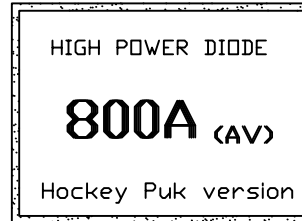


### Features

- ⊗ High surge current
- ⊗ A, K - AVAILABLE
- ⊗ Diffused junction
- ⊗ WEIGHT: 75 gr. (approx.)

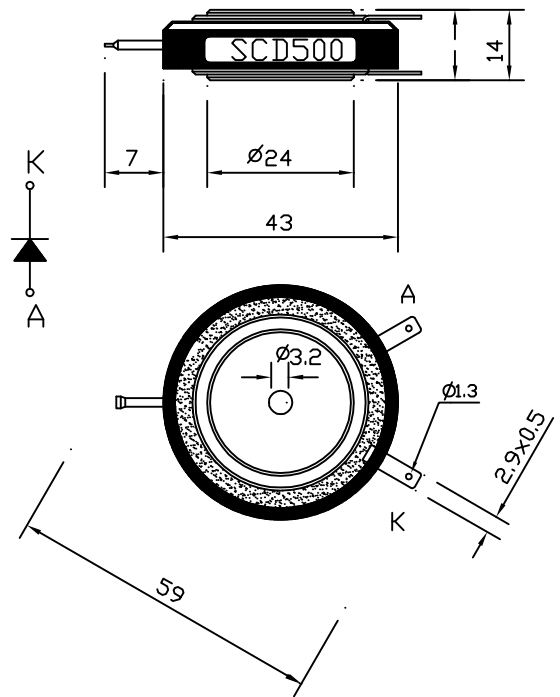
### Typical Applications

- ⊗ Welding
- ⊗ Power supplies
- ⊗ Machine tool controls
- ⊗ High power drive



### Ratings and Characteristics

Parameters	SCD500	Units
$I_{T(AV)}$	800	A
	@ $T_{hs}$	55 °C
$I_{T(RMS)}$	1430	A
	@ $T_{hs}$	25 °C
$I_{TSM}$	@ 50Hz	8250 A
	@ 60Hz	8640 A
	@ 50Hz	340 $KA^2s$
$I^2t$	@ 60Hz	310 $KA^2s$
	$V_{DRM}/V_{RRM}$	400 to 1200
$t_q$	typical	100 $\mu s$
$T_J$		-40 to 190 °C



SCD500 .-- .-

Voltage Code	$V_{DRM}/V_{RRM}$ max. repetitive peak and off-state voltage	Internal
02	200 V	SCOMES Reference
04	400 V	
06	600 V	
08	800 V	
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## ELECTRICAL SPECIFICATIONS

### ⊕ Forward Conduction

Parameter	SCD500	Units	Conditions
$I_{F(AV)}$ Max. average on-state current ⊕ Heatsink temperature	800(500) 55(85)	A °C	180° conduction, half sine wave double side (single side) cooled
$I_{F(RMS)}$ Max. RMS on-state current	1435		⊕ 25°C heatsink temperature (double side cooled)
$I_{FSM}$ Max. peak, one-cycle non-repetitive surge current	8520	A	t=10ms No voltage
	8640		t=8.3ms reapplied
	6940		t=10ms 100% $V_{RRM}$
	7265		t=8.3ms reapplied
$I^2 t$ Maximum $I^2 t$ for fusing	340	KA <sup>2</sup> s	t=10ms No voltage
	310		t=8.3ms reapplied
	241		t=10ms 100% $V_{RRM}$
	220		t=8.3ms reapplied
$I^2 \sqrt{t}$ Maximum $I^2 \sqrt{t}$ for fusing	3400	KA <sup>2</sup> √s	t=0.1 to 10ms, no voltage reapplied
$V_{F(TD)1}$ Low level value of threshold voltage	0.80	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , $T_J = T_J \text{ max.}$
$V_{F(TD)2}$ High level value of threshold voltage	0.83		$(\pi \times I_{F(AV)} < I < 20 \times \pi \times I_{F(AV)})$ , $T_J = T_J \text{ max.}$
$r_{t1}$ Low level value of on-state slope resistance	0.55	m Ω	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , $T_J = T_J \text{ max.}$
$r_{t2}$ High level value of on-state slope resistance	0.53		$(\pi \times I_{F(AV)} < I < 20 \times \pi \times I_{F(AV)})$ , $T_J = T_J \text{ max.}$
$V_{TM}$ Max. on-state voltage	1.1	V	$I_{pk} = 750 \text{ A}$ , $T_J = 190^\circ\text{C}$ , $t_p = 10\text{ms}$ sine pulse

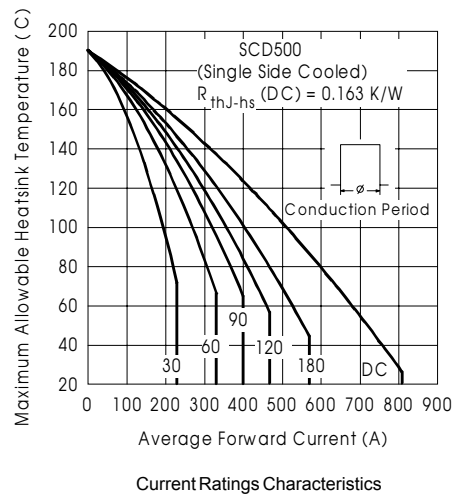
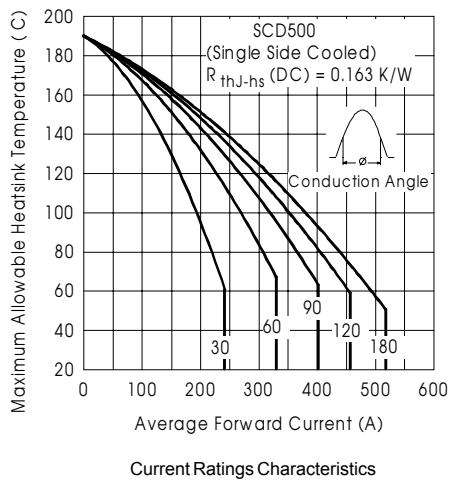
### ⊕ Thermal and Mechanical Specifications

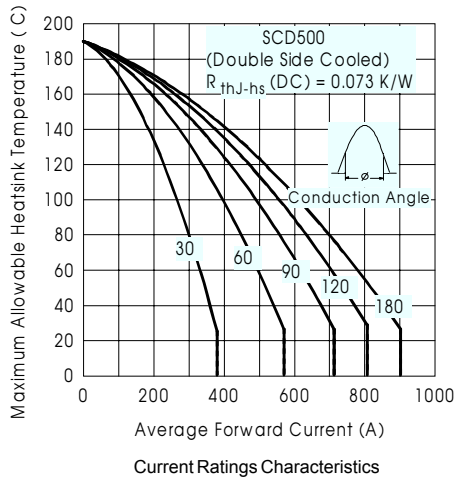
Parameter	SCD500	Units	Conditions
$T_{stg}$ Max. storage temperature range	-55 to 200	°C	
$R_{thJ-hs}$ Max. thermal resistance junction to heatsink	0.183	K/W	DC operation, single side cooled
	0.093		DC operation double side cooled
F Mounting force, ±10%	4900	N	
	(500)	(Kg)	

$\Delta R_{thJ-hs}$  Conduction

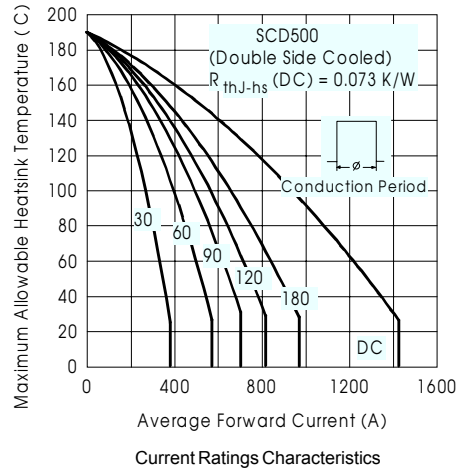
(The following table shows the increment of thermal resistance  $R_{thJ-hs}$  when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction		Rectangular conduction		Units	Conditions
	Single Side	Double Side	Single Side	Double Side		
180°	0.018	0.19	0.012	0.012	K/W	$T_J = T_{J \text{ max.}}$
120°	0.021	0.21	0.020	0.020		
90°	0.025	0.025	0.027	0.027		
60°	0.039	0.037	0.038	0.038		
30°	0.066	0.063	0.066	0.064		

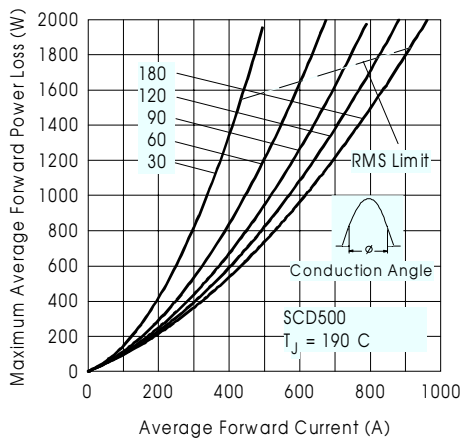




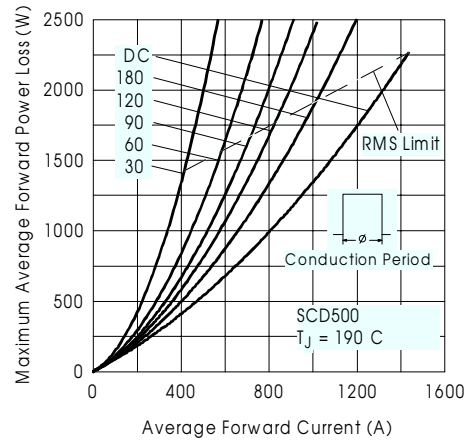
Current Ratings Characteristics



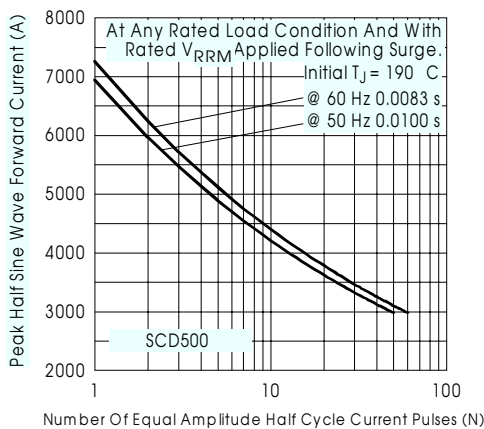
Current Ratings Characteristics



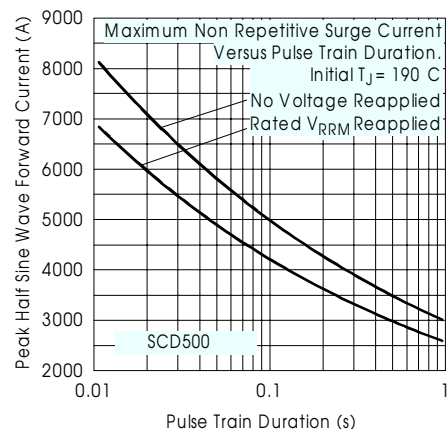
Forward Power Loss Characteristics



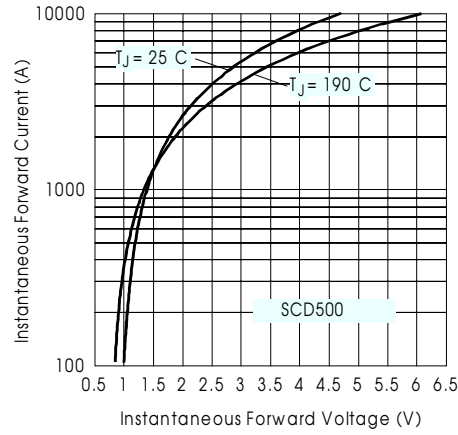
Forward Power Loss Characteristics



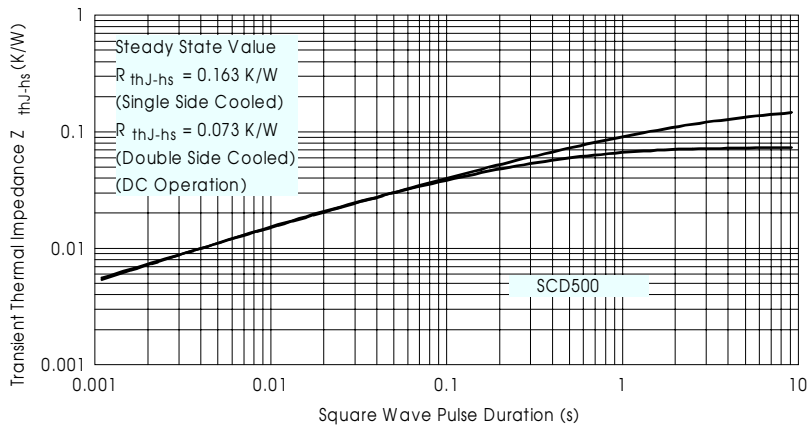
Maximum Non-Repetitive Surge Current  
Single and Double Side Cooled



Maximum Non-Repetitive Surge Current  
Single and Double Side Cooled



Forward Voltage Drop Characteristics



Thermal Impedance  $Z_{thJC}$  Characteristics