

SCD 425...

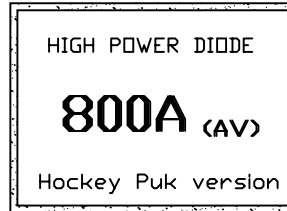
PLASTIC CASE

Features

- ⊕ High surge current
- ⊕ A . K - AVAILABLE
- ⊕ Diffused junction
- ⊕ WEIGHT: 75 gr. (approxim.)

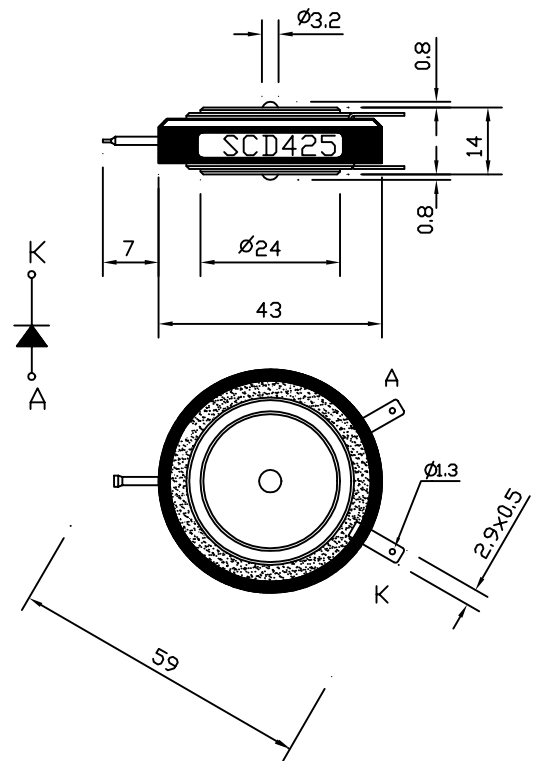
Typical Applications

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



Ratings and Characteristics

Parameters	SCD425	Units
$I_{T(AV)}$	800	A
$I_{T(AV)}$ @ T_{hs}	55	°C
$I_{T(RMS)}$	1430	A
$I_{T(RMS)}$ @ T_{hs}	25	°C
I_{TSM}	@ 50Hz	8250 A
	@ 60Hz	8640 A
I^2t	@ 50Hz	340 KA^2s
	@ 60Hz	310 KA^2s
V_{DRM}/V_{RRM}	400 to 1200	V
t_q typical	100	μs
T_J	-40 to 190	°C



SCD425 .-- .-

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

⊕ Forward Conduction

Parameter	SCD425	Units	Conditions		
$I_{F(AV)}$ Max. average on-state current ⊕ Heatsink temperature	800(425)	A	180° conduction, half sine wave double side (single side) cooled		
	55(85)	°C			
$I_{F(RMS)}$ Max. RMS on-state current	1435	A	⊕ 25°C heatsink temperature (double side cooled)		
I_{FSM} Max. peak, one-cycle non-repetitive surge current	8520		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 ² s	t=10ms	No voltage	Sinusoidal half wave, Initial $T_J = T_J \text{ max.}$
	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 ² √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		

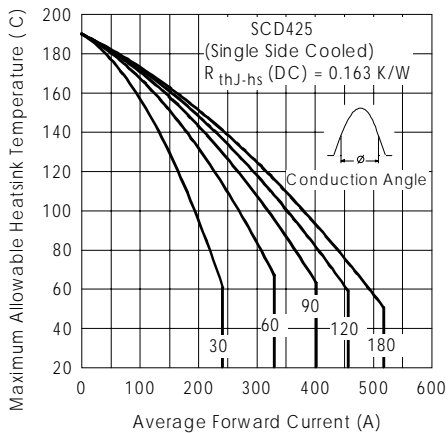
⊕ Thermal and Mechanical Specifications

Parameter	SCD425	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)	

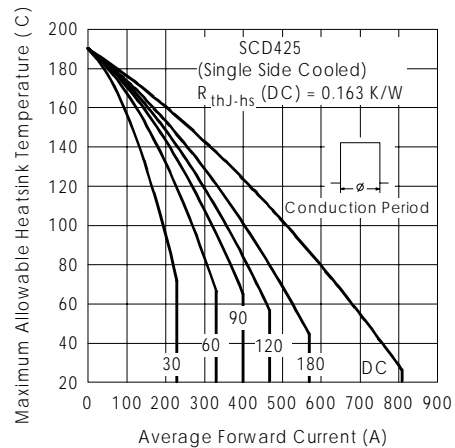
ΔR_{thJ-hs} Conduction

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

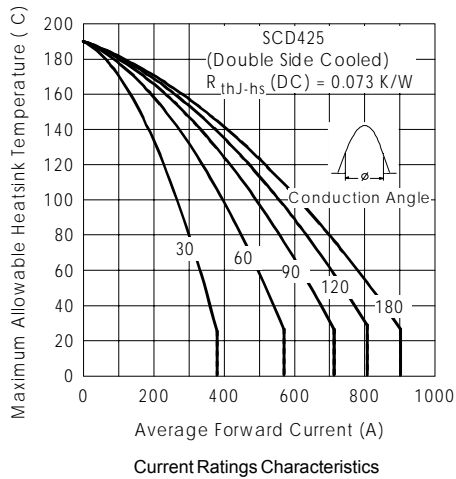
Conduction angle	Sinusoidal conduction		Rectangular conduction		Units	Conditions
	Single Side	Double Side	Single Side	Double Side		
180°	0.018	0.19	0.012	0.012	K/W	$T_J = T_{J \text{ max.}}$
120°	0.021	0.21	0.020	0.020		
90°	0.025	0.025	0.027	0.027		
60°	0.039	0.037	0.038	0.038		
30°	0.066	0.063	0.066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



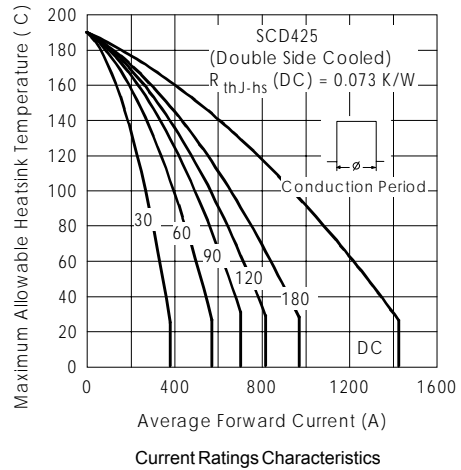
Current Ratings Characteristics



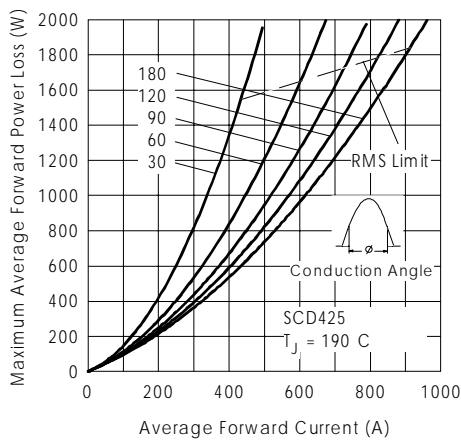
Current Ratings Characteristics



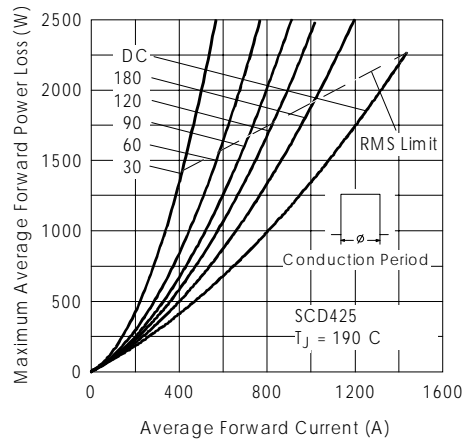
Current Ratings Characteristics



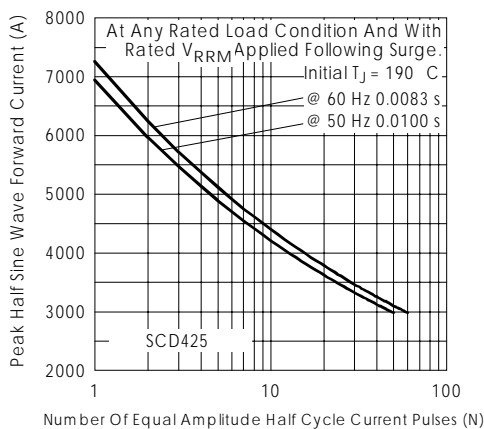
Current Ratings Characteristics



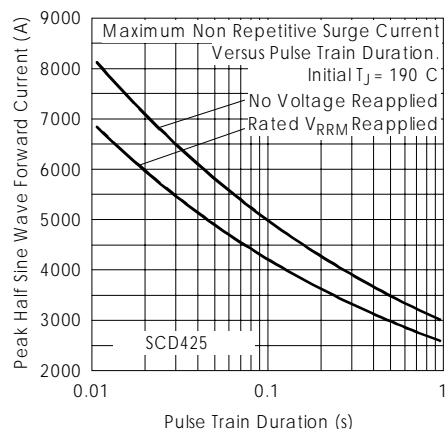
Forward Power Loss Characteristics



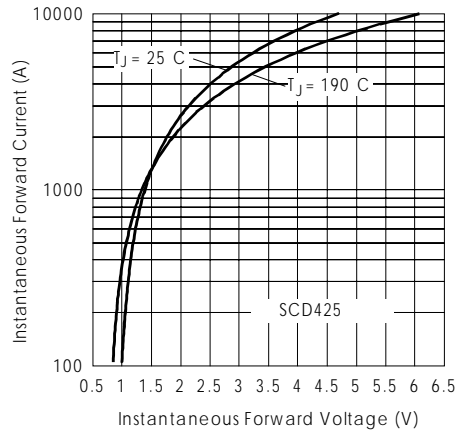
Forward Power Loss Characteristics



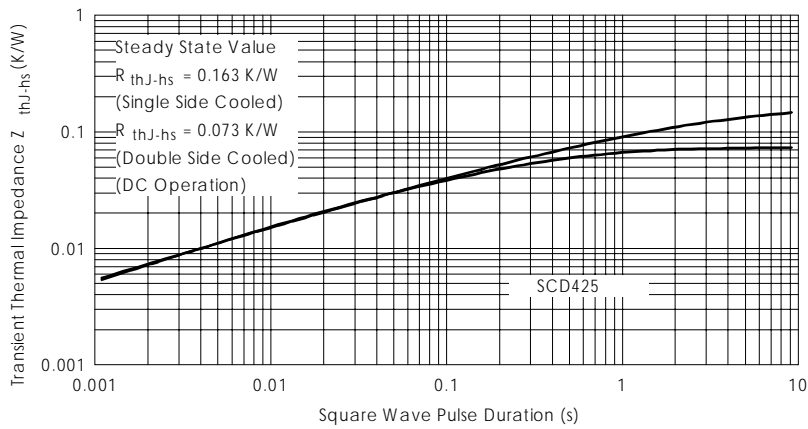
Maximum Non-Repetitive Surge Current
 Single and Double Side Cooled



Maximum Non-Repetitive Surge Current
 Single and Double Side Cooled



Forward Voltage Drop Characteristics



Thermal Impedance Z_{thJC} Characteristics