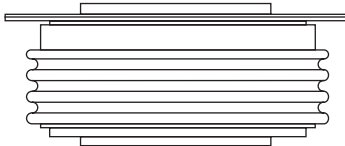




Standard Recovery Diodes (Hockey PUK Version), 3000 A



DO-200AC (K-PUK)

FEATURES

- Wide current range
- High voltage ratings up to 2500 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-200AC (K-PUK)
- Lead (Pb)-free



RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

PRODUCT SUMMARY

$I_{F(AV)}$	3000 A
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MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		3000	A
	T_{hs}	55	°C
$I_{F(RMS)}$		5000	A
	T_{hs}	25	°C
I_{FSM}	50 Hz	31 000	A
	60 Hz	32 460	
I^2t	50 Hz	4810	kA ² s
	60 Hz	4390	
V_{RRM}	Range	1200 to 2500	V
T_J		- 40 to 180	°C

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS

TYPE NUMBER	VOLTAGE CODE	V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT $T_J = 180\text{ °C}$ mA
SD2500C..K	12	1200	1300	75
	16	1600	1700	
	20	2000	2100	
	25	2500	2600	

SD2500C..K Series



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FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current at heatsink temperature	$I_{F(AV)}$	180° conduction, half sine wave Double side (single side) cooled		3000 (1550)	A	
				55 (85)	°C	
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled		5000	A	
Maximum peak, one-cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reappplied	31 000		
		t = 8.3 ms		32 460		
		t = 10 ms	100 % V_{RRM} reappplied	26 050		
		t = 8.3 ms		27 300		
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reappplied	4810		kA ² s
		t = 8.3 ms		4390		
		t = 10 ms	100 % V_{RRM} reappplied	3400		
		t = 8.3 ms		3100		
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reappplied		48 100	kA ² √s	
Low level value of threshold voltage	$V_{F(TO)1}$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ maximum		0.76	V	
High level value of threshold voltage	$V_{F(TO)2}$	$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ maximum		0.97		
Low level value of forward slope resistance	r_{f1}	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ maximum		0.16	mΩ	
High level value of forward slope resistance	r_{f2}	$(I > \pi \times I_{F(AV)})$, $T_J = T_J$ maximum		0.13		
Maximum forward voltage drop	V_{FM}	$I_{pk} = 4000$ A, $T_J = T_J$ maximum $t_p = 10$ ms sinusoidal wave		1.41	V	

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating temperature range	T_J			- 40 to 180	°C
Maximum storage temperature range	T_{Stg}			- 55 to 200	
Maximum thermal resistance, junction to heatsink	R_{thJ-hs}	DC operation single side cooled		0.042	K/W
		DC operation double side cooled		0.020	
Mounting force, ± 10 %				22 250 (2250)	N (kg)
Approximate weight				425	g
Case style		See dimensions - link at the end of datasheet		DO-200AC (K-PUK)	

ΔR_{thJ-hs} CONDUCTION						
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.002	0.002	0.001	0.001	$T_J = T_J$ maximum	K/W
120°	0.002	0.002	0.002	0.002		
90°	0.003	0.003	0.003	0.003		
60°	0.004	0.004	0.004	0.004		
30°	0.007	0.007	0.007	0.007		

Note

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



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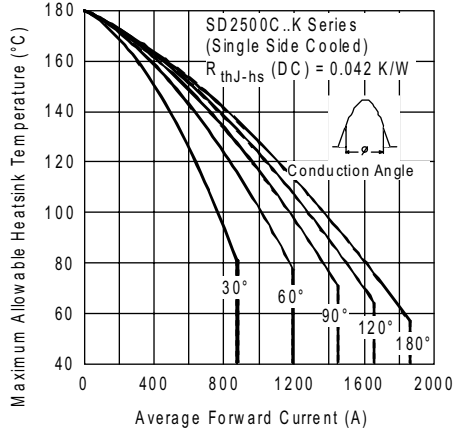


Fig. 1 - Current Ratings Characteristics

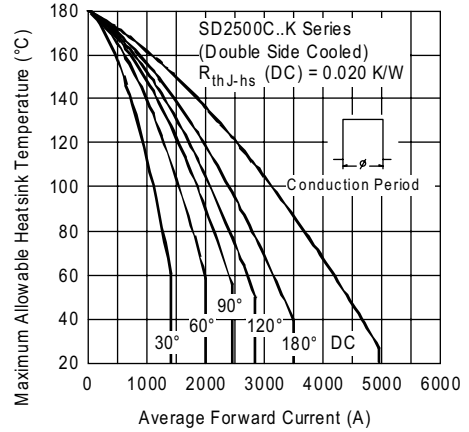


Fig. 4 - Current Ratings Characteristics

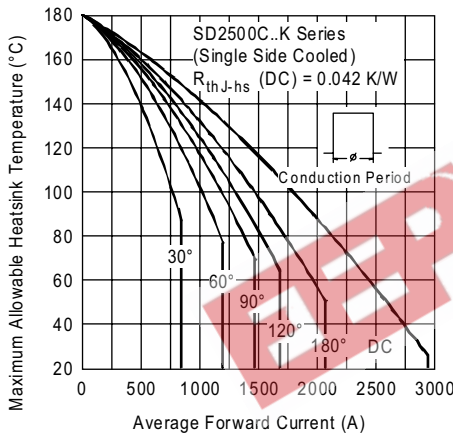


Fig. 2 - Current Ratings Characteristics

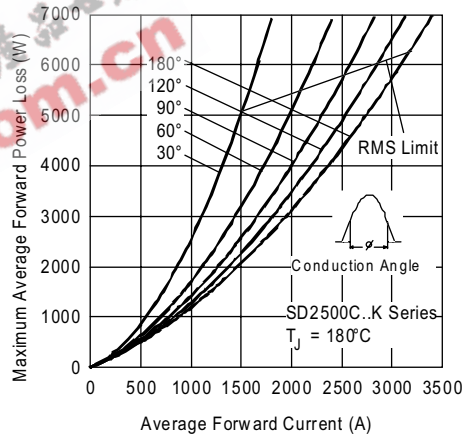


Fig. 5 - Forward Power Loss Characteristics

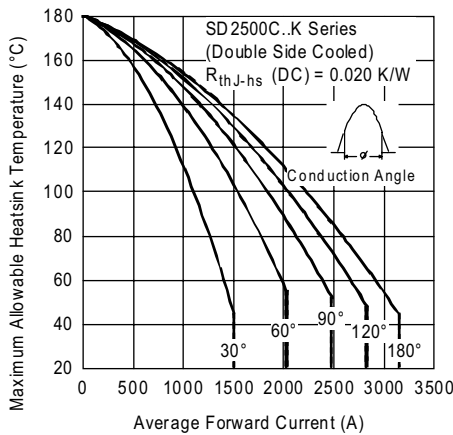


Fig. 3 - Current Ratings Characteristics

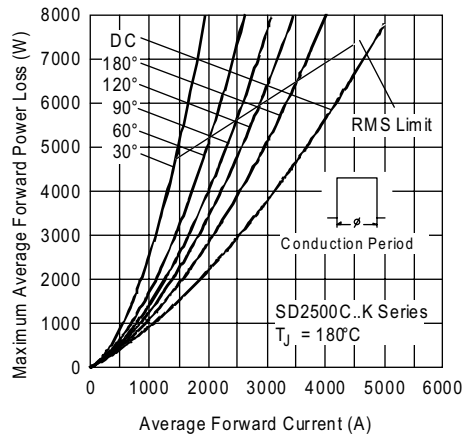


Fig. 6 - Forward Power Loss Characteristics

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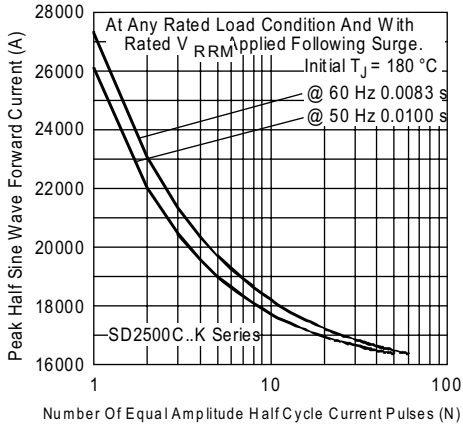


Fig. 7 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

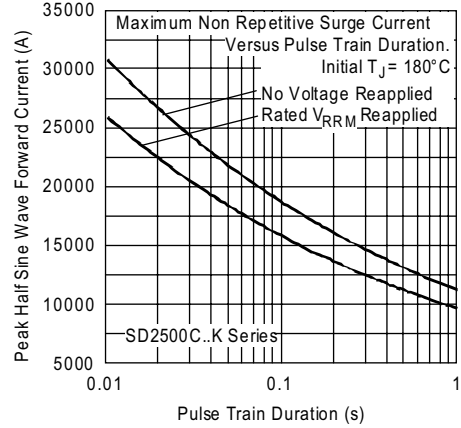


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

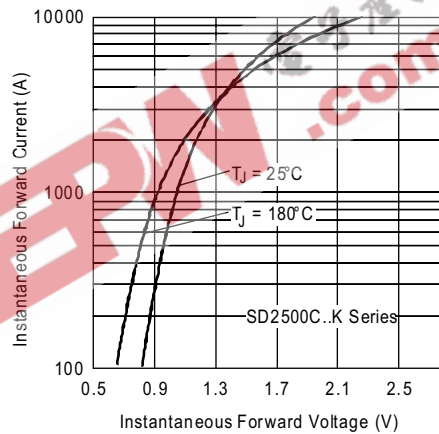


Fig. 9 - Forward Voltage Drop Characteristics

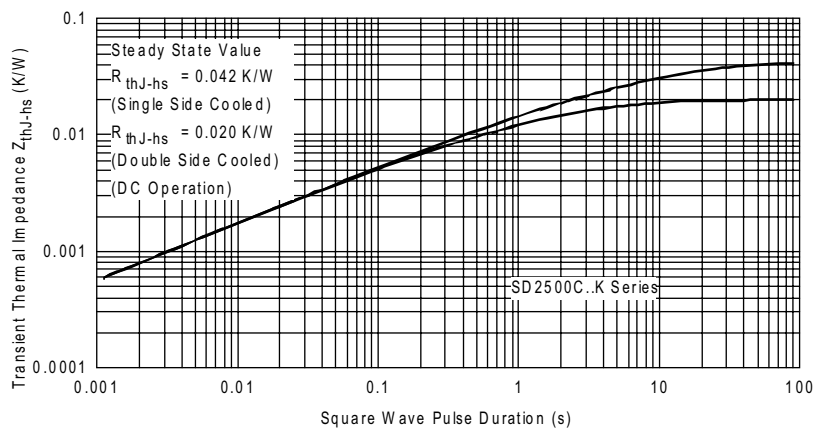


Fig. 10 - Thermal Impedance Z_{thJ-hs} Characteristics



SD2500C..K Series

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ORDERING INFORMATION TABLE

Device code	SD	250	0	C	25	K
	①	②	③	④	⑤	⑥

- 1** - Diode
- 2** - Essential part number
- 3** - 0 = Standard recovery
- 4** - C = Ceramic PUK
- 5** - Voltage code x 100 = V_{RRM} (see Voltage Ratings table)
- 6** - K = PUK case DO-200AC (K-PUK)

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95247



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