

STANDARD RECOVERY DIODES

Hockey Puk Version

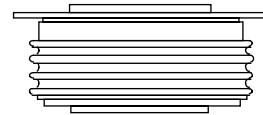
Features

- Wide current range
- High voltage ratings up to 3200V
- High surge current capabilities
- Diffused junction
- Hockey Puk version
- Case style DO-200AB (B-PUK)

Typical Applications

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

1170A



case style DO-200AB (B-PUK)

Major Ratings and Characteristics

Parameters	SD1100C..L		Units
	04 to 20	25 to 32	
$I_{F(AV)}$	1170	910	A
@ T_{hs}	55	55	°C
$I_{F(RMS)}$	2080	1660	A
@ T_{hs}	25	25	°C
I_{FSM} @ 50Hz	13000	10500	A
@ 60Hz	13600	11000	A
I^2t @ 50Hz	846	551	KA ² s
@ 60Hz	772	503	KA ² s
V_{RRM} range	400to 2000	2500 to 3200	V
T_J	- 40 to 180	- 40 to 150	°C

SD1100C..L Series

Bulletin I2073 rev.D 04/00

International
IR Rectifier**ELECTRICAL SPECIFICATIONS****Voltage Ratings**

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ $T_J = T_J$ max. mA
SD1100C..L	04	400	500	15
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	25	2500	2600	
	30	3000	3100	
	32	3200	3300	

Forward Conduction

Parameter		SD1100C..L		Units	Conditions			
		04 to 20	25 to 32					
I _{F(AV)}	Max. average forward current @ Heatsink temperature	1170(600)	910(420)	A	180° conduction, half sine wave			
		55(85)	55(85)	°C	Double side (single side) cooled			
I _{F(RMS)}	Max. RMS forward current	2080	1660	A	@ 25°C heatsink temperature double side cooled			
I _{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	13000	10500	A	t = 10ms	No voltage	Sinusoidal halfwave, Initial T _J = T _J max.	
		13600	11000		t = 8.3ms	reapplied		
		10930	8830		t = 10ms	100% V _{RRM}		
		11450	9250		t = 8.3ms	reapplied		
I ² t	Maximum I ² t for fusing	846	551	KA ² s	t = 10ms	No voltage		
		772	503		t = 8.3ms	reapplied		
		598	390		t = 10ms	100% V _{RRM}		
		546	356		t = 8.3ms	reapplied		
I ² √t	Maximum I ² √t for fusing	8460	5510	KA ² /s	t = 0.1 to 10ms, no voltage reapplied			
V _{F(TO)1}	Low level value of threshold voltage	0.78	0.84	V	(16.7% x π x I _{F(AV)}) < I < π x I _{F(AV)} , T _J = T _J max.			
V _{F(TO)2}	High level value of threshold voltage	0.94	0.88		(I > π x I _{F(AV)}), T _J = T _J max.			
r _{f1}	Low level value of forward slope resistance	0.35	0.40	mΩ	(16.7% x π x I _{F(AV)}) < I < π x I _{F(AV)} , T _J = T _J max.			
r _{f2}	High level value of forward slope resistance	0.26	0.38		(I > π x I _{F(AV)}), T _J = T _J max.			
V _{FM}	Max. forward voltage drop	1.31	1.44	V	I _{pk} = 1500A, T _J = T _J max, t _p = 10ms sinusoidal wave			

Thermal and Mechanical Specifications

Parameter	SD1100C..L		Units	Conditions
	04 to 20	25 to 32		
T _J Max. junction operating temperature range	-40 to 180	-40 to 150	°C	
T _{stg} Max. storage temperature range	-55 to 200	-55 to 200		
R _{thJ-hs} Max. thermal resistance, junction to heatsink	0.11 0.05		K/W	DC operation single side cooled DC operation double side cooled
F Mounting force, ± 10%	9800 (1000)		N (Kg)	
wt Approximate weight	250		g	
Case style	DO-200AB (B-PUK)			See Outline Table

ΔR_{thJ-hs} Conduction

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

Conduction angle	Sinusoidal conduction		Rectangular conduction		Units	Conditions
	Single Side	Double Side	Single Side	Double Side		
180°	0.011	0.011	0.008	0.008	K/W	T _J = T _J max.
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		

Ordering Information Table

Device Code					
SD	110	0	C	32	L
①	②	③	④	⑤	⑥
1	- Diode				
2	- Essential part number				
3	- 0 = Standard recovery				
4	- C = Ceramic Puk				
5	- Voltage code: Code x 100 = V _{RRM} (See Voltage Ratings table)				
6	- L = Puk Case DO-200AB (B-PUK)				

SD1100C..L Series

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Outline Table

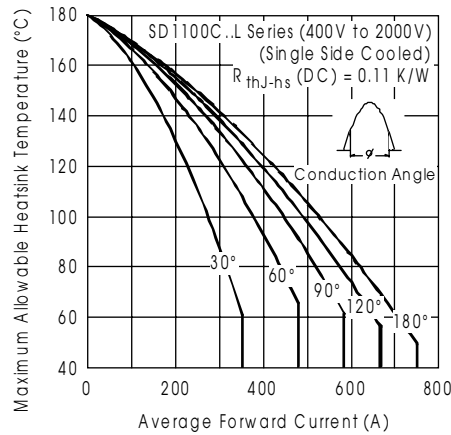
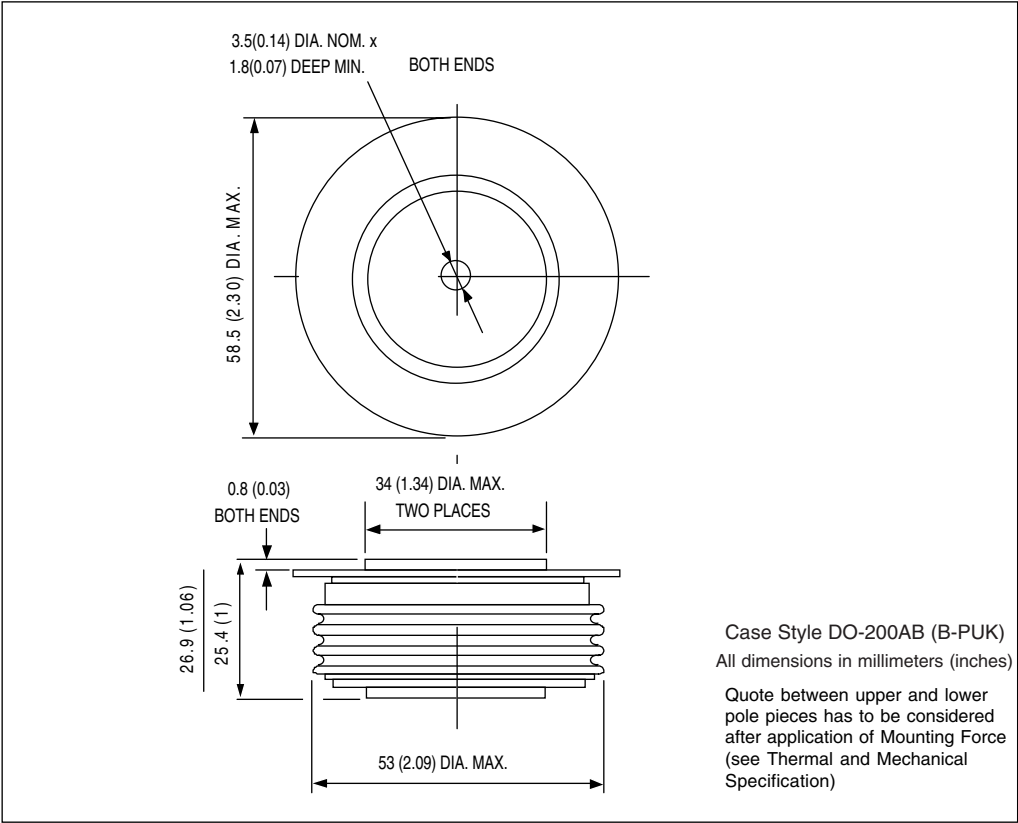


Fig. 1 - Current Ratings Characteristics

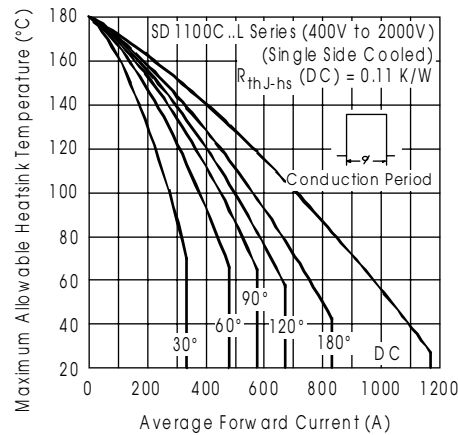


Fig. 2 - Current Ratings Characteristics

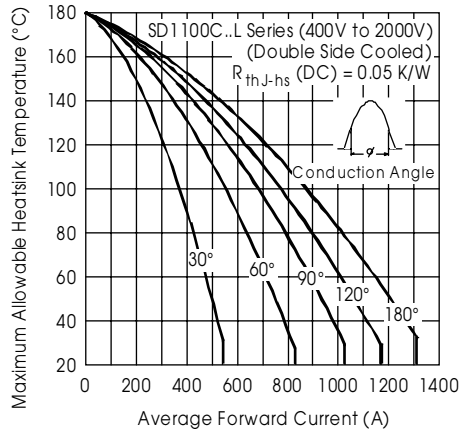


Fig. 3 - Current Ratings Characteristics

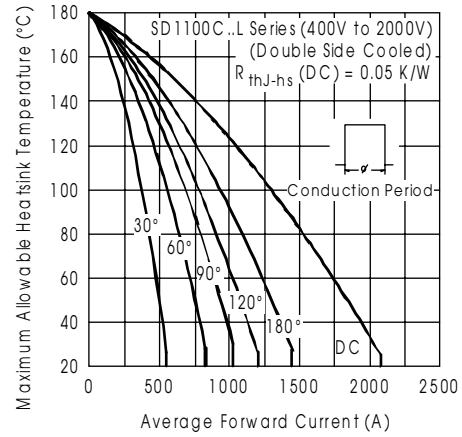


Fig. 4 - Current Ratings Characteristics

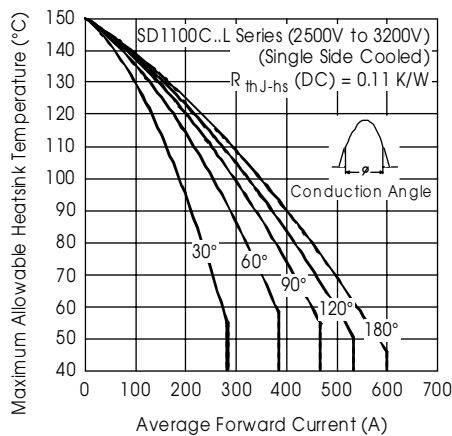


Fig. 5 - Current Ratings Characteristics

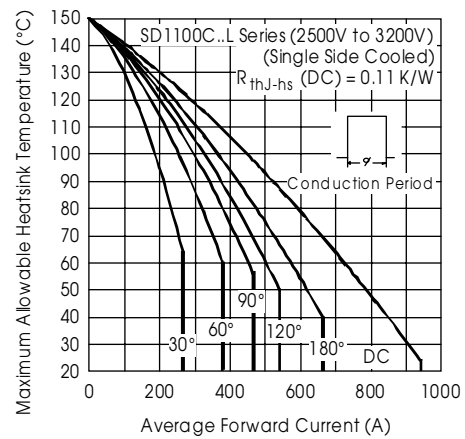


Fig. 6 - Current Ratings Characteristics

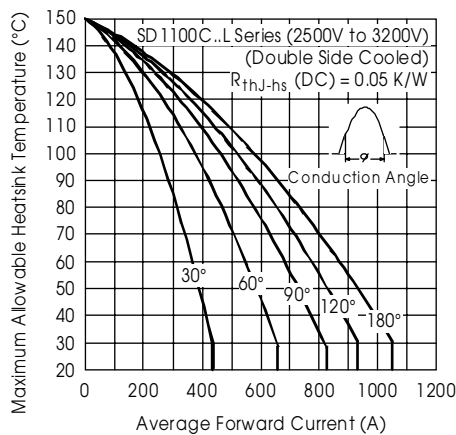


Fig. 7 - Current Ratings Characteristics

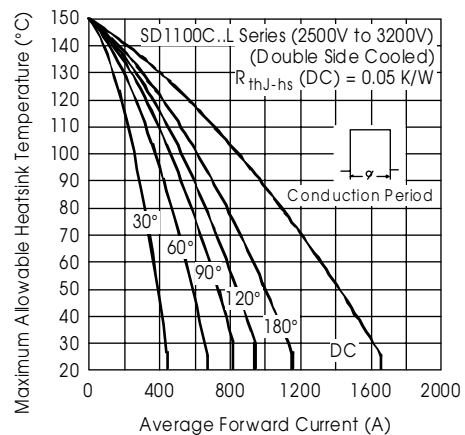


Fig. 8 - Current Ratings Characteristics

SD1100C..L Series

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International
IR Rectifier

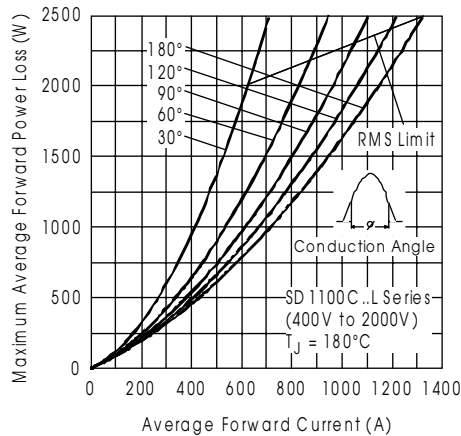


Fig. 9 - Forward Power Loss Characteristics

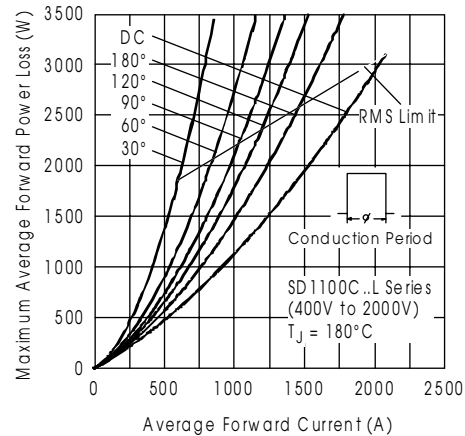


Fig. 10 - Forward Power Loss Characteristics

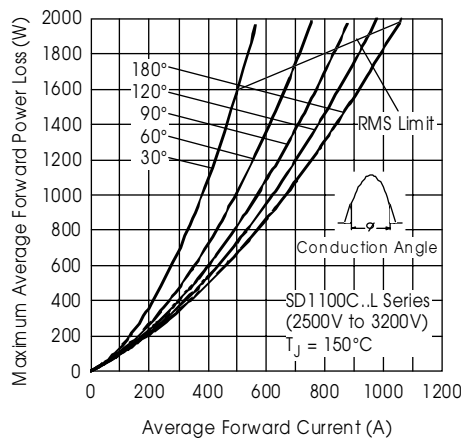


Fig. 11 - Forward Power Loss Characteristics

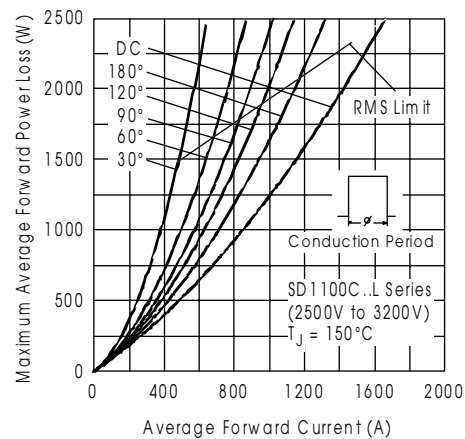


Fig. 12 - Forward Power Loss Characteristics

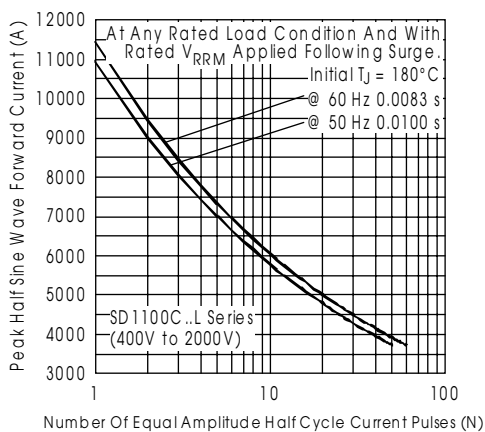


Fig. 13 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

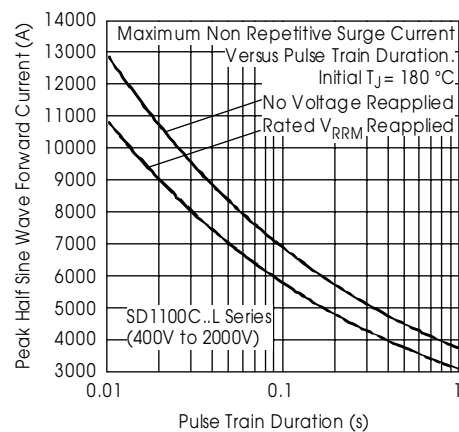


Fig. 14 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

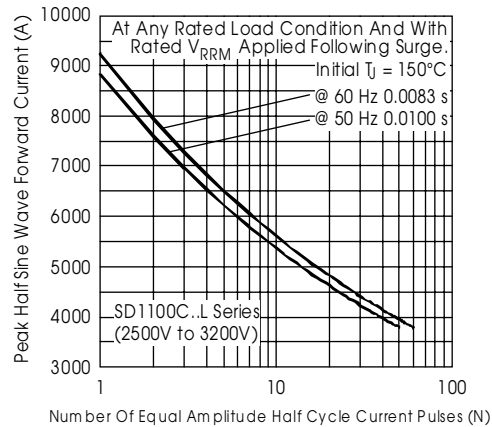


Fig. 15 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

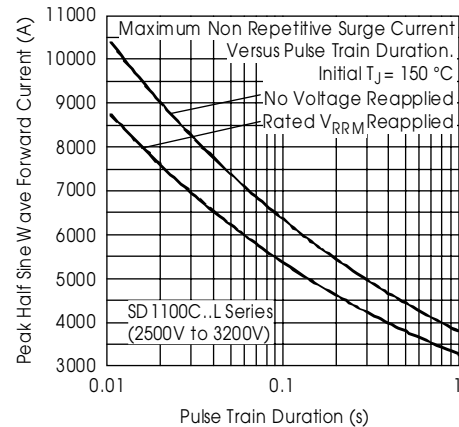


Fig. 16 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

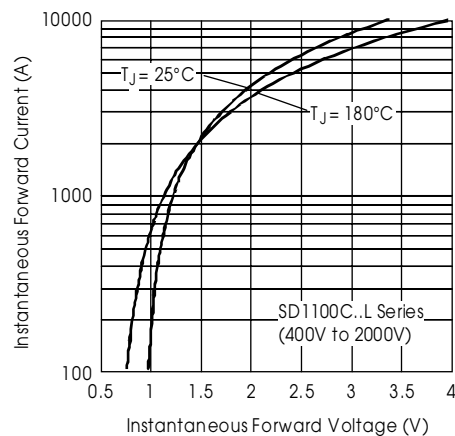


Fig. 17 - Forward Voltage Drop Characteristics

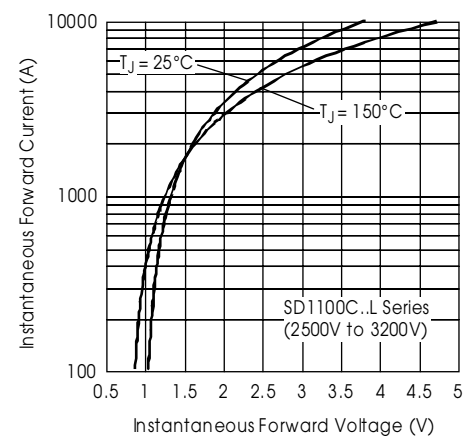


Fig. 18 - Forward Voltage Drop Characteristics

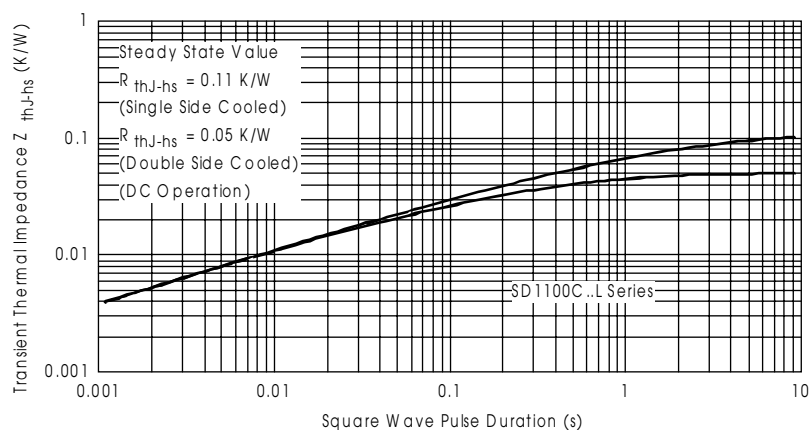


Fig. 19 - Thermal Impedance Z_{thJC} Characteristics