International
IOR Rectifier

SD2000C..L SERIES

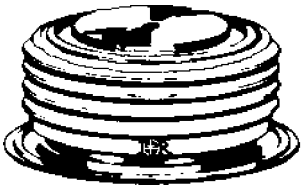
STANDARD RECOVERY DIODES

Hockey Puk Version

2100A

Features

- Wide current range
- High voltage ratings up to 1000V
- High surge current capabilities
- Diffused junction
- Hockey Puk version
- Case style DO-200AB (B-PUK)



case style DO-200AB (B-PUK)

Typical Applications

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

Major Ratings and Characteristics

Parameters		SD2000C..L	Units
$I_{F(AV)}$		2100	A
	@ T_{hs}	55	°C
$I_{F(RMS)}$		3900	A
	@ T_{hs}	25	°C
I_{FSM}	@ 50Hz	23900	A
	@ 60Hz	25000	A
I^2t	@ 50Hz	2857	KA^2s
	@ 60Hz	2608	KA^2s
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 rev. voltage V	I_{RRM} max. @ T_J = 180°C mA
SD2000C..L	04	400	500	60
	08	800	900	
	10	1000	1100	

Forward Conduction

Parameter		SD2000C..L	Units	Conditions		
$I_{F(AV)}$	Max. average forward current	2100 (1040)	A	180° conduction, half sine wave		
	@ Heatsink temperature	55 (85)	°C	Double side (single side) cooled		
$I_{F(RMS)}$	Max. RMS forward current	3900	A	@ 25°C heatsink temperature double side cooled		
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	23900	A	t = 10ms	No voltage reapplied	Sinusoidal halfwave, Initial T_J = T_J max.
		25000		t = 8.3ms		
		20100		t = 10ms	100% V_{RRM} reapplied	
		21000		t = 8.3ms		
I^2t	Maximum I^2t for fusing	2857	KA^2s	t = 10ms	No voltage reapplied	
		2608		t = 8.3ms		
		2020		t = 10ms	100% V_{RRM} reapplied	
		1844		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	28570	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)1}$	Low level value of threshold voltage	0.74	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	0.86		(I > π x $I_{F(AV)}$),T_J = T_J max.		
r_{f1}	Low level value of forward slope resistance	0.13	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	0.12		(I > π x $I_{F(AV)}$),T_J = T_J max.		
V_{FM}	Max. forward voltage drop	1.55	V	I_{pk}= 6000A, T_J = T_J max, t_p = 10ms sinusoidal wave		

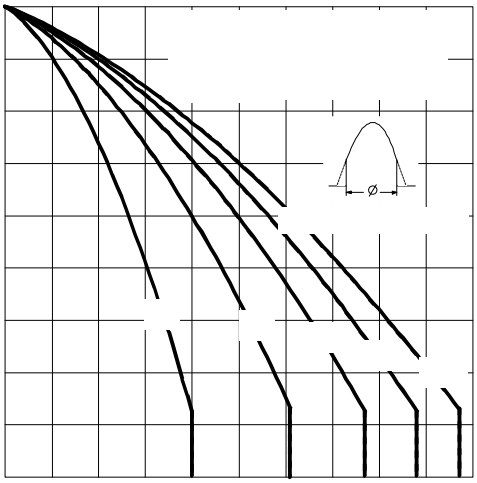


Fig. 3 - Current Ratings Characteristics

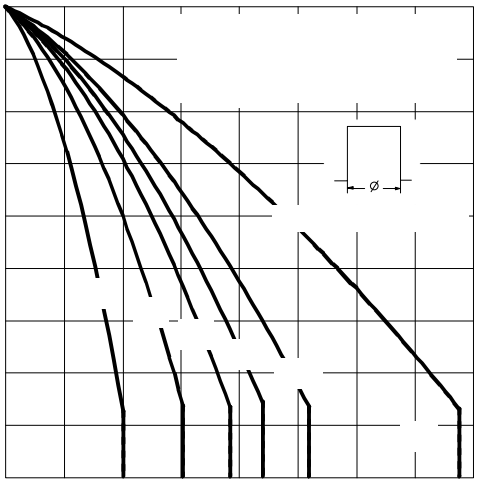


Fig. 4 - Current Ratings Characteristics

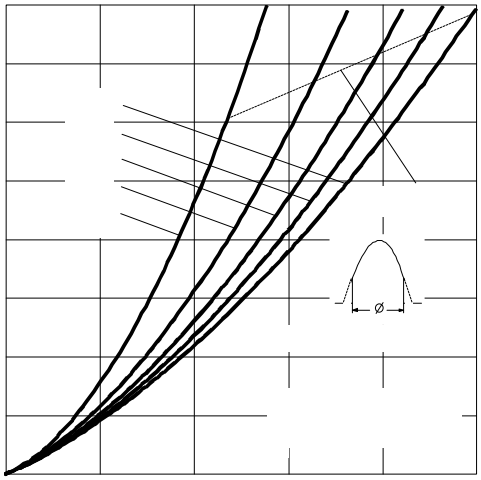


Fig. 5 - Forward Power Loss Characteristics

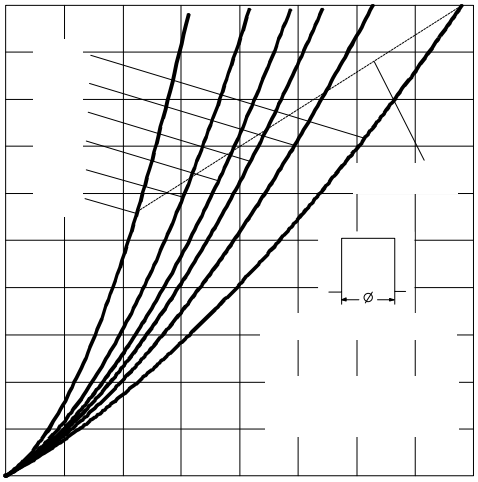


Fig. 6 - Forward Power Loss Characteristics

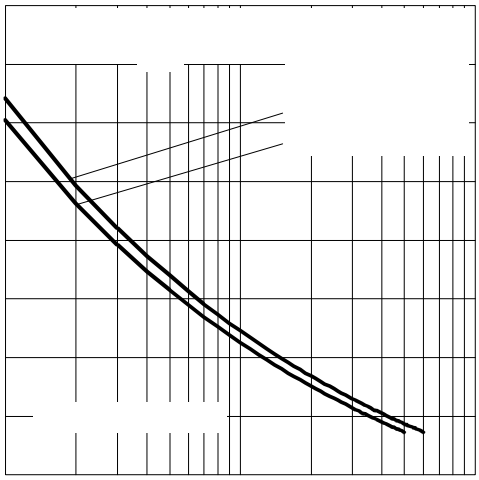


Fig. 7 - Maximum Non-Repetitive Surge Current

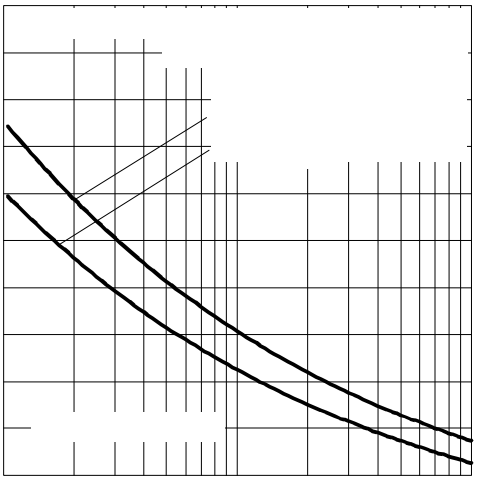


Fig. 8 - Maximum Non-Repetitive Surge Current

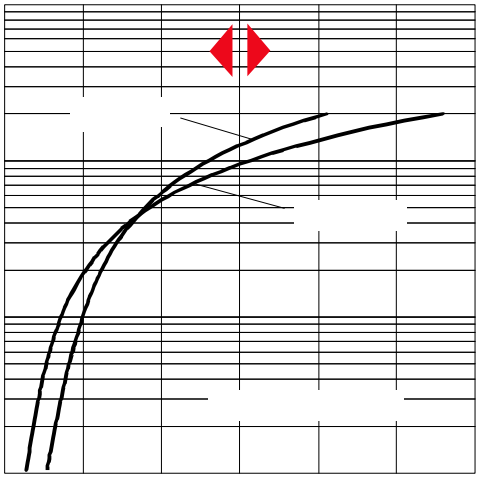


Fig. 9 - Forward Voltage Drop Characteristics

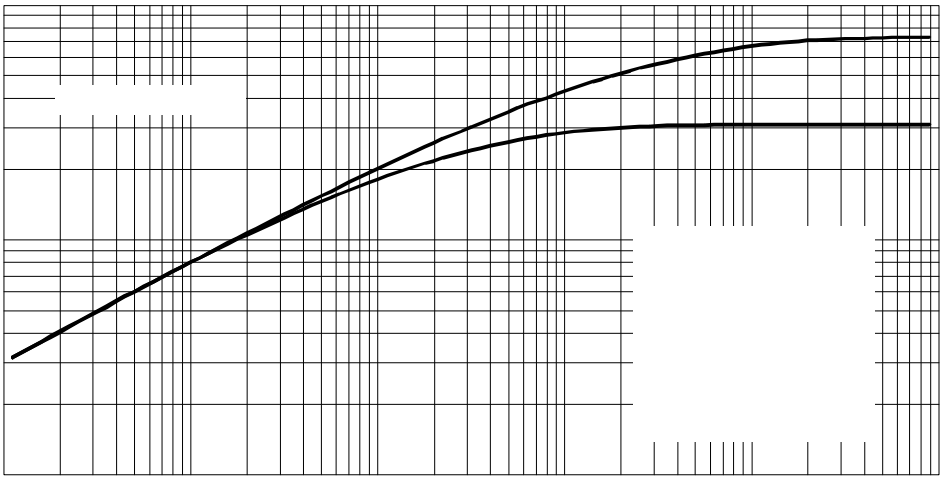


Fig. 10 - Thermal Impedance $Z_{thJ\text{-}hs}$ Characteristics

Thermal and Mechanical Specifications

	Parameter	SD2000C..L	Units	Conditions
T_J	Max. junction operating temperature range	-40 to 180	°C	
T_{stg}	Max. storage temperature range	-55 to 200		
R_{thJ-hs}	Max. thermal resistance, junction to heatsink	0.073 0.031	K/W	DC operation single side cooled DC operation double side cooled
F	Mounting force, ± 10%	14700 (1500)	N (Kg)	
wt	Approximate weight	255	g	
	Case style	DO-200AB(B-PUK)		See Outline Table

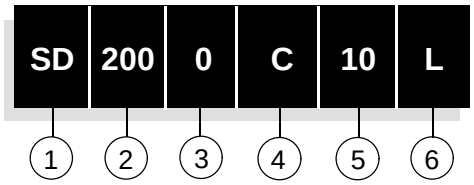
ΔR_{thJ-hs} Conduction

(The following table shows the increment of thermal resistence 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°	0.009	0.009	0.006	0.006	K/W	$T_J = T_J$ max.
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		

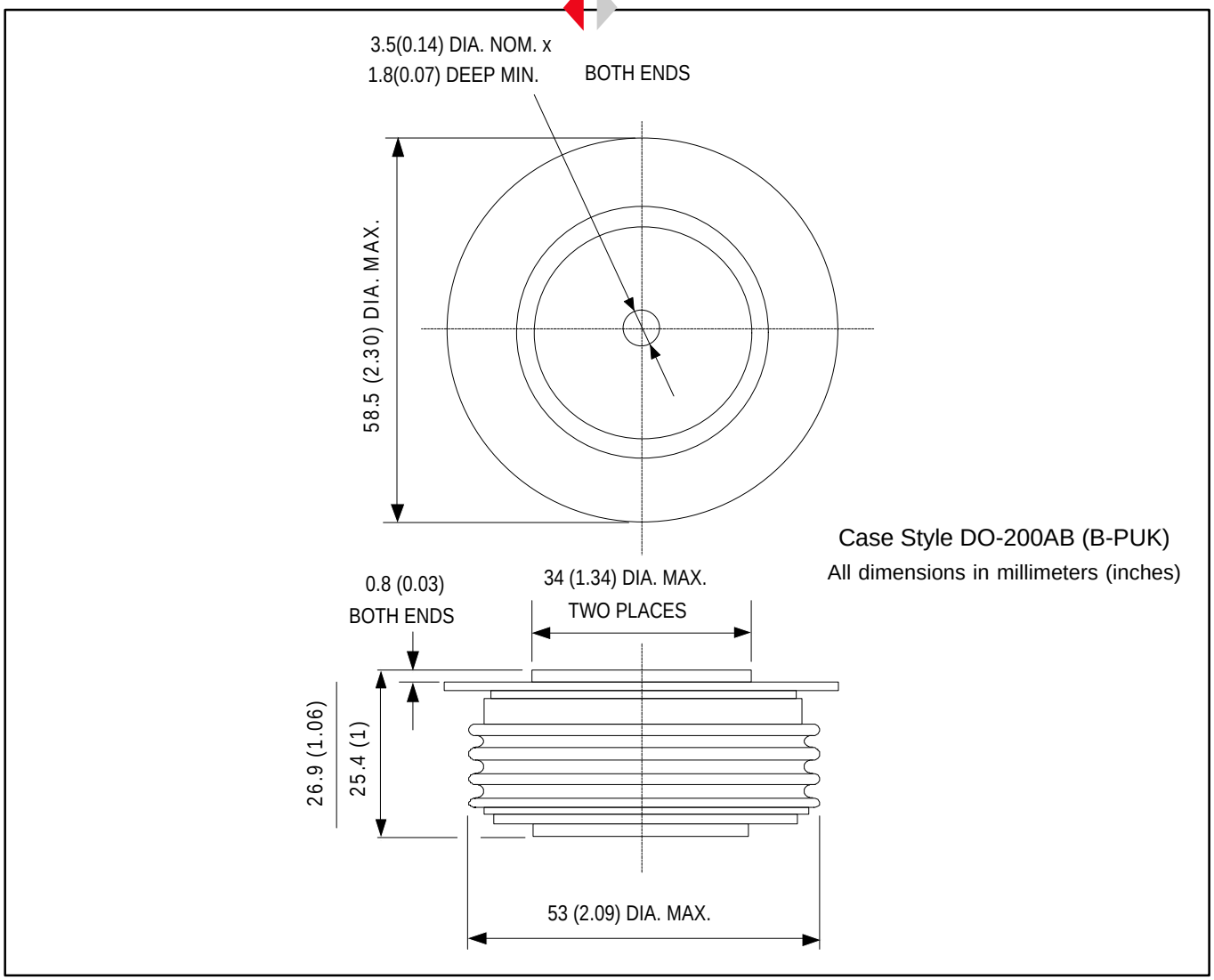
Ordering Information Table

Device Code



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)

Outline Table



Case Style DO-200AB (B-PUK)

All dimensions in millimeters (inches)

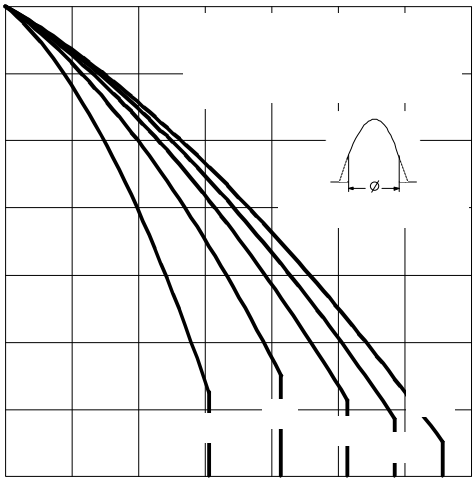


Fig. 1 - Current Ratings Characteristics

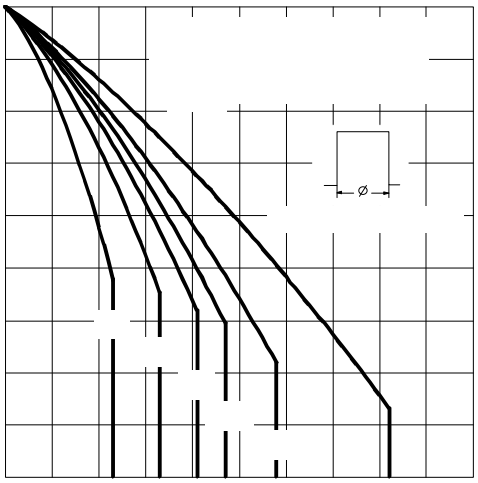


Fig. 2 - Current Ratings Characteristics