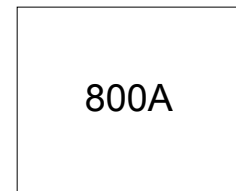


STANDARD RECOVERY DIODES

Hockey Puk Version

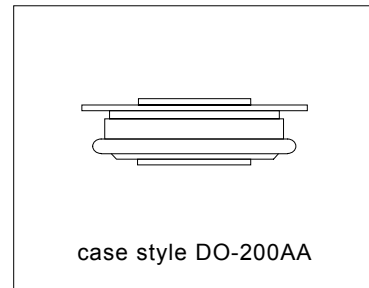
Features

- Wide current range
- High voltage ratings up to 2400V
- High surge current capabilities
- Diffused junction
- Hockey Puk version
- Case style DO-200AA



Typical Applications

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



Major Ratings and Characteristics

Parameters	SD400C..C	Units
$I_{F(AV)}$	800	A
	@ T_{hs}	55 °C
$I_{F(RMS)}$	1435	A
	@ T_{hs}	25 °C
I_{FSM}	@ 50Hz	8250 A
	@ 60Hz	8640 A
I^2t	@ 50Hz	340 KA ² s
	@ 60Hz	311 KA ² s
V_{RRM} range	400 to 2400	V
T_J	- 40 to 190	°C

SD400C..C Series

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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. @ $T_J = 150^\circ\text{C}$ mA
SD400C..C	04	400	500	15
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	25	2500	2600	
	28	2800	2900	
	32	3200	3300	

Forward Conduction

Parameter	SD400C..C	Units	Conditions
$I_{F(AV)}$ Max. average forward current @ Heatsink temperature	800 (425)	A	180° conduction, half sine wave
	55 (85)	°C	Double side (single side) cooled
$I_{F(RMS)}$ Max. RMS forward current	1435	A	@ 25°C heatsink temperature double side cooled
I_{FSM} Max. peak, one-cycle forward, non-repetitive surge current	8250	A	t = 10ms No voltage
	8640		t = 8.3ms reappplied
	6940		t = 10ms 50% V_{RRM}
	7265		t = 8.3ms reappplied
I^2t Maximum I^2t for fusing	340	KA ² s	t = 10ms No voltage
	311		t = 8.3ms reappplied
	241		t = 10ms 50% V_{RRM}
	220		t = 8.3ms reappplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	3400	KA ² √s	t = 0.1 to 10ms, no voltage reappplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.80	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
$V_{F(TO)2}$ High level value of threshold voltage	0.83		$(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
r_{f1} Low level value of forward slope resistance	0.55	mΩ	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
r_{f2} High level value of forward slope resistance	0.53		$(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
V_{FM} Max. forward voltage drop	1.86	V	$I_{pk} = 1930\text{A}$, $T_J = T_J \text{ max.}$, $t_p = 10\text{ms}$ sinusoidal wave

Thermal and Mechanical Specifications

Parameter	SD400C..C	Units	Conditions
T _J Max. junction operating temperature range	-40 to 190	°C	
T _{stg} Max. storage temperature range	-55 to 200		
R _{thJ-hs} Max. thermal resistance, junction to heatsink	0.163 0.073	K/W	DC operation single side cooled DC operation double side cooled
F Mounting force, ± 10%	4900 (500)	N (Kg)	
wt Approximate weight	70	g	
Case style	DO-200AA		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°	0.017	0.018	0.011	0.012	K/W	T _J = T _J max.
120°	0.020	0.020	0.020	0.020		
90°	0.025	0.025	0.027	0.027		
60°	0.037	0.036	0.038	0.038		
30°	0.064	0.062	0.065	0.062		

Ordering Information Table

Device Code

SD	40	0	C	24	C
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** - C = Puk Case DO-200AA

SD400C..C Series

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Outline Table

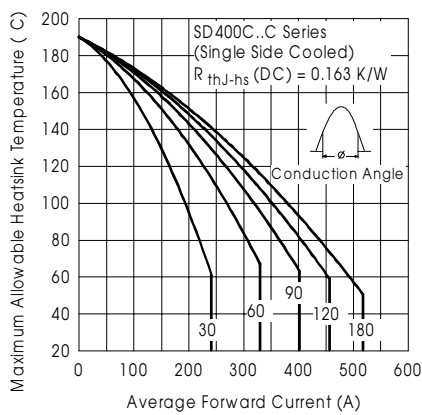
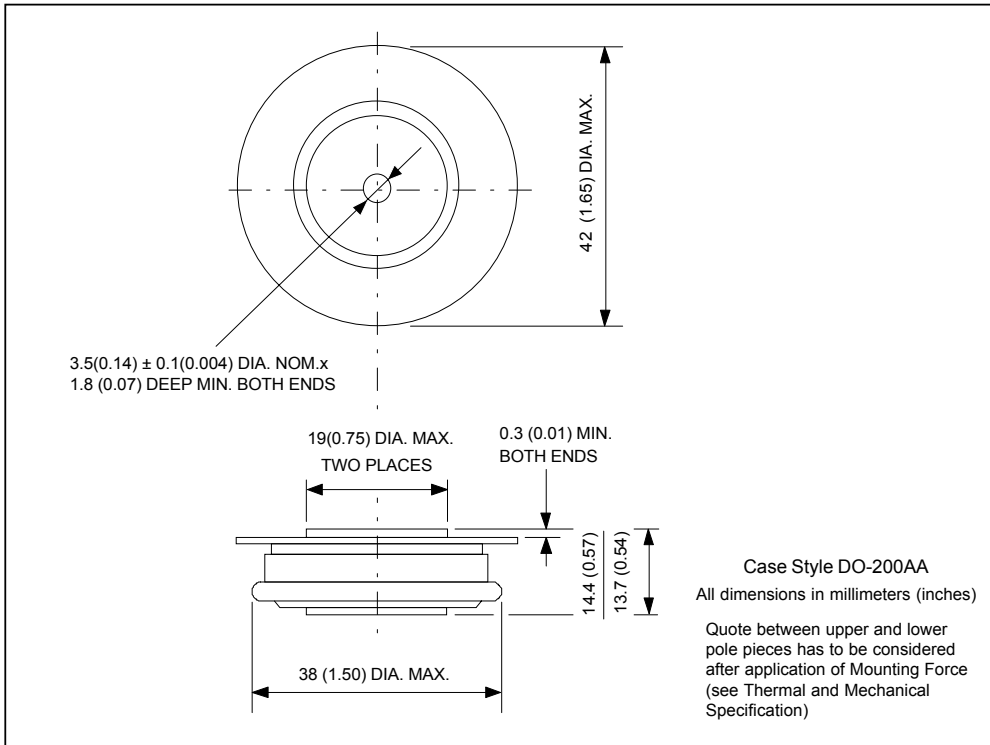


Fig. 1 - Current Ratings Characteristics

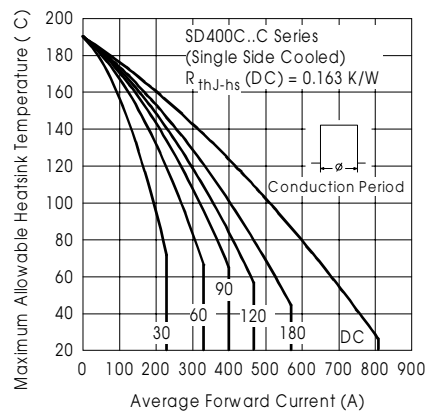


Fig. 2 - Current Ratings Characteristics

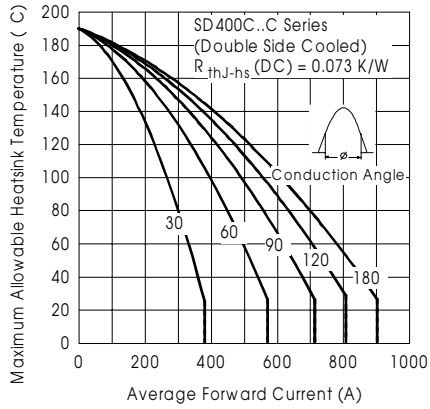


Fig. 3 - Current Ratings Characteristics

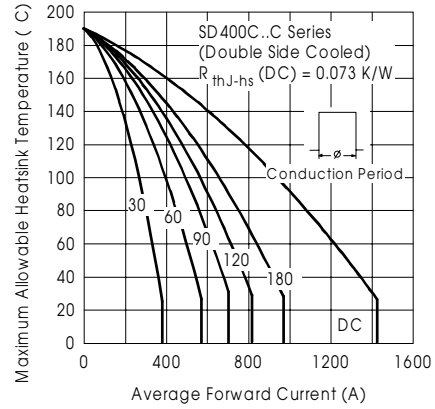


Fig. 4 - Current Ratings Characteristics

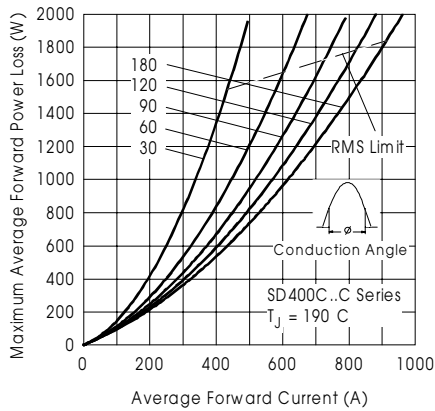


Fig. 5 - Forward Power Loss Characteristics

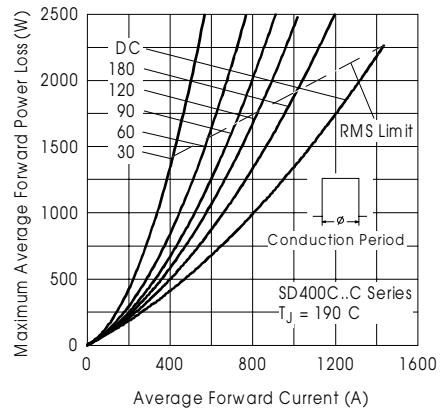


Fig. 6 - Forward Power Loss Characteristics

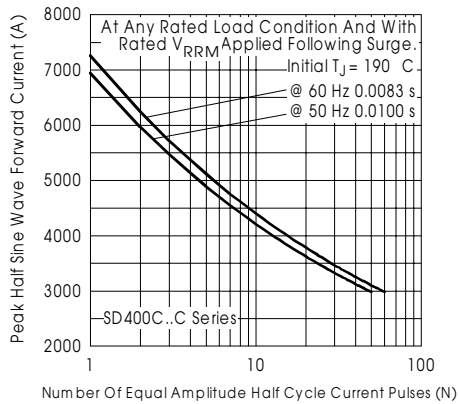


Fig. 7 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

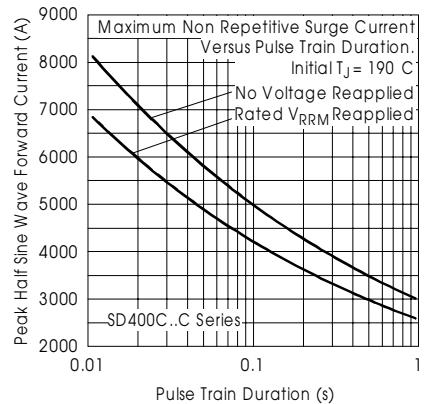


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

SD400C..C Series

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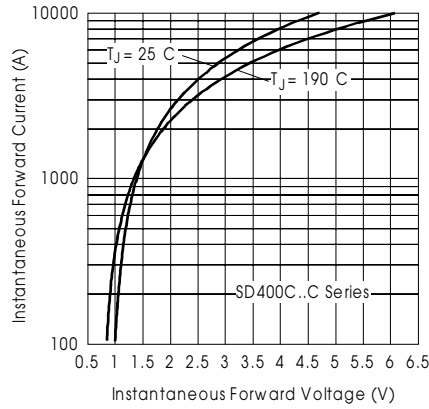


Fig. 9 - Forward Voltage Drop Characteristics

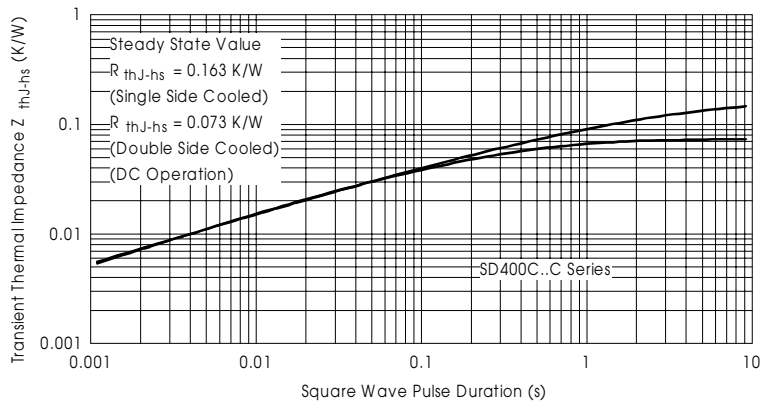


Fig. 10 - Thermal Impedance Z_{thJC} Characteristics

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
IR Rectifier

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11/01

Document Number: 93547

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