

Standard Recovery Diodes (Hockey PUK Version), 1200 A



DO-200AB (B-PUK)

FEATURES

- Wide current range
- High voltage ratings up to 4500 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-200AB (B-PUK)
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

PRODUCT SUMMARY

$I_{F(AV)}$	1200 A
Package	DO-200AB (B-PUK)
Circuit configuration	Single diode

MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SD800C..L		UNITS
		24 to 36	40 to 45	
$I_{F(AV)}$		1180	1065	A
	T_{hs}	55	55	°C
$I_{F(RMS)}$		2280	2040	A
	T_{hs}	25	25	°C
I_{FSM}	50 Hz	13 600	12 200	A
	60 Hz	14 240	12 800	
I^2t	50 Hz	925	745	kA ² s
	60 Hz	845	680	
V_{RRM}	Range	2400 to 3600	4000 to 4500	V
T_J		-40 to 150	-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-SD800C..L	24	2400	2500	50
	30	3000	3100	
	36	3600	3700	
	40	4000	4100	
	45	4500	4600	

**FORWARD CONDUCTION**

PARAMETER	SYMBOL	TEST CONDITIONS		SD800C..L		UNITS
				24 to 36	40 to 45	
Maximum average forward current at heatsink temperature	$I_{F(AV)}$	180° conduction, half sine wave Double side (single side) cooled		1180 (550)	1065 (490)	A
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled		55 (85)	55 (85)	°C
Maximum peak, one-cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	13 600	12 200	A
		t = 8.3 ms	No voltage reapplied	14 240	12 800	
		t = 10 ms	50 % V_{RRM} reapplied	11 440	10 250	
		t = 8.3 ms	50 % V_{RRM} reapplied	11 980	10 750	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied	925	745	kA ² s
		t = 8.3 ms	No voltage reapplied	845	680	
		t = 10 ms	50 % V_{RRM} reapplied	654	526	
		t = 8.3 ms	50 % V_{RRM} reapplied	597	480	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		9250	7450	kA ² √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		0.90	1.06	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum		1.10	1.18	
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		0.38	0.44	mΩ
High level value of forward slope resistance	r_{f2}	(I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum		0.34	0.41	
Maximum forward voltage drop	V_{FM}	$I_{pk} = 2000$ A, $T_J = T_J$ maximum, $t_p = 10$ ms sinusoidal wave		1.66	1.95	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	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	DO-200AB (B-PUK)	

 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

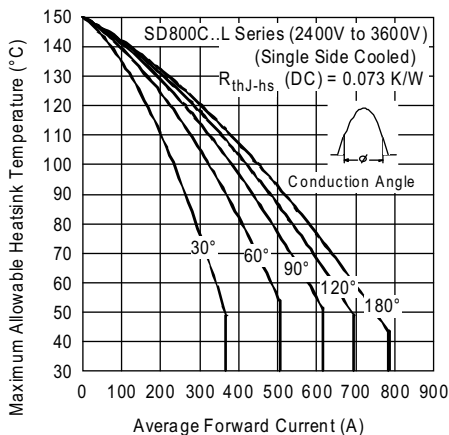


Fig. 1 - Current Ratings Characteristics

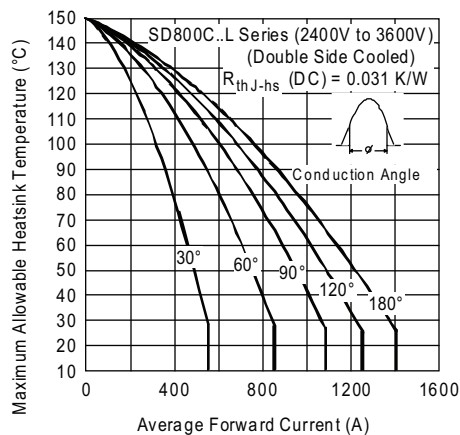


Fig. 4 - Current Ratings Characteristics

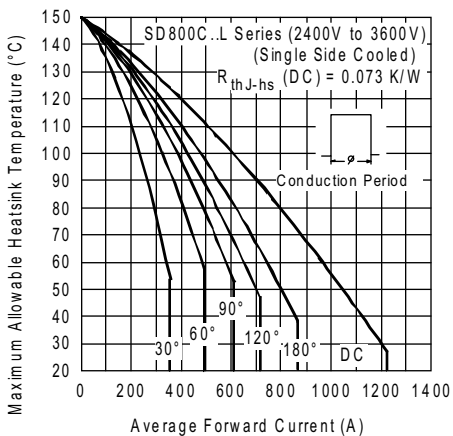


Fig. 2 - Current Ratings Characteristics

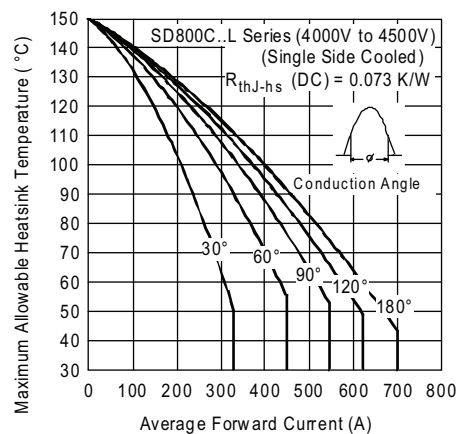


Fig. 5 - Current Ratings Characteristics

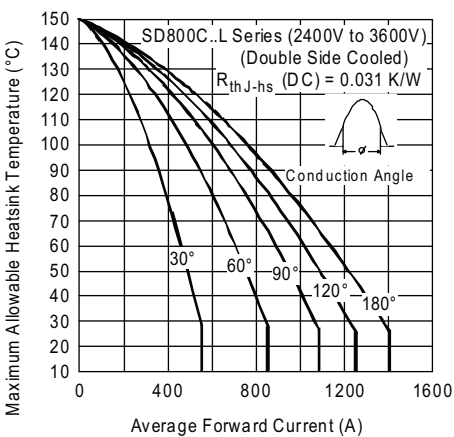


Fig. 3 - Current Ratings Characteristics

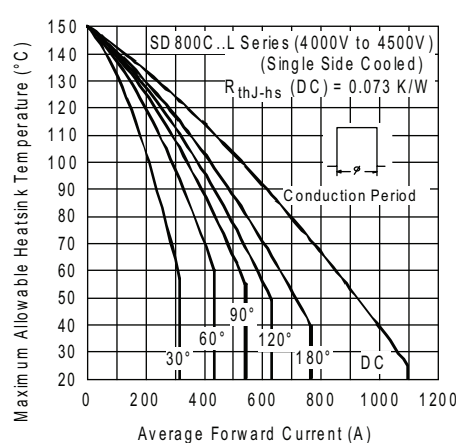


Fig. 6 - Current Ratings Characteristics

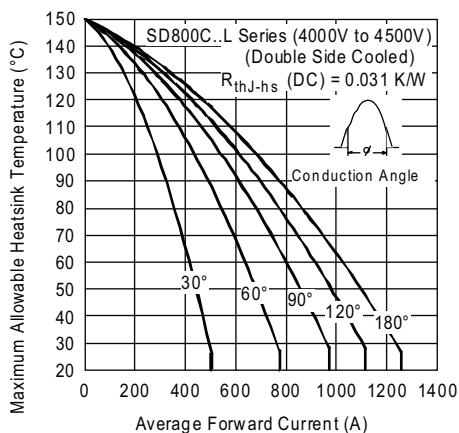


Fig. 7 - Current Ratings Characteristics

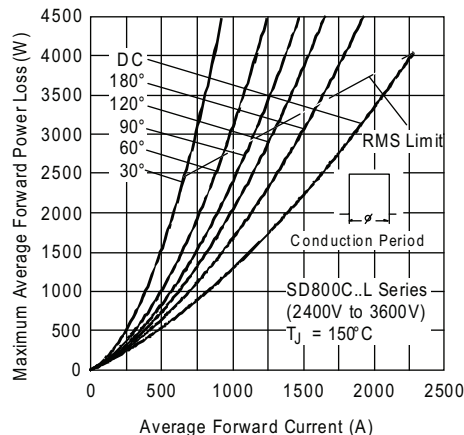


Fig. 10 - Forward Power Loss Characteristics

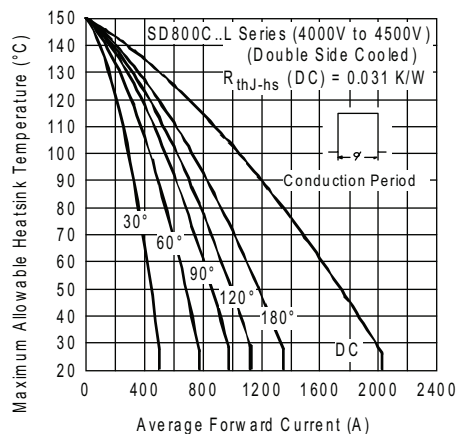


Fig. 8 - Current Ratings Characteristics

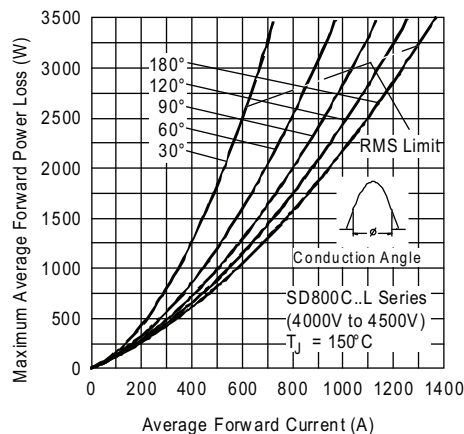


Fig. 11 - Forward Power Loss Characteristics

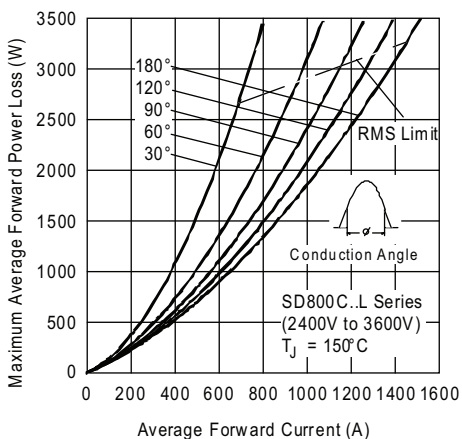


Fig. 9 - Forward Power Loss Characteristics

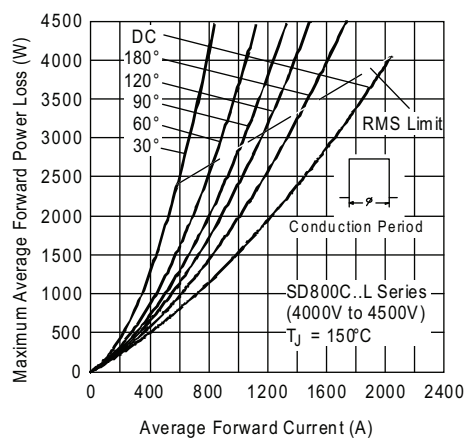


Fig. 12 - Forward Power Loss Characteristics

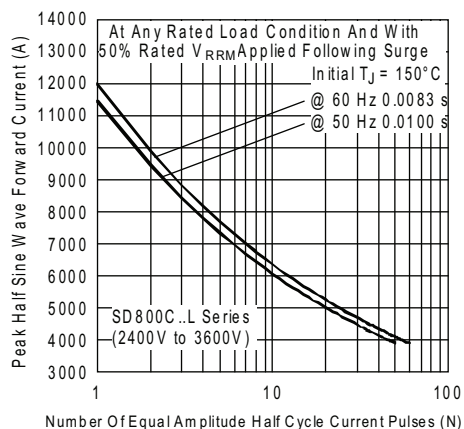


Fig. 13 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

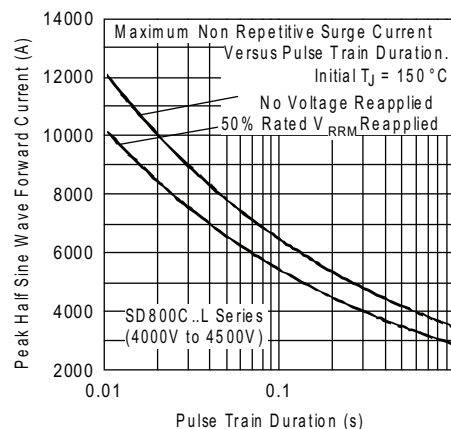


Fig. 16 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

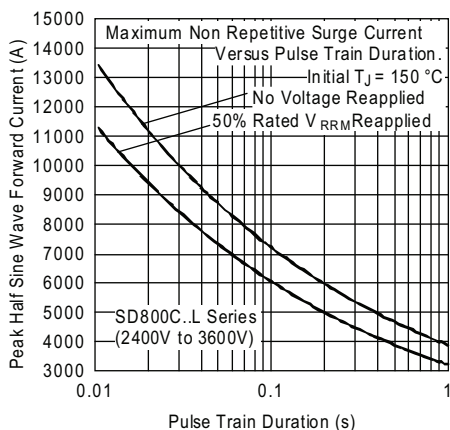


Fig. 14 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

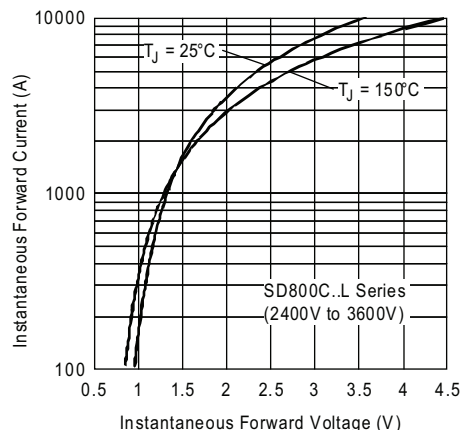


Fig. 17 - Forward Voltage Drop Characteristics

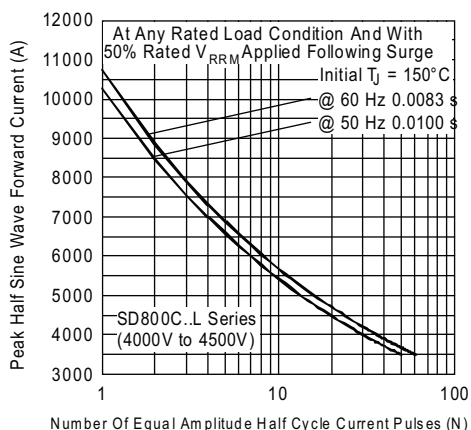


Fig. 15 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

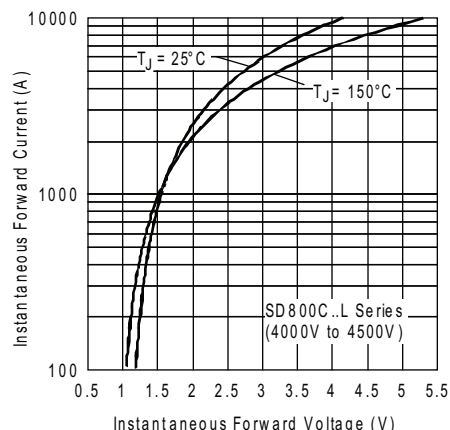
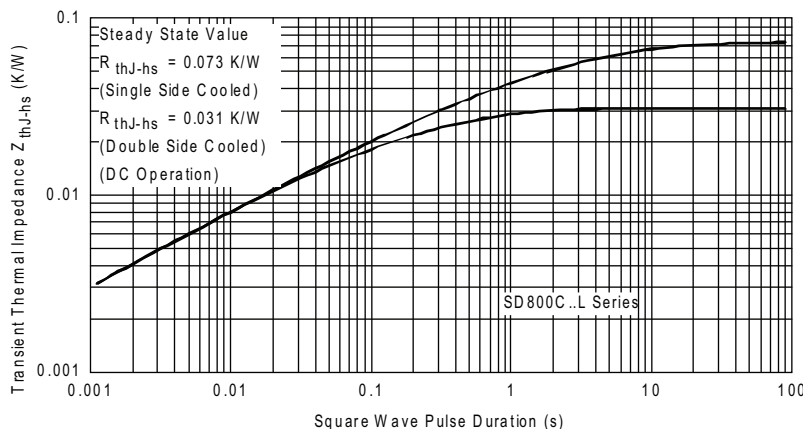


Fig. 18 - Forward Voltage Drop Characteristics


Fig. 19 - Thermal Impedance Z_{thJ-hs} Characteristics

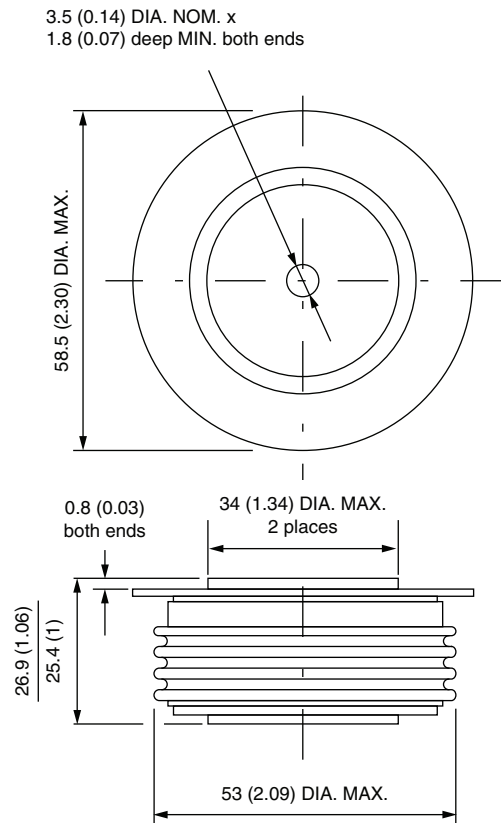
ORDERING INFORMATION TABLE

Device code	VS-	SD	80	0	C	45	L
	1	2	3	4	5	6	
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)					
6	-	L = PUK case DO-200AB (B-PUK)					

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

DO-200AB (B-PUK)

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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