

### 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 B-43

#### Typical Applications

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

1400A



#### Major Ratings and Characteristics

Parameters	SD1100C..C		Units	
	04 to 20	25 to 32		
$I_{F(AV)}$	1400	1100	A	
@ $T_{hs}$	55	55	°C	
$I_{F(RMS)}$	2500	2000	A	
@ $T_{hs}$	25	25	°C	
$I_{FSM}$	@ 50Hz	13000	10500	A
	@ 60Hz	13600	11000	A
$I^2t$	@ 50Hz	846	551	KA <sup>2</sup> s
	@ 60Hz	772	503	KA <sup>2</sup> s
$V_{RRM}$ range	400 to 2000	2500 to 3200	V	
$T_J$	- 40 to 180	- 40 to 150	°C	

# SD1100C..C Series

## 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..C	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..C		Units	Conditions		
	04 to 20	25 to 32				
$I_{F(AV)}$ Max. average forward current @ Heatsink temperature	1400(795)	1100(550)	A	180° conduction, half sine wave Double side (single side) cooled		
	55(85)	55(85)	°C			
$I_{F(RMS)}$ Max. RMS forward current	2500	2000	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	
$I^2t$ Maximum $I^2t$ for fusing	846	551	KA <sup>2</sup> s	t = 10ms	No voltage	
	772	503		t = 8.3ms	reapplied	
	598	390		t = 10ms	100% $V_{RRM}$	
	546	356		t = 8.3ms	reapplied	
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	8460	5510	KA <sup>2</sup> √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% × π × $I_{F(AV)}$ < I < π × $I_{F(AV)}$ ), $T_J = T_J$ max.		
$V_{F(TO)2}$ High level value of threshold voltage	0.94	0.88		(I > π × $I_{F(AV)}$ ), $T_J = T_J$ max.		
$r_{f1}$ Low level value of forward slope resistance	0.35	0.40	mΩ	(16.7% × π × $I_{F(AV)}$ < I < π × $I_{F(AV)}$ ), $T_J = T_J$ max.		
$r_{f2}$ High level value of forward slope resistance	0.26	0.38		(I > π × $I_{F(AV)}$ ), $T_J = T_J$ 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		

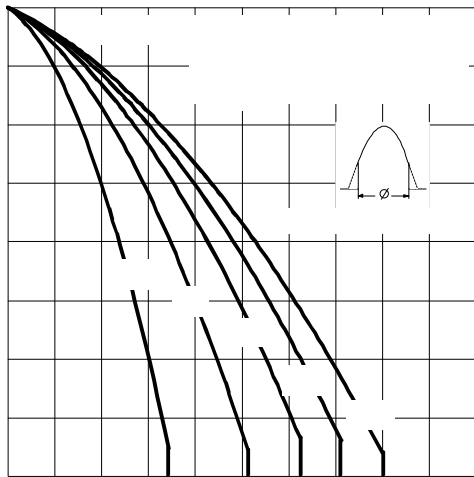


Fig. 3 - Current Ratings Characteristics

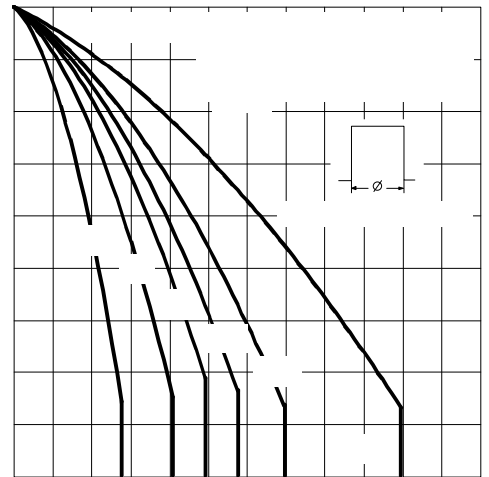


Fig. 4 - Current Ratings Characteristics

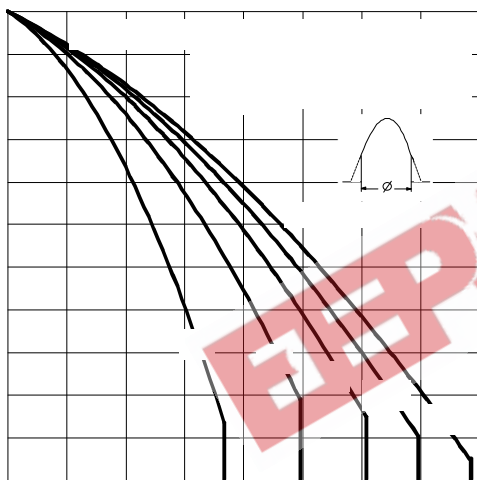


Fig. 5 - Current Ratings Characteristics

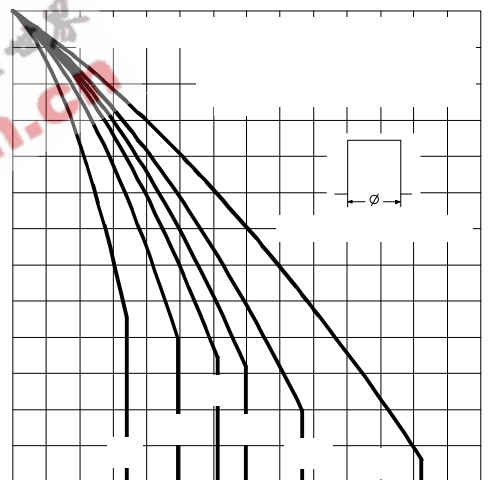


Fig. 6 - Current Ratings Characteristics

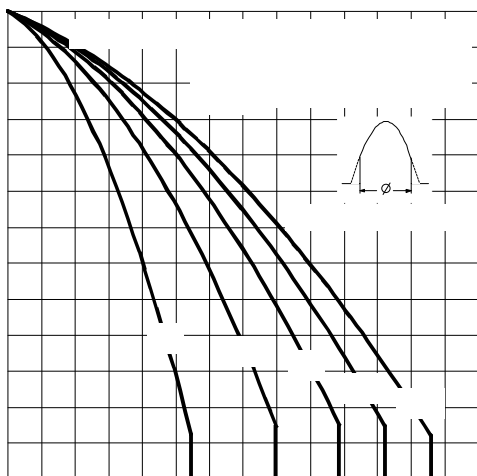


Fig. 7 - Current Ratings Characteristics

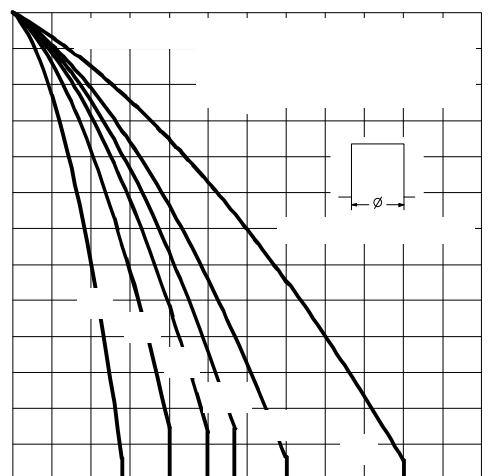


Fig. 8 - Current Ratings Characteristics

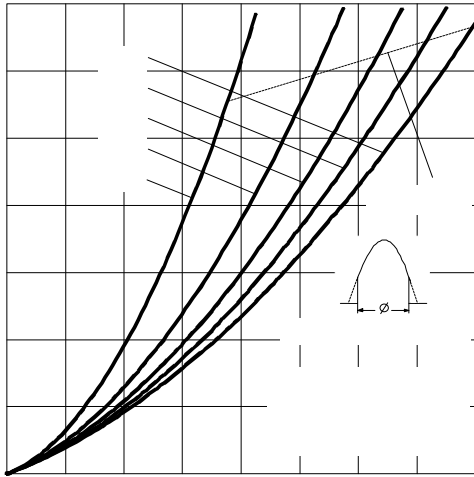


Fig. 9 - Forward Power Loss Characteristics

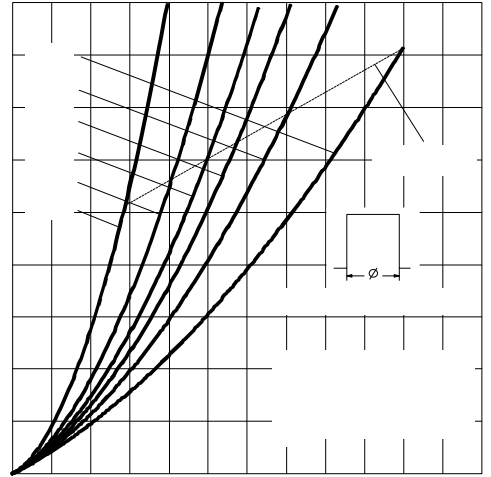


Fig. 10 - Forward Power Loss Characteristics

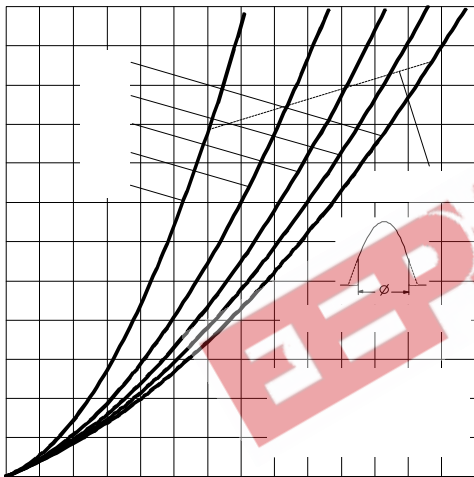


Fig. 11 - Forward Power Loss Characteristics

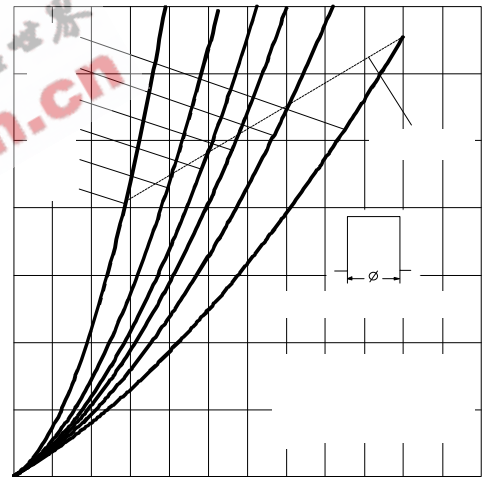


Fig. 12 - Forward Power Loss Characteristics

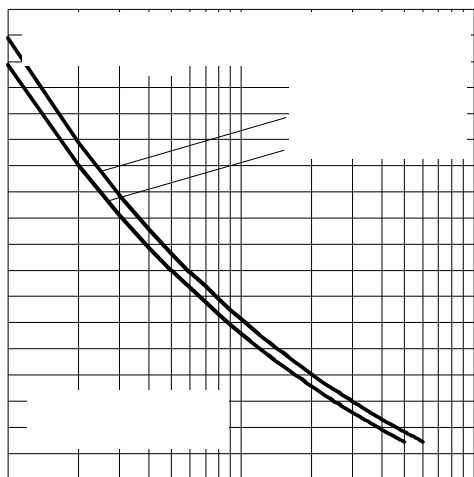


Fig. 13 - Maximum Non-Repetitive Surge Current

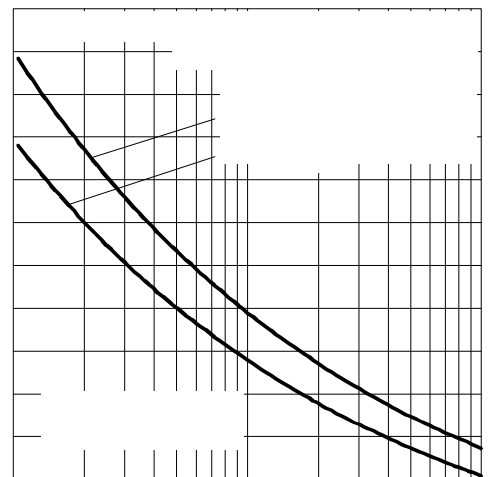


Fig. 14 - Maximum Non-Repetitive Surge Current

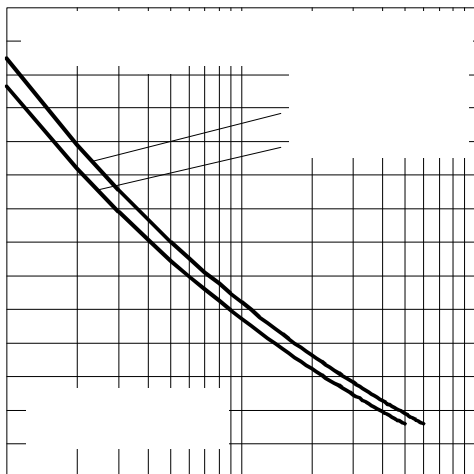


Fig. 15 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

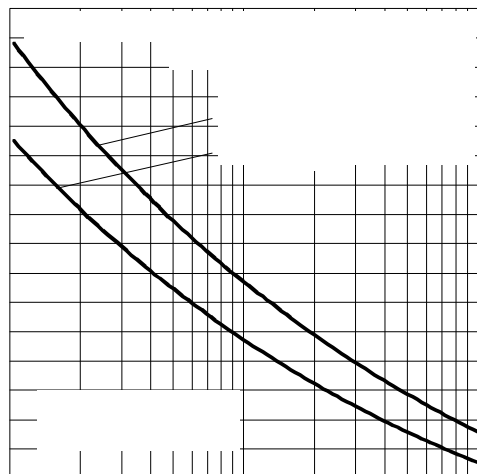


Fig. 16 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

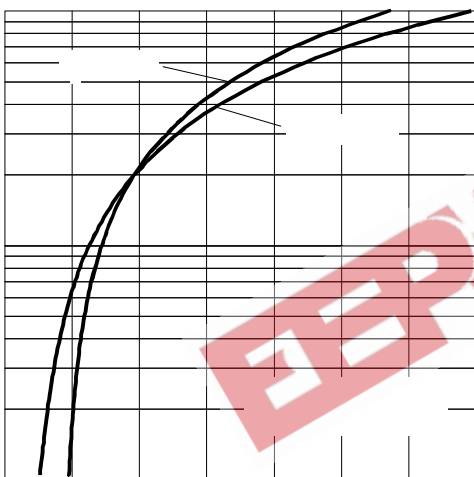


Fig. 17 - Forward Voltage Drop Characteristics

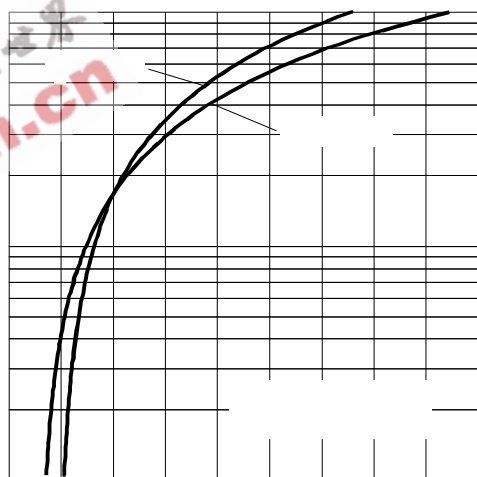


Fig. 18 - Forward Voltage Drop Characteristics

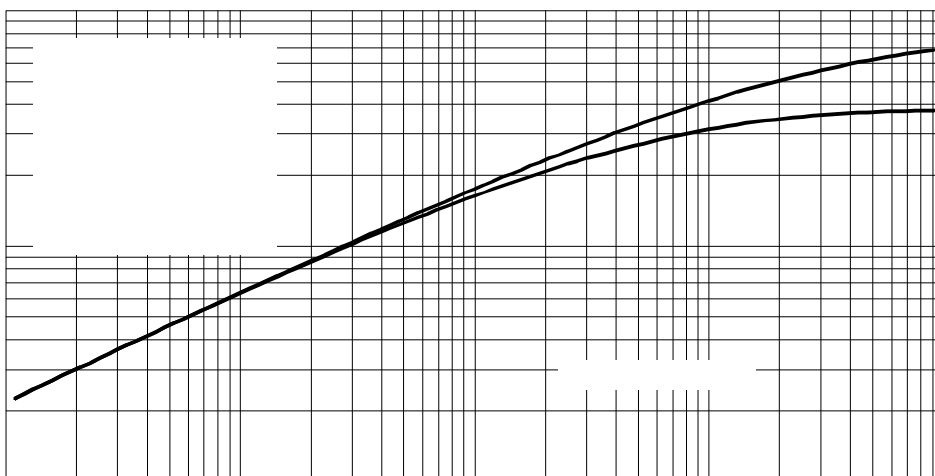


Fig. 19 - Thermal Impedance  $Z_{thJC}$  Characteristics

## Thermal and Mechanical Specifications

Parameter	SD1100C..C		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	0.076 0.038		K/W	DC operation single side cooled DC operation double side cooled
F Mounting force, $\pm 10\%$	9800 (1000)		N (Kg)	
wt Approximate weight	83		g	
Case style	B - 43			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°	0.007	0.007	0.005	0.005	K/W	$T_J = T_{J \text{ max.}}$
120°	0.008	0.008	0.008	0.008		
90°	0.010	0.010	0.011	0.011		
60°	0.015	0.015	0.016	0.016		
30°	0.026	0.026	0.026	0.026		

## Ordering Information Table

Device Code													
<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">SD</td> <td style="padding: 5px;">110</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">C</td> <td style="padding: 5px;">32</td> <td style="padding: 5px;">C</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> </tr> </table>	SD	110	0	C	32	C	①	②	③	④	⑤	⑥	<p> <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 = <math>V_{RRM}</math> (See Voltage Ratings table)  <b>6</b> - C = Puk Case B - 43         </p>
SD	110	0	C	32	C								
①	②	③	④	⑤	⑥								

Outline Table

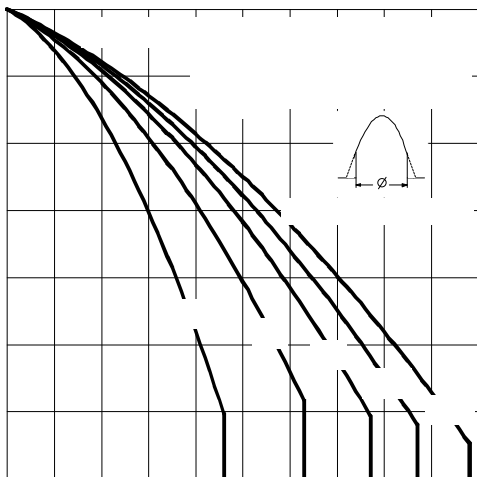
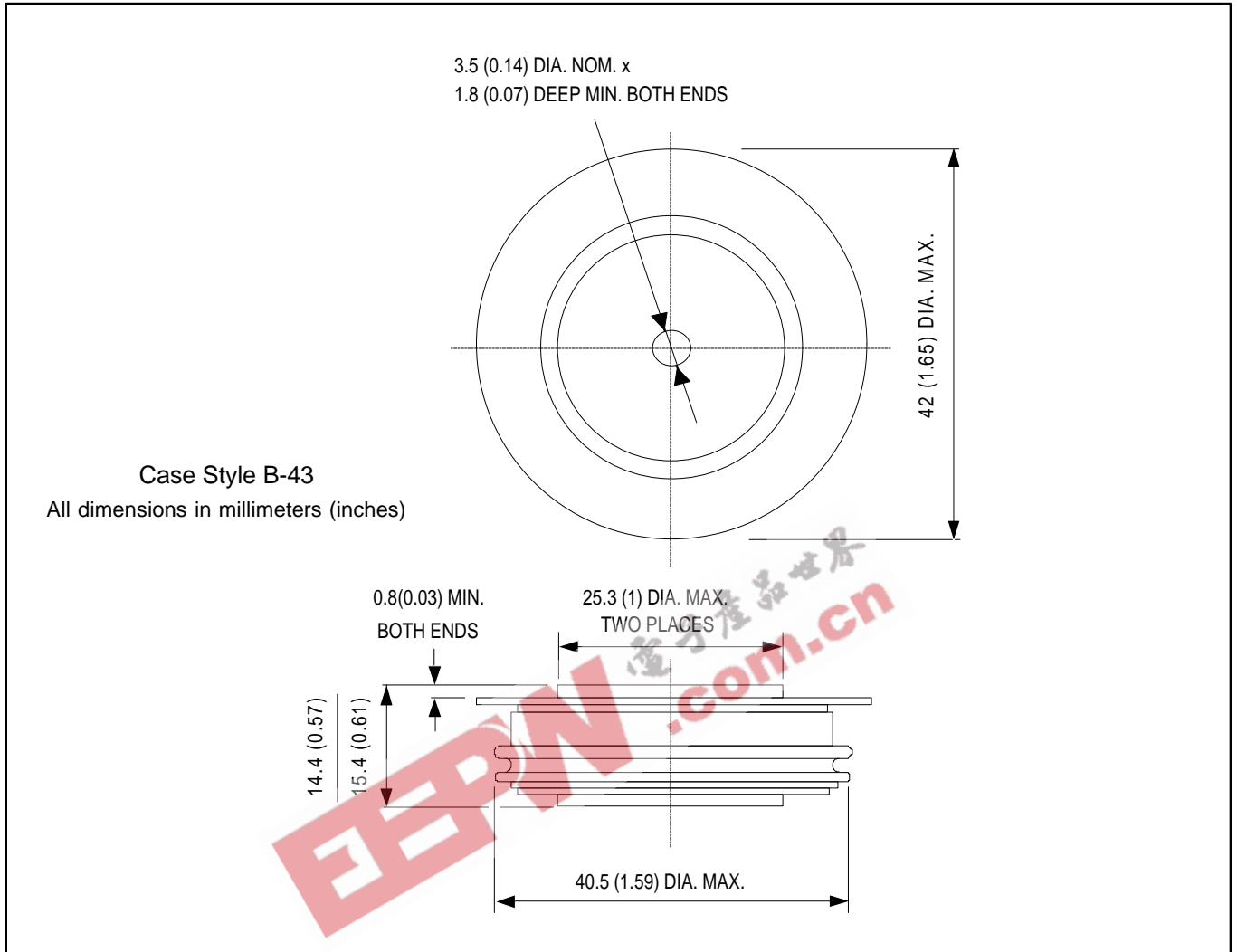


Fig. 1 - Current Ratings Characteristics

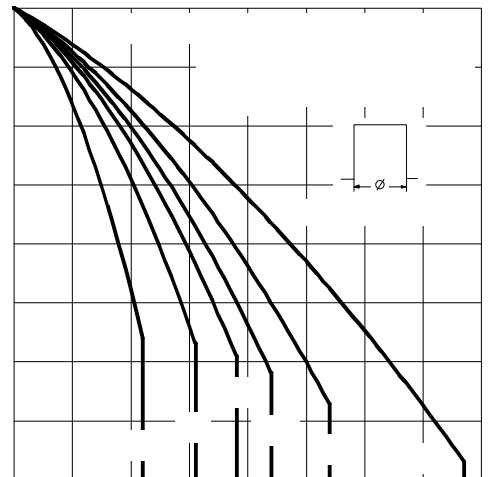


Fig. 2 - Current Ratings Characteristics