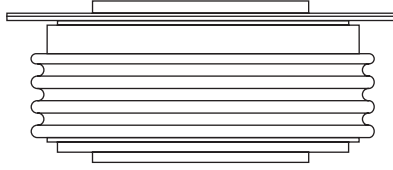


## Standard Recovery Diodes (Hockey PUK Version), 2100 A



DO-200AC (K-PUK)

**FEATURES**

- Wide current range
- High voltage ratings up to 4500 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-200AC (K-PUK)
- Lead (Pb)-free


**RoHS  
COMPLIANT**
**PRODUCT SUMMARY**

$I_{F(AV)}$	2100 A
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**TYPICAL APPLICATIONS**

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

**MAJOR RATINGS AND CHARACTERISTICS**

PARAMETER	test conditions	SD1700C..K		Units
		24 TO 36	40 TO 45	
$I_{F(AV)}$		2080	1875	A
	$T_{hs}$	55	55	°C
$I_{F(RMS)}$		3600	3280	A
	$T_{hs}$	25	25	°C
$I_{FSM}$	50 Hz	24 000	20 000	A
	60 Hz	25 150	20 950	
$I^2t$	50 Hz	2890	2000	kA <sup>2</sup> s
	60 Hz	2630	1826	
$V_{RRM}$	Range	2400 to 3600	4000 to 4500	V
$T_J$		- 40 to 150		°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 $T_J = T_J$ MAXIMUM mA
SD1700C..K	24	2400	2500	75
	30	3000	3100	
	36	3600	3700	
	40	4000	4100	
	45	4500	4600	

# SD1700C..K Series



Vishay High Power Products Standard Recovery Diodes  
(Hockey PUK Version),  
2100 A

FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		SD1700C..K		UNITS
				24 TO 36	40 TO 45	
Maximum average forward current at heatsink temperature	$I_{F(AV)}$	180° conduction, half sine wave Double side (single side) cooled		2080 (1000)	1875 (920)	A
				55 (85)	55 (85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled		3600	3280	A
Maximum peak, one cycle forward, non-repetitive surge current	$I_{FSM}$	t = 10 ms	No voltage reappplied	24 000	20 000	
		t = 8.3 ms		25 150	20 950	
		t = 10 ms	50 % $V_{RRM}$ reappplied	20 200	16 800	
		t = 8.3 ms		21 150	17 600	
Maximum $I^2t$ for fusing	$I^2t$	t = 10 ms	No voltage reappplied	2890	2000	kA <sup>2</sup> s
		t = 8.3 ms		2630	1826	
		t = 10 ms	50 % $V_{RRM}$ reappplied	2040	1415	
		t = 8.3 ms		1860	1292	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reappplied		28 900	20 000	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		0.89	0.88	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$ ), $T_J = T_J$ maximum		1.02	0.99	
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		0.23	0.31	mΩ
High level value of forward slope resistance	$r_{f2}$	(I > $\pi \times I_{F(AV)}$ ), $T_J = T_J$ maximum		0.21	0.29	
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 4000$ A, $T_J = T_J$ maximum, $t_p = 10$ ms sinusoidal wave		1.81	2.11	V

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating temperature range	$T_J$		- 40 to 150	°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



# SD1700C..K Series

## Standard Recovery Diodes Vishay High Power Products (Hockey PUK Version), 2100 A

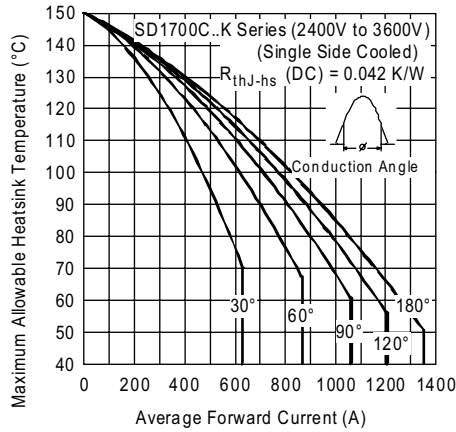


Fig. 1 - Current Ratings Characteristics

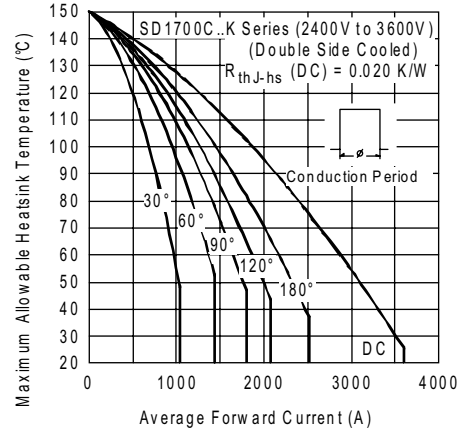


Fig. 4 - Current Ratings Characteristics

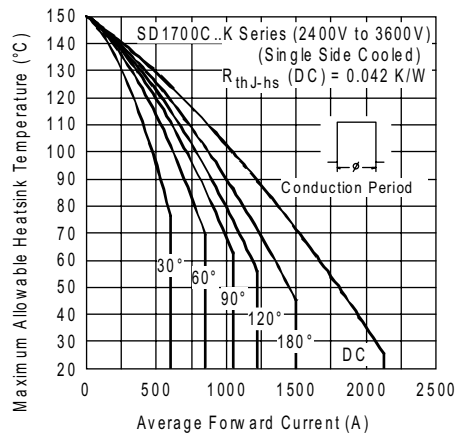


Fig. 2 - Current Ratings Characteristics

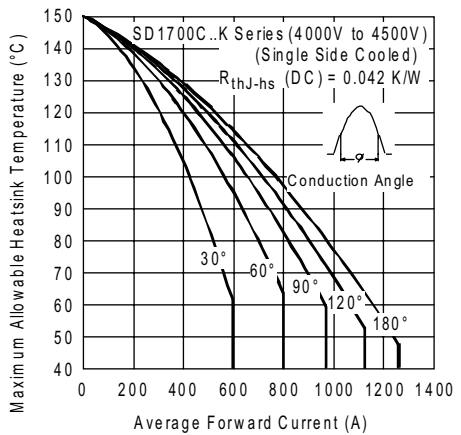


Fig. 5 - Current Ratings Characteristics

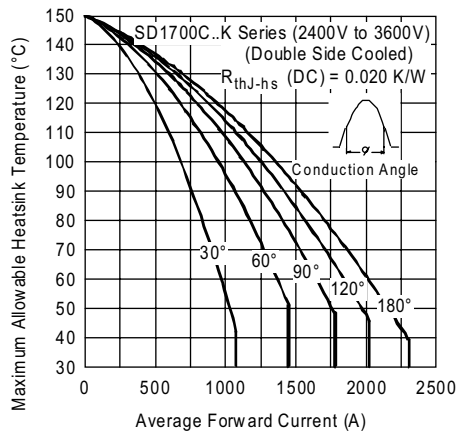


Fig. 3 - Current Ratings Characteristics

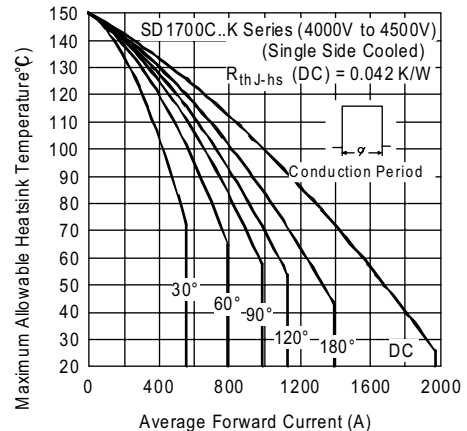


Fig. 6 - Current Ratings Characteristics

# SD1700C..K Series



## Vishay High Power Products Standard Recovery Diodes (Hockey PUK Version), 2100 A

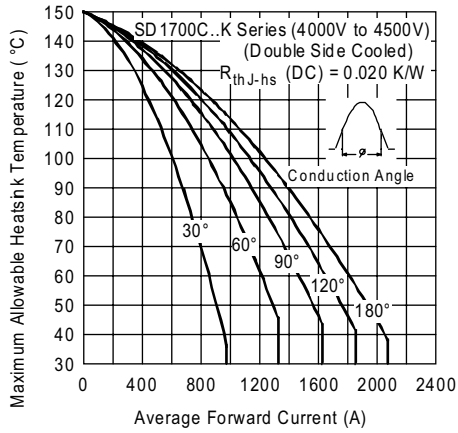


Fig. 7 - Current Ratings Characteristics

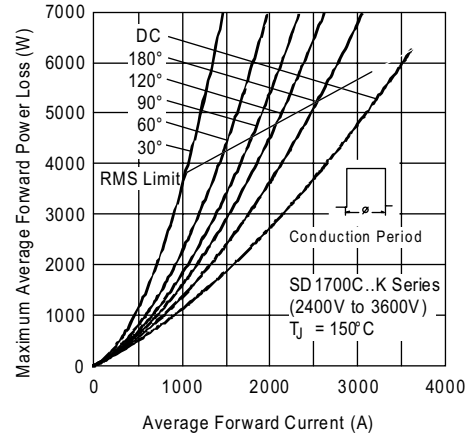


Fig. 10 - Forward Power Loss Characteristics

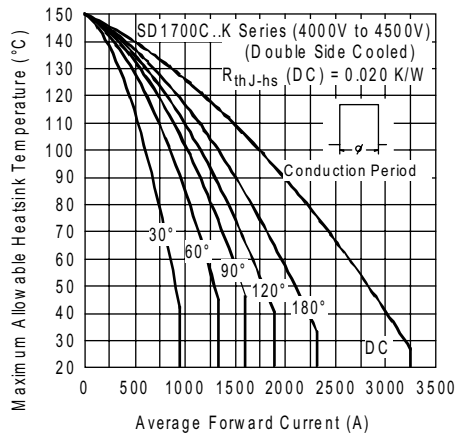


Fig. 8 - Current Ratings Characteristics

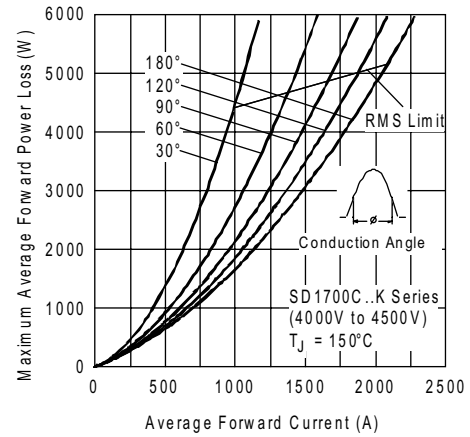


Fig. 11 - Forward Power Loss Characteristics

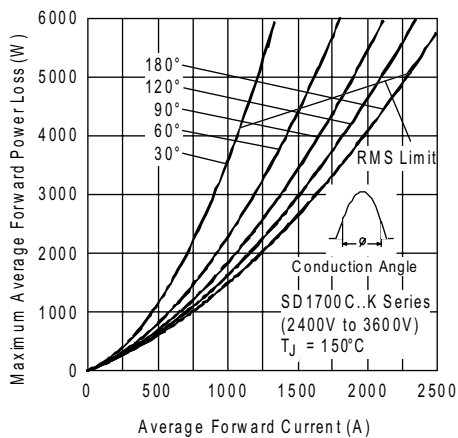


Fig. 9 - Forward Power Loss Characteristics

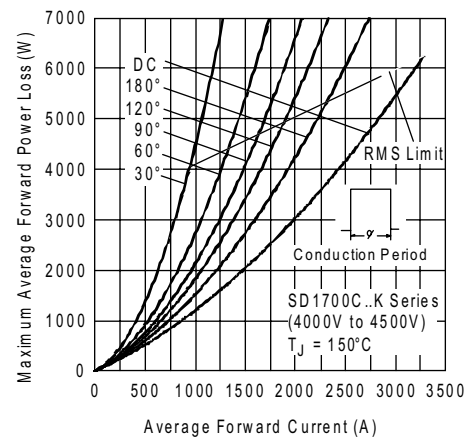


Fig. 12 - Forward Power Loss Characteristics



# SD1700C..K Series

## Standard Recovery Diodes Vishay High Power Products (Hockey PUK Version), 2100 A

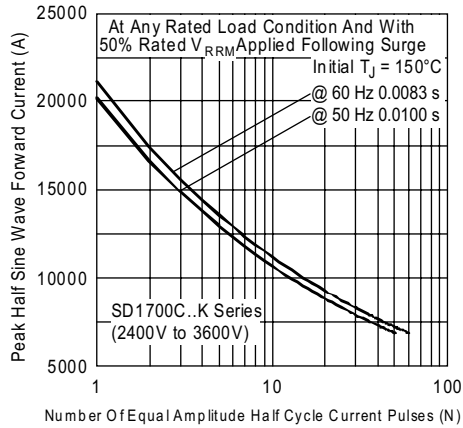


Fig. 13 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

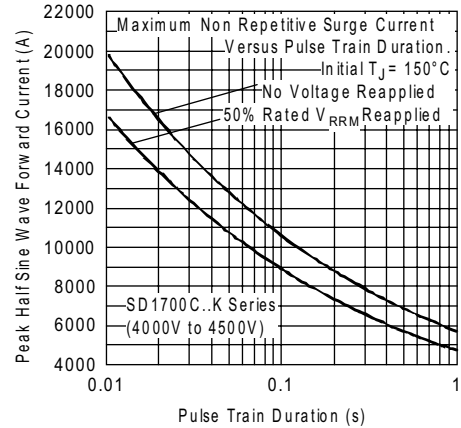


Fig. 16 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

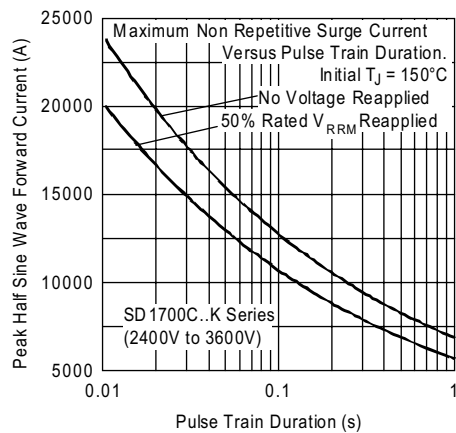


Fig. 14 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

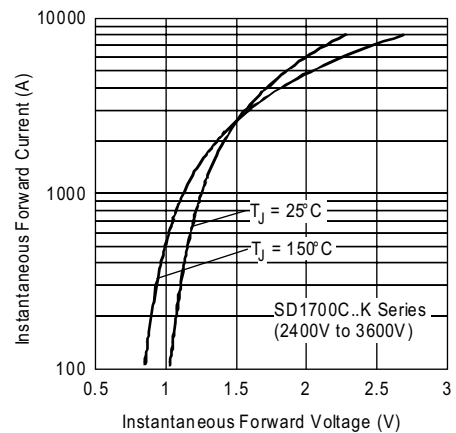


Fig. 17 - Forward Voltage Drop Characteristics

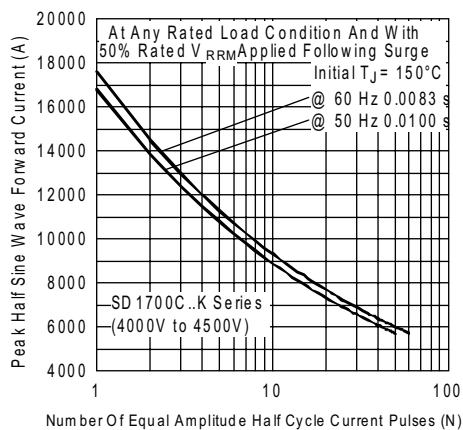


Fig. 15 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

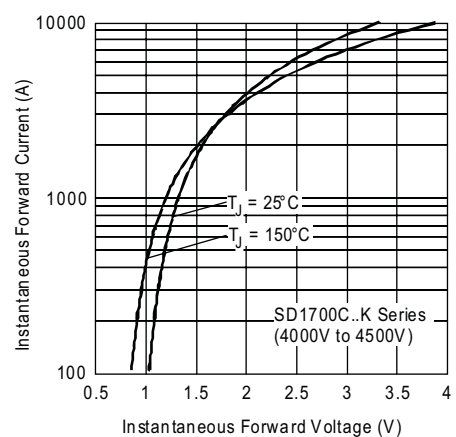


Fig. 18 - Forward Voltage Drop Characteristics

# SD1700C..K Series



Vishay High Power Products Standard Recovery Diodes  
(Hockey PUK Version),  
2100 A

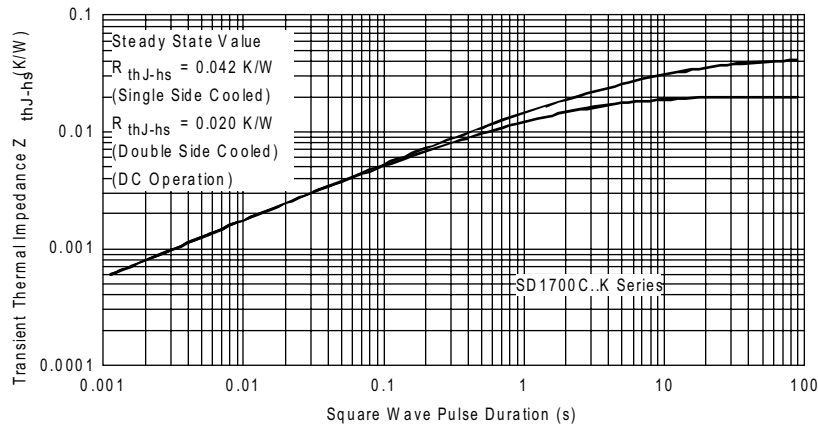


Fig. 19 - Thermal Impedance  $Z_{thJC}$  Characteristics

## ORDERING INFORMATION TABLE

Device code	<b>SD</b>	<b>170</b>	<b>0</b>	<b>C</b>	<b>45</b>	<b>K</b>
	①	②	③	④	⑤	⑥
	<b>1</b>	-	Diode			
	<b>2</b>	-	Essential part number			
	<b>3</b>	-	0 = Standard recovery			
	<b>4</b>	-	C = Ceramic PUK			
	<b>5</b>	-	Voltage code x 100 = $V_{RRM}$ (see Voltage Ratings table)			
	<b>6</b>	-	K = PUK case DO-200AC (K-PUK)			

### LINKS TO RELATED DOCUMENTS

Dimensions

<http://www.vishay.com/doc?95247>



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