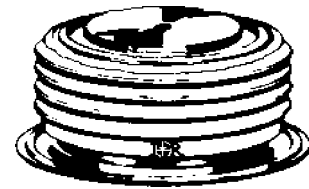

DISCRETE POWER DIODES and THYRISTORS
DATA BOOK

STANDARD RECOVERY DIODES
Hockey Puk Version
Features

- Wide current range
- High voltage ratings up to 4500V
- High surge current capabilities
- Diffused junction
- Hockey Puk version
- Case style DO-200AB (B-PUK)

1200A
Typical Applications

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



case style DO-200AB (B-PUK)

Major Ratings and Characteristics

Parameters	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} @ 50Hz	13600	12200	A
@ 60Hz	14240	12800	A
I^2t @ 50Hz	925	745	KA ² s
@ 60Hz	845	680	KA ² s
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 rev. voltage V	I_{RRM} max. @ $T_J = T_J$ max. mA
SD800C..L	24	2400	2500	50
	30	3000	3100	
	36	3600	3700	
	40	4000	4100	
	45	4500	4600	

Forward Conduction

Parameter		SD800C..L		Units	Conditions			
		24 to 36	40 to 45					
I _{F(AV)}	Max. average forward current @ Heatsink temperature	1180(550)	1065(490)	A	180° conduction, half sine wave			
		55(85)	55(85)	°C	Double side (single side) cooled			
I _{F(RMS)}	Max. RMS forward current	2280	2040	A	@ 25°C heatsink temperature double side cooled			
I _{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	13600	12200	A	t = 10ms	No voltage	Sinusoidal halfwave, Initial T _J = T _J max.	
		14240	12800		t = 8.3ms	reapplied		
		11440	10250		t = 10ms	50% V _{RRM}		
		11980	10750		t = 8.3ms	reapplied		
I ² t	Maximum I ² t for fusing	925	745	KA ² s	t = 10ms	No voltage		
		845	680		t = 8.3ms	reapplied		
		654	526		t = 10ms	50% V _{RRM}		
		597	480		t = 8.3ms	reapplied		
I ² √t	Maximum I ² √t for fusing	9250	7450	KA ² √s	t = 0.1 to 10ms, no voltage reapplied			
V _{F(TO)1}	Low level value of threshold voltage	0.90	1.06	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	1.10	1.18		(I > π x I _{F(AV)}), T _J = T _J max.			
r _{f1}	Low level value of forward slope resistance	0.38	0.44	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	0.34	0.41		(I > π x I _{F(AV)}), T _J = T _J max.			
V _{FM}	Max. forward voltage drop	1.66	1.95	V	I _{pk} = 2000A, T _J = T _J max, t _p = 10ms sinusoidal wave			

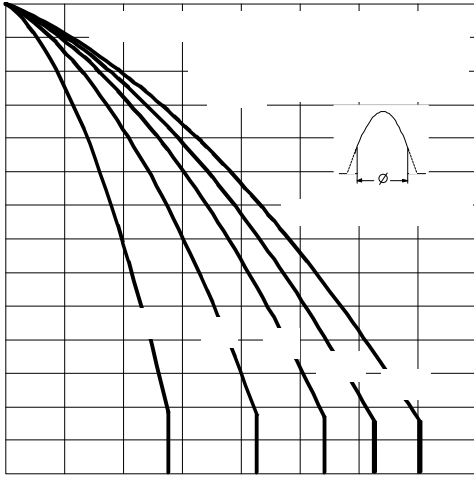


Fig. 3 - Current Ratings Characteristics

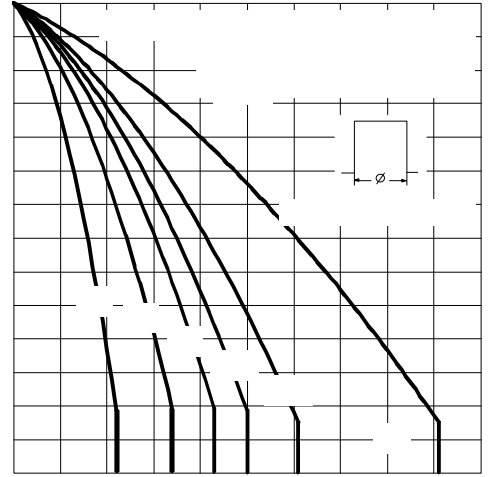


Fig. 4 - Current Ratings Characteristics

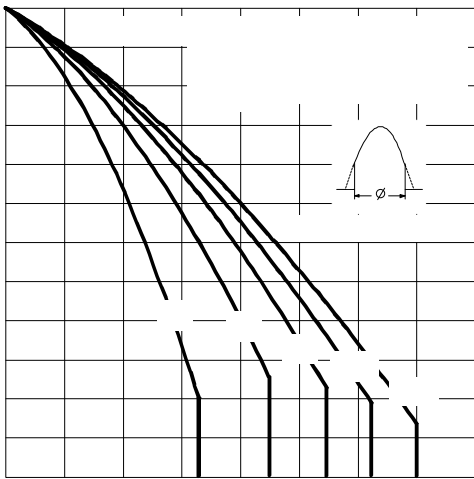


Fig. 5 - Current Ratings Characteristics

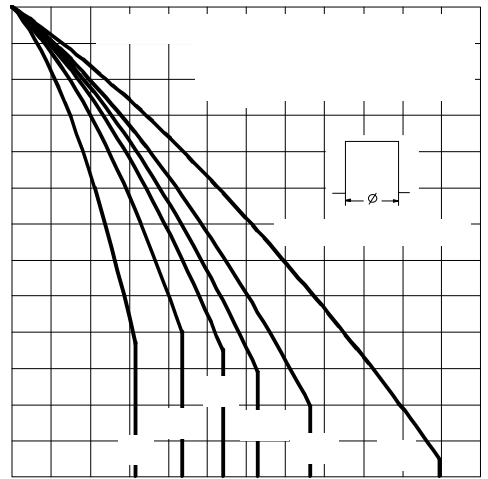


Fig. 6 - Current Ratings Characteristics

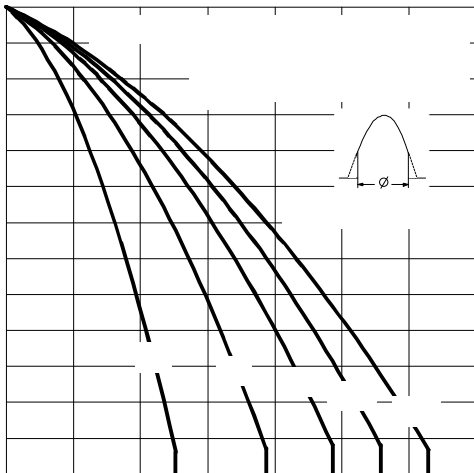


Fig. 7 - Current Ratings Characteristics

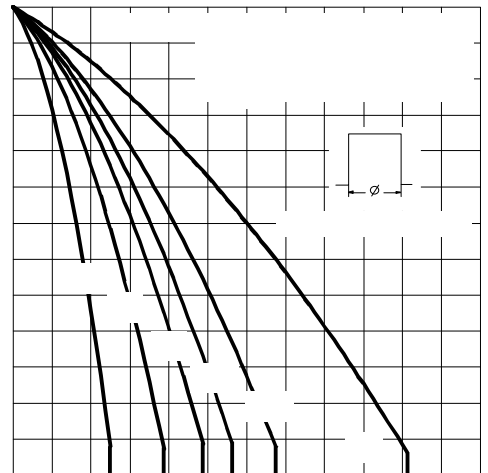


Fig. 8 - Current Ratings Characteristics

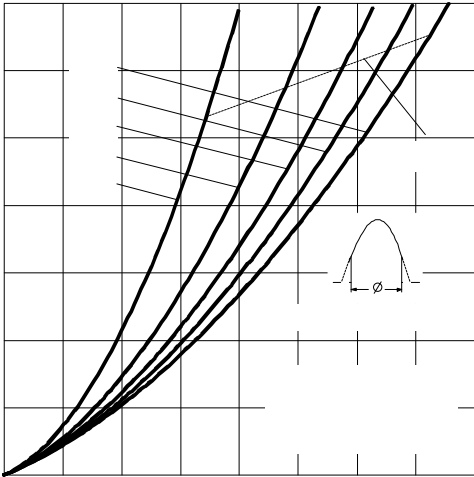


Fig. 9 - Forward Power Loss Characteristics

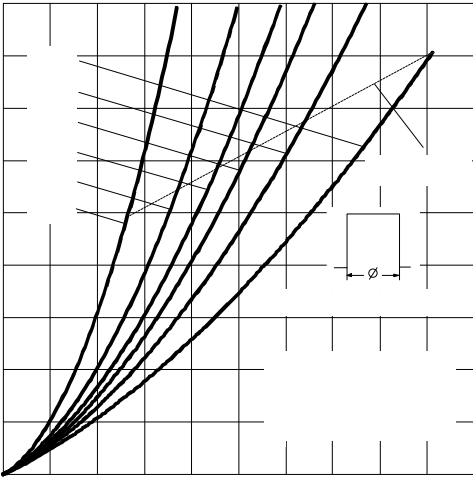


Fig. 10 - Forward Power Loss Characteristics

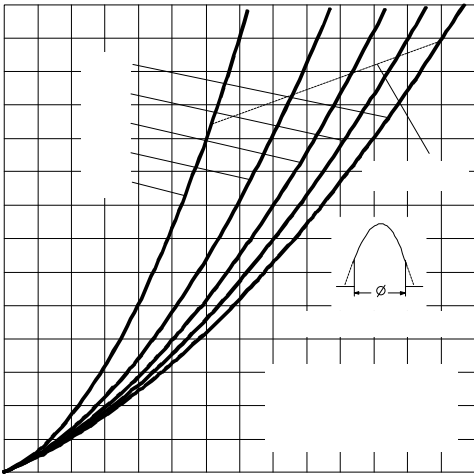


Fig. 11 - Forward Power Loss Characteristics

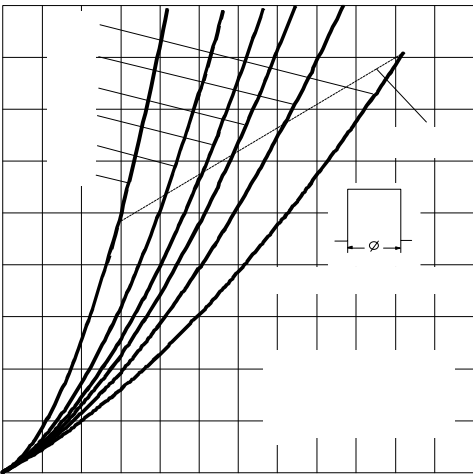


Fig. 12 - Forward Power Loss Characteristics

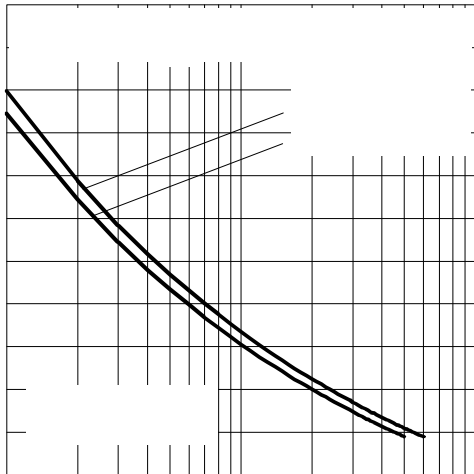


Fig. 13 - Maximum Non-Repetitive Surge Current

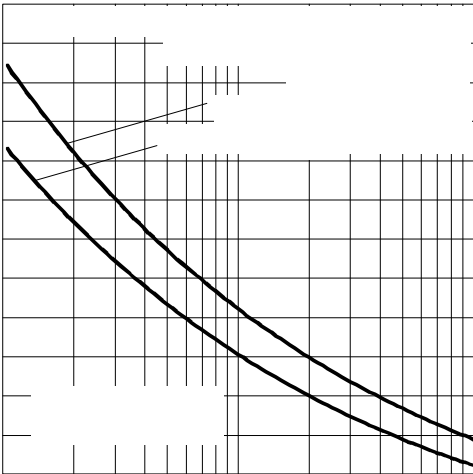


Fig. 14 - Maximum Non-Repetitive Surge Current

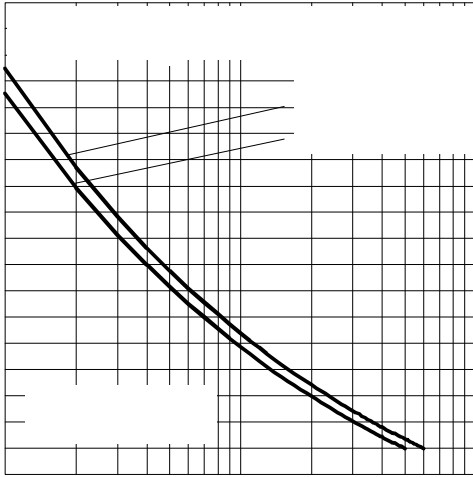


Fig. 15 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

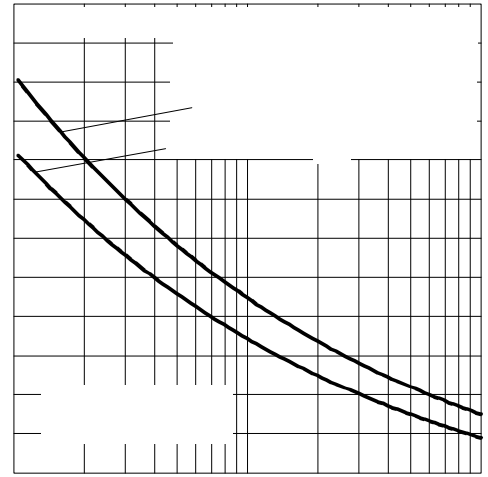


Fig. 16 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

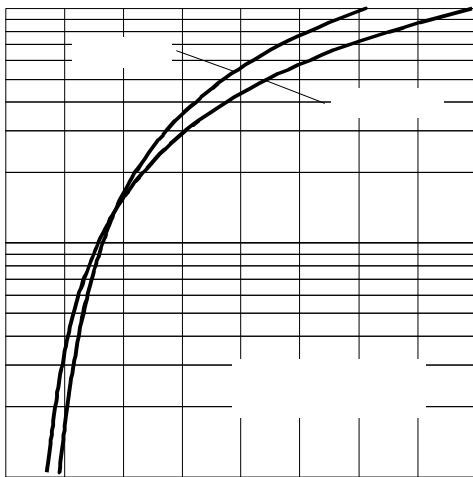


Fig. 17 - Forward Voltage Drop Characteristics

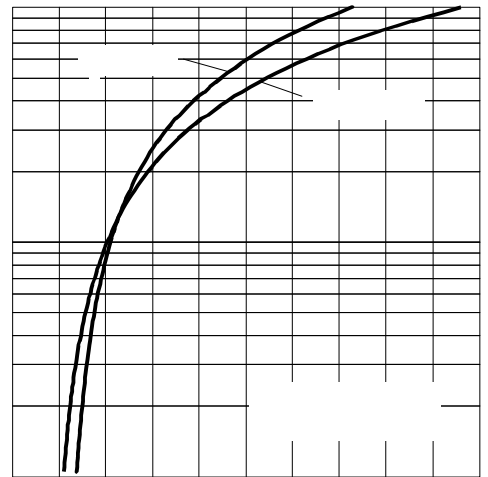


Fig. 18 - Forward Voltage Drop Characteristics

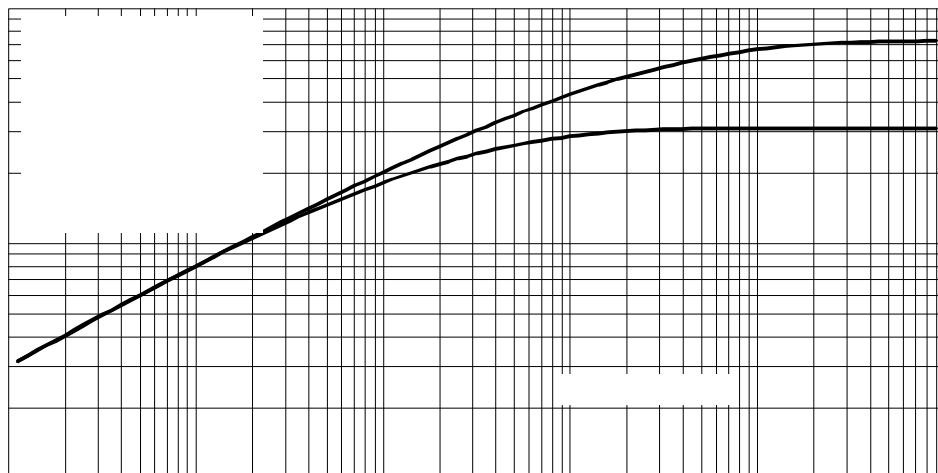


Fig. 19 - Thermal Impedance Z_{thJC} Characteristics

Thermal and Mechanical Specifications

Parameter		SD800C..L		Units	Conditions
		24 to 36	40 to 45		
T_J	Max. junction operating temperature range	-40 to 150	-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	0.073 0.031		K/W	DC operation single side cooled DC operation double side cooled
F	Mounting force, $\pm 10\%$	14700 (1500)		N (Kg)	
wt	Approximate weight	255		g	
Case style		DO-200AB (B-PUK)			See Outline Table

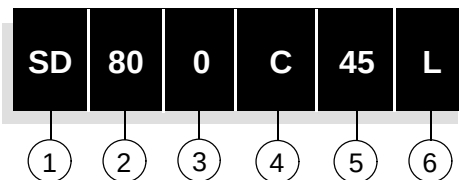
 ΔR_{thJ-hs} Conduction

(The following table shows the increment of thermal 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	$T_J = T_{J \text{ max.}}$
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

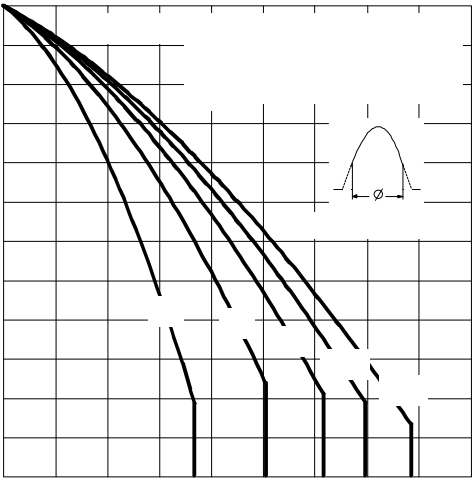
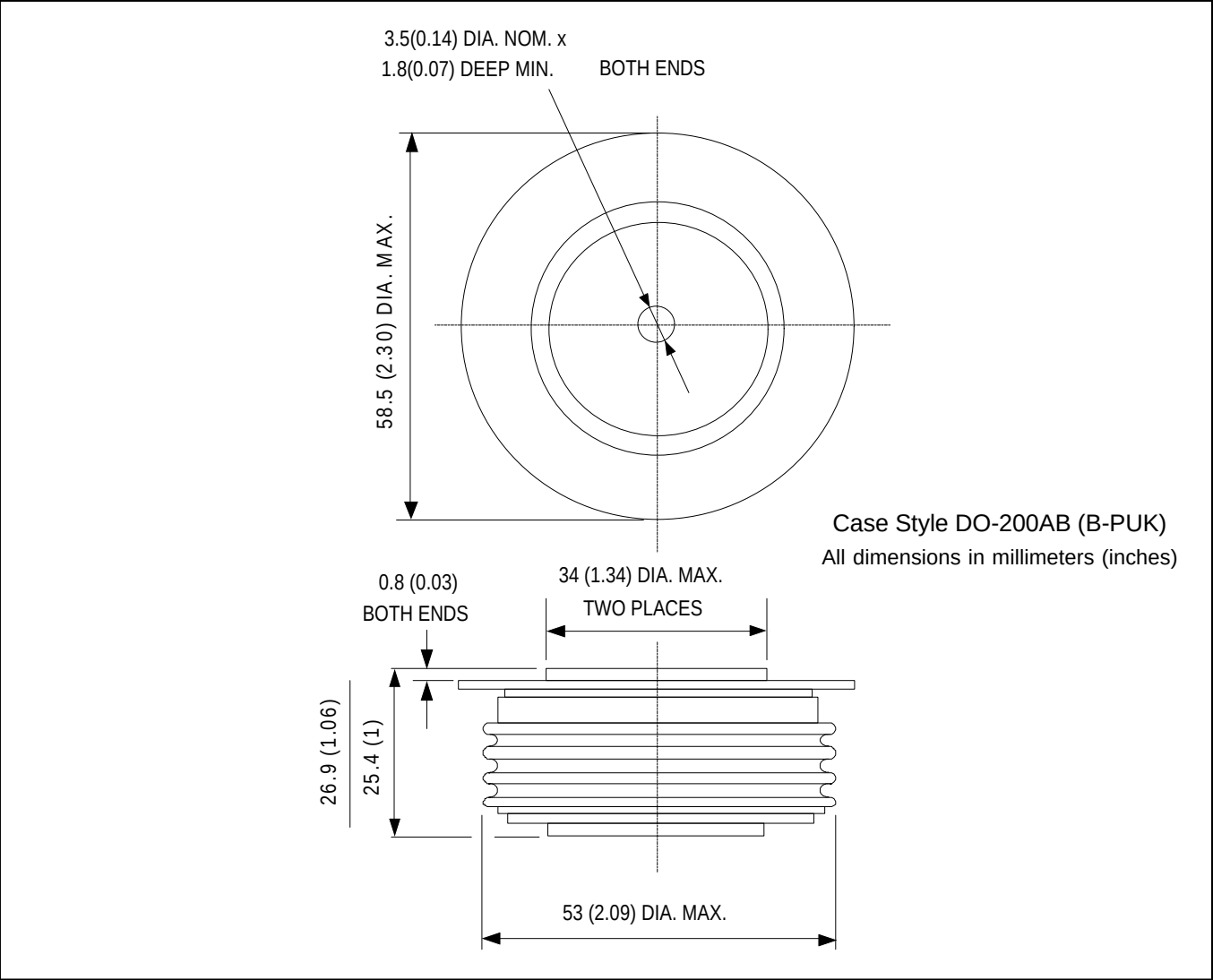


Fig. 1 - Current Ratings Characteristics

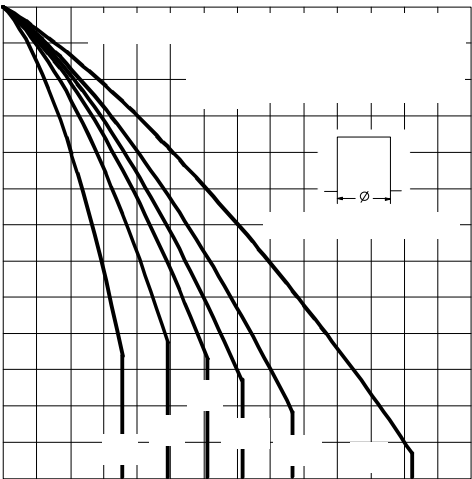


Fig. 2 - Current Ratings Characteristics