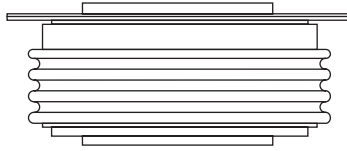


## Standard Recovery Diodes (Hockey PUK Version), 3000 A



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

**PRODUCT SUMMARY**

$I_{F(AV)}$	3000 A
-------------	--------

**TYPICAL APPLICATIONS**

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

**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 <sup>2</sup> 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	

Vishay High Power Products Standard Recovery Diodes  
(Hockey PUK Version),  
3000 A

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 <sup>2</sup> 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 <sup>2</sup> √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)	

$\Delta R_{thJ-hs}$ 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



# SD2500C..K Series

## Standard Recovery Diodes Vishay High Power Products (Hockey PUK Version), 3000 A

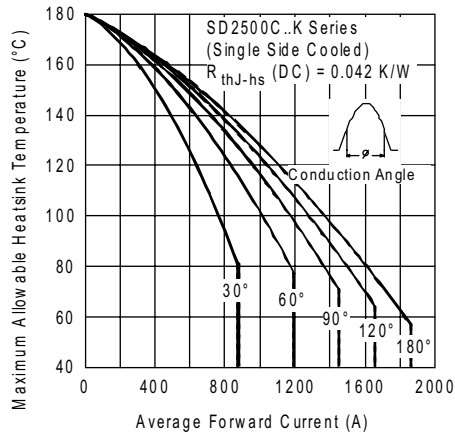


Fig. 1 - Current Ratings Characteristics

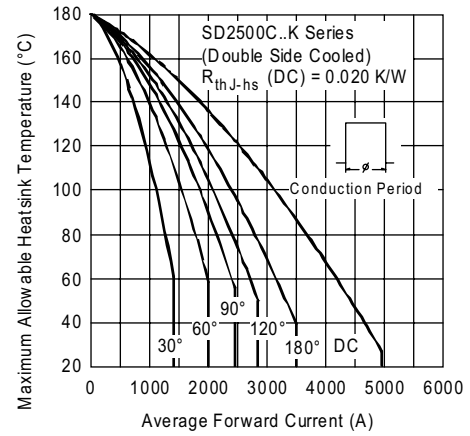


Fig. 4 - Current Ratings Characteristics

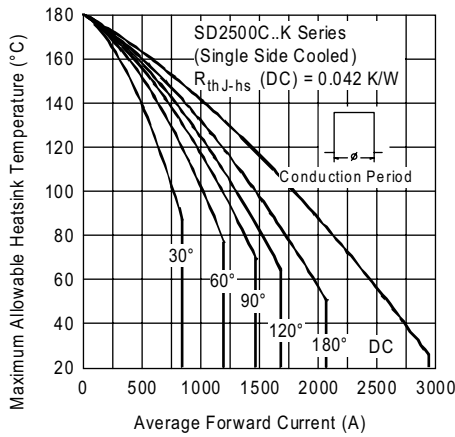


Fig. 2 - Current Ratings Characteristics

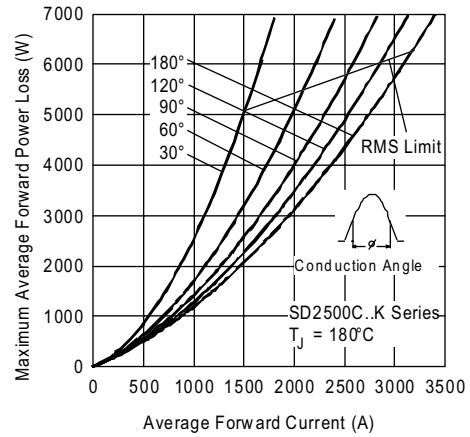


Fig. 5 - Forward Power Loss Characteristics

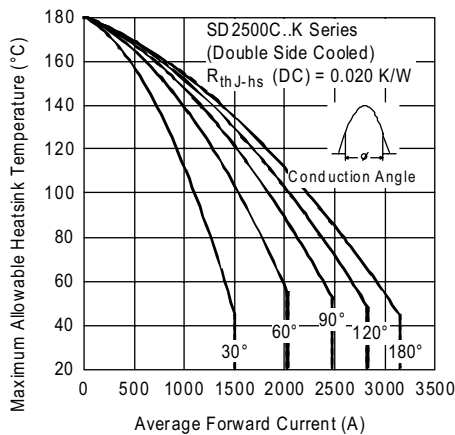


Fig. 3 - Current Ratings Characteristics

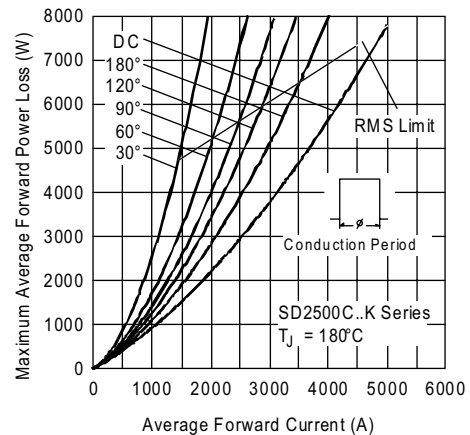


Fig. 6 - Forward Power Loss Characteristics

## Vishay High Power Products Standard Recovery Diodes (Hockey PUK Version), 3000 A

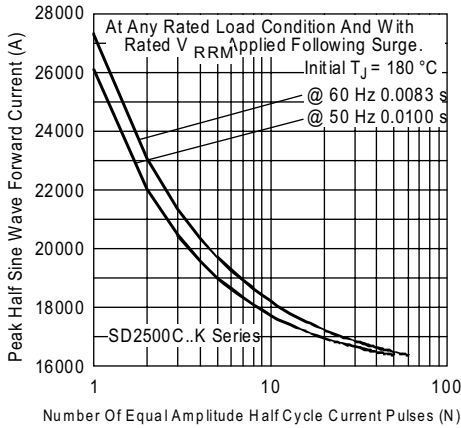


Fig. 7 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

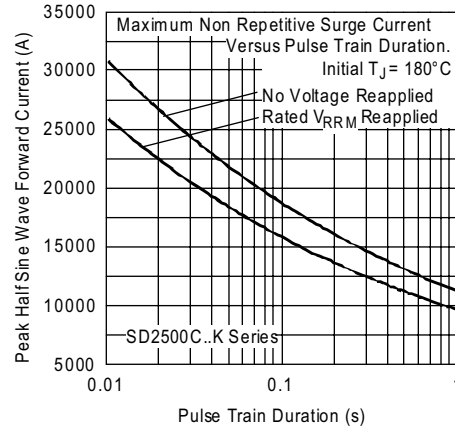


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

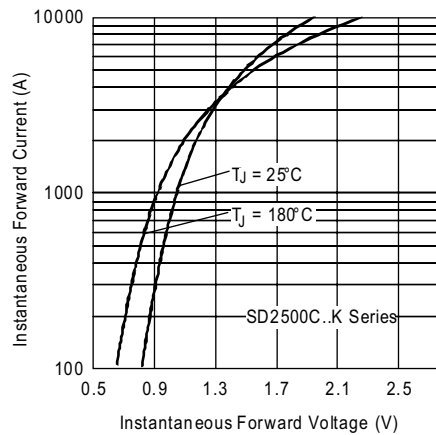


Fig. 9 - Forward Voltage Drop Characteristics

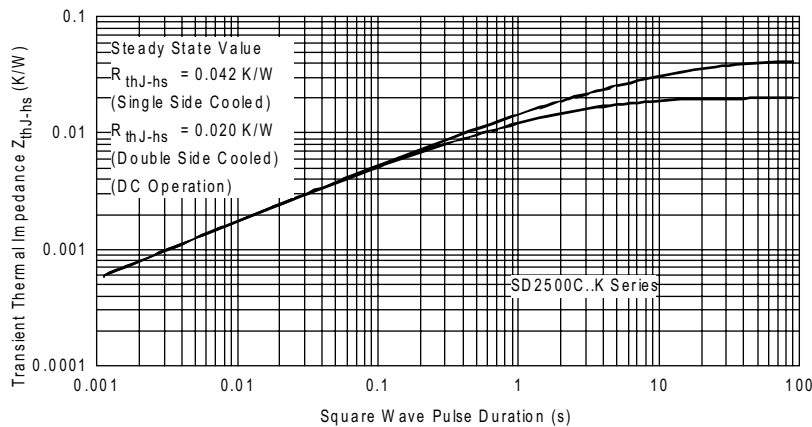


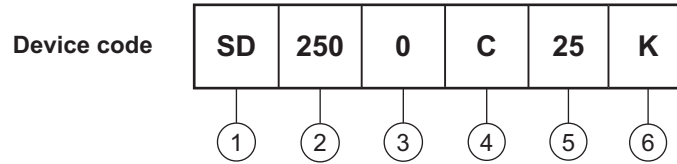
Fig. 10 - Thermal Impedance  $Z_{thJ-hs}$  Characteristics



# SD2500C..K Series

Standard Recovery Diodes Vishay High Power Products  
(Hockey PUK Version),  
3000 A

## ORDERING INFORMATION TABLE



- 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>



## Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.