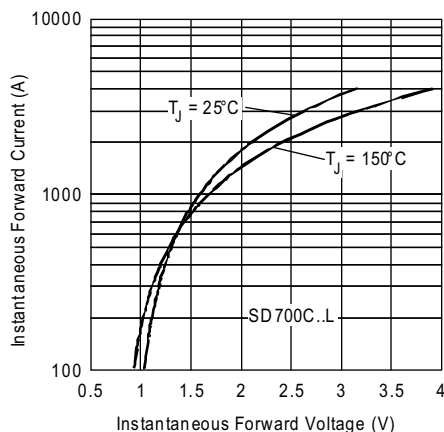


Fig. 9 - Forward Voltage Drop Characteristics

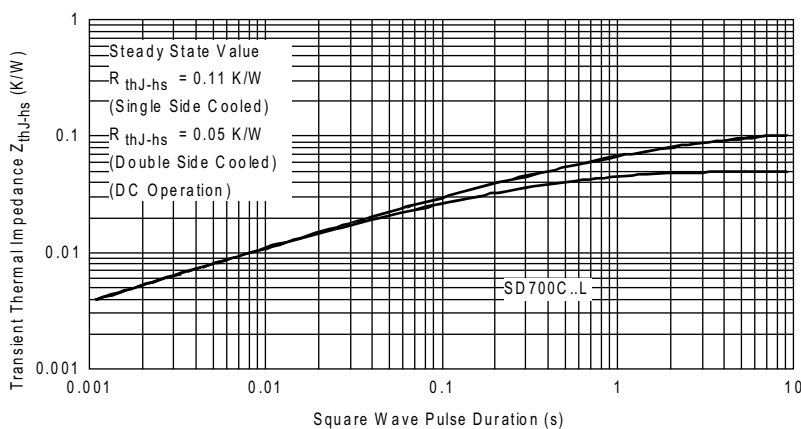


Fig. 10 - Thermal Impedance  $Z_{thJ-hs}$  Characteristics



**ORDERING INFORMATION TABLE**

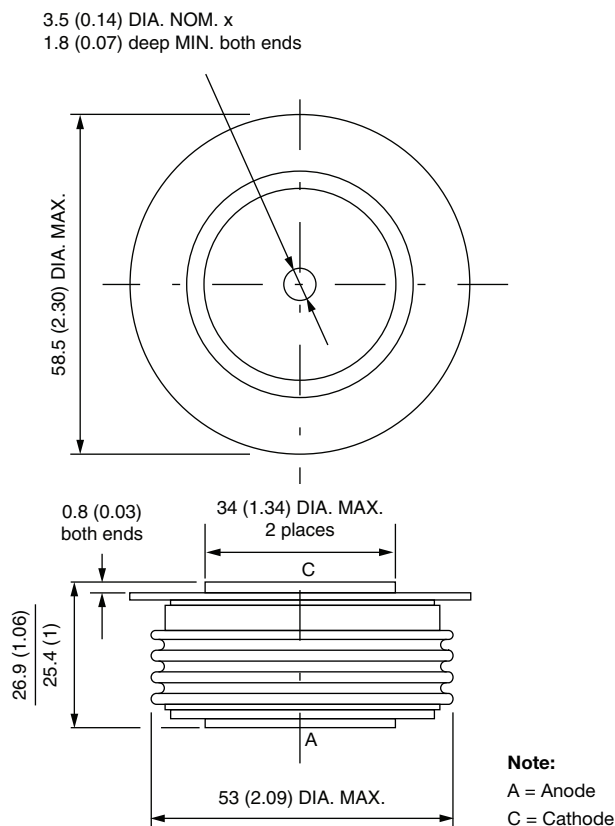
Device code	VS-	SD	70	0	C	30	L
	1	2	3	4	5	6	7
1	- Vishay Semiconductors product						
2	- Diode						
3	- Essential part number						
4	- 0 = standard recovery						
5	- C = ceramic PUK						
6	- Voltage code x 100 = $V_{RRM}$ (see Voltage Ratings table)						
7	- L = PUK case B-PUK (DO-200AB)						

LINKS TO RELATED DOCUMENTS	
Dimensions	<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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