

## STANDARD RECOVERY DIODES

## Hockey Puk Version

### 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)

### Typical Applications

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

2100A



case style DO-200AB (B-PUK)

### 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 <sup>2</sup> s
	@ 60Hz	2608	KA <sup>2</sup> s
$V_{RRM}$ 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. @ $T_J = 180^\circ\text{C}$ 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 @ Heatsink temperature	2100 (1040)	A	180° conduction, half sine wave
	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 reappplied
	25000		t = 8.3ms
	20100		t = 10ms 100% $V_{RRM}$ reappplied
	21000		t = 8.3ms
$I^2t$ Maximum $I^2t$ for fusing	2857	KA <sup>2</sup> s	t = 10ms No voltage reappplied
	2608		t = 8.3ms
	2020		t = 10ms 100% $V_{RRM}$ reappplied
	1844		t = 8.3ms
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	28570	KA <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reappplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.74	V	(16.7% x $\pi$ x $I_{F(AV)}$ < I < $\pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$V_{F(TO)2}$ High level value of threshold voltage	0.86		(I > $\pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$r_{f1}$ Low level value of forward slope resistance	0.13	mΩ	(16.7% x $\pi$ x $I_{F(AV)}$ < I < $\pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$r_{f2}$ High level value of forward slope resistance	0.12		(I > $\pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$V_{FM}$ Max. forward voltage drop	1.55	V	$I_{pk} = 6000\text{A}$ , $T_J = T_J$ max, $t_p = 10\text{ms}$ sinusoidal wave

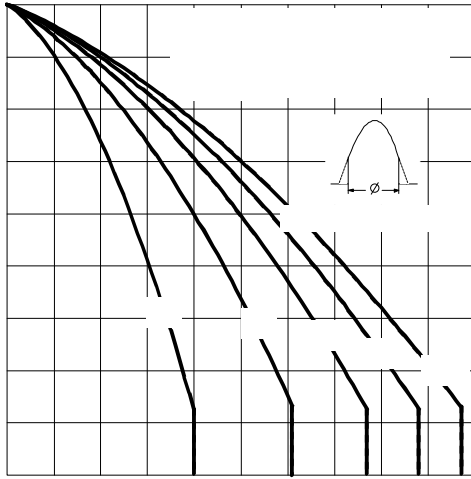


Fig. 3 - Current Ratings Characteristics

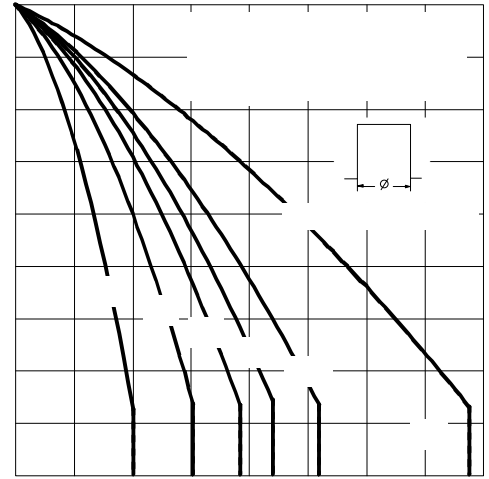


Fig. 4 - Current Ratings Characteristics

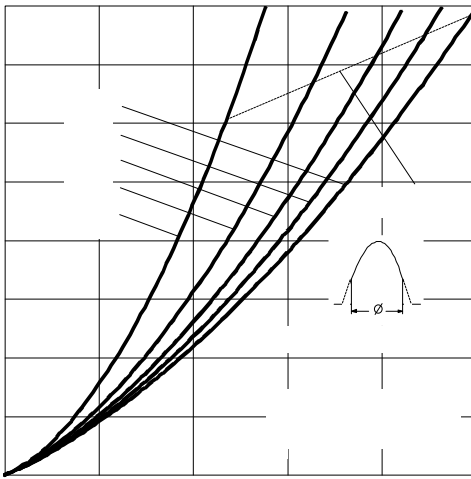


Fig. 5 - Forward Power Loss Characteristics

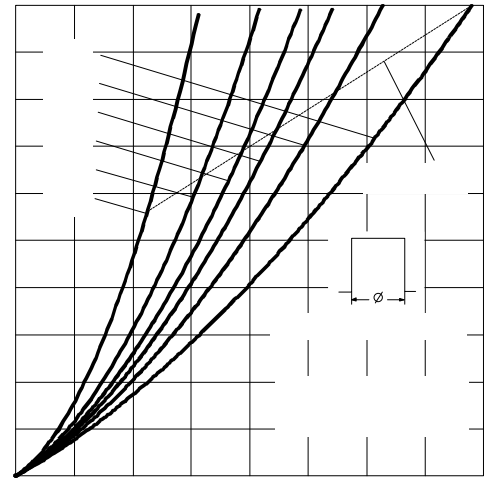


Fig. 6 - Forward Power Loss Characteristics

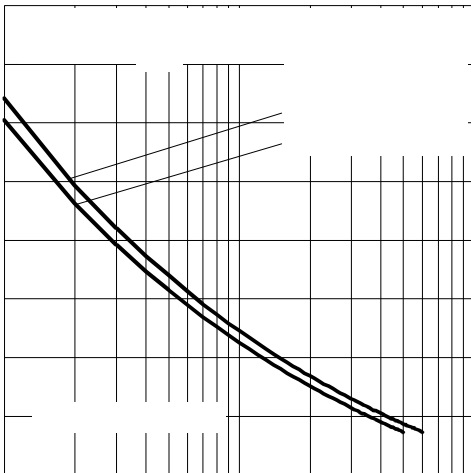


Fig. 7 - Maximum Non-Repetitive Surge Current

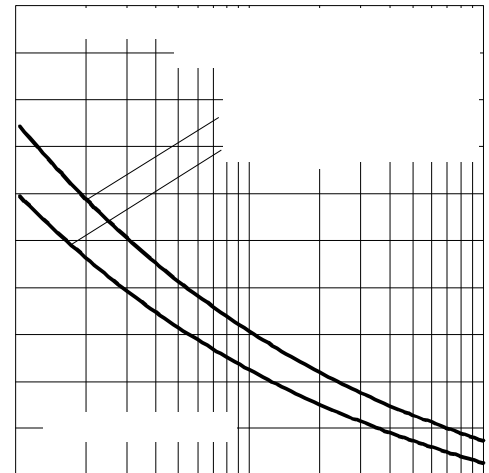


Fig. 8 - Maximum Non-Repetitive Surge Current

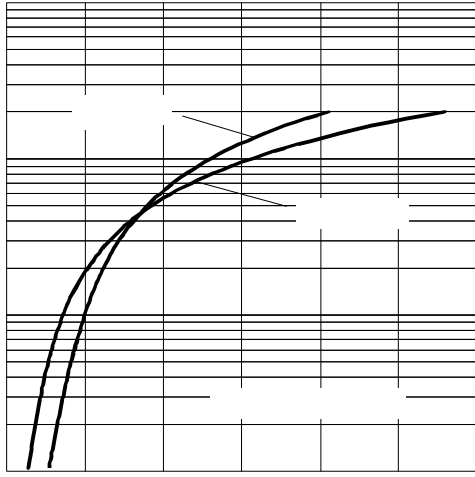


Fig. 9 - Forward Voltage Drop Characteristics

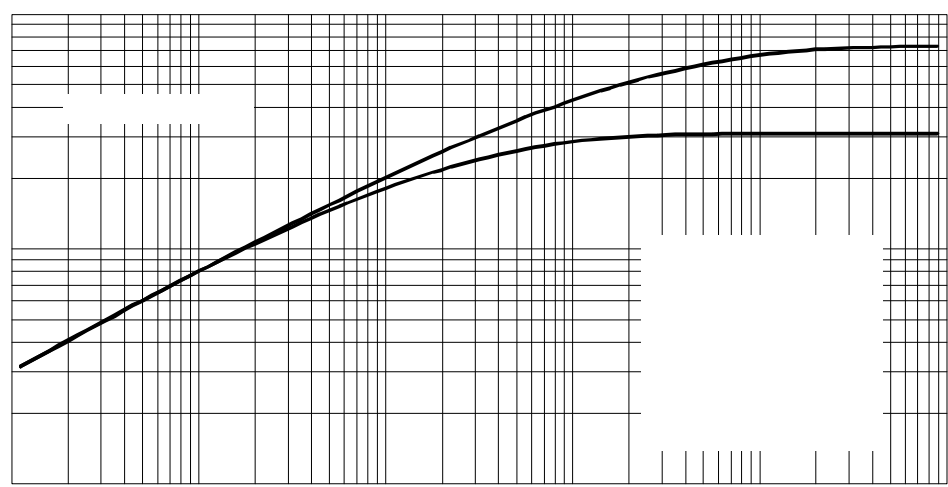


Fig. 10 - Thermal Impedance  $Z_{thJ-hs}$  Characteristics

## Thermal and Mechanical Specifications

Parameter	SD2000C..L	Units	Conditions
T <sub>J</sub> Max. junction operating temperature range	-40 to 180	°C	
T <sub>stg</sub> Max. storage temperature range	-55 to 200		
R <sub>thJ-hs</sub> 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

 $\Delta R_{thJ-hs}$  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°	0.009	0.009	0.006	0.006	K/W	T <sub>J</sub> = T <sub>J</sub> 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	
<b>1</b>	- Diode
<b>2</b>	- Essential part number
<b>3</b>	- 0 = Standard recovery
<b>4</b>	- C = Ceramic Puk
<b>5</b>	- Voltage code: Code x 100 = V <sub>RRM</sub> (see Voltage Ratings Table)
<b>6</b>	- L = Puk Case DO-200AB (B-PUK)

Outline Table

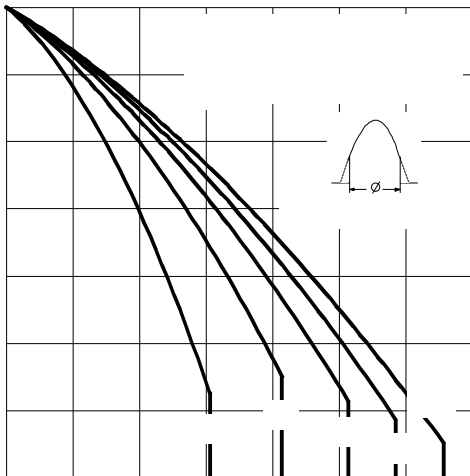
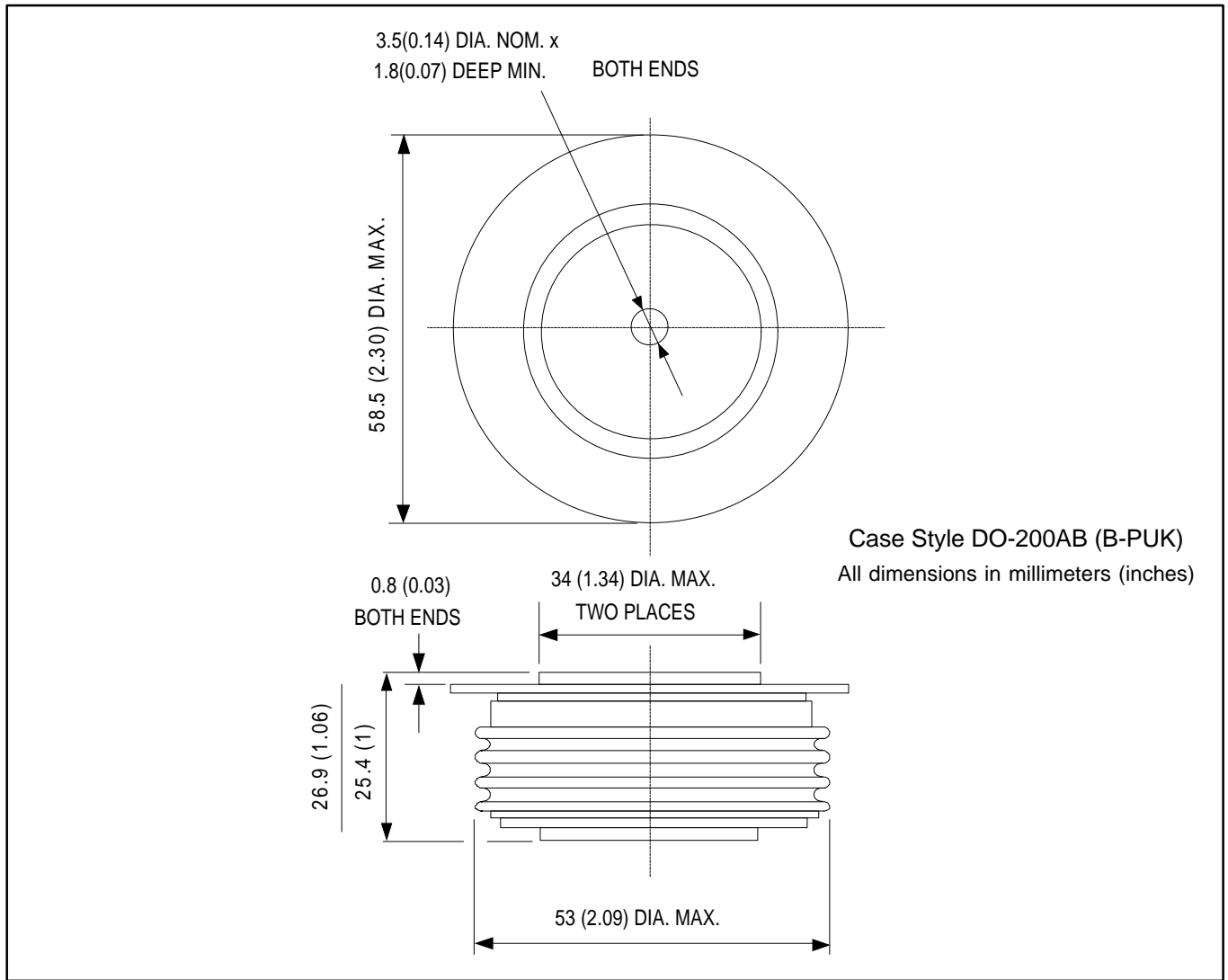


Fig. 1 - Current Ratings Characteristics

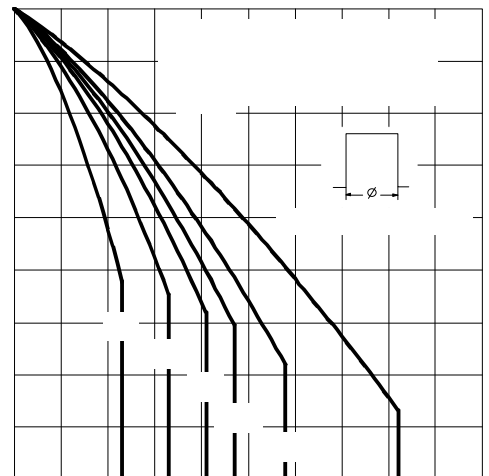


Fig. 2 - Current Ratings Characteristics