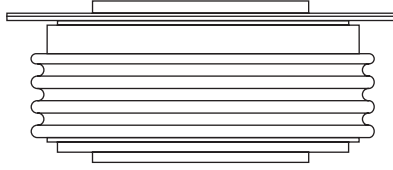


Standard Recovery Diodes (Hockey PUK Version), 2100 A



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

TYPICAL APPLICATIONS

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

MAJOR RATINGS AND CHARACTERISTICS

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 ² 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 ² 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 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		0.89	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)	

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

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

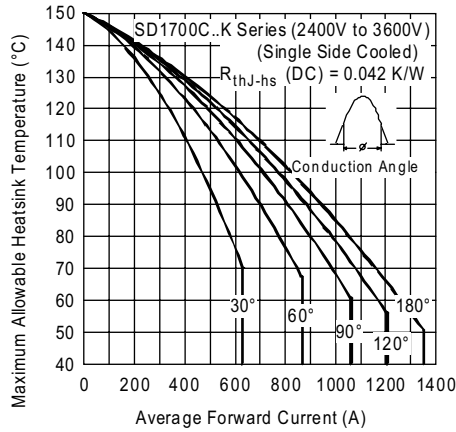


Fig. 1 - Current Ratings Characteristics

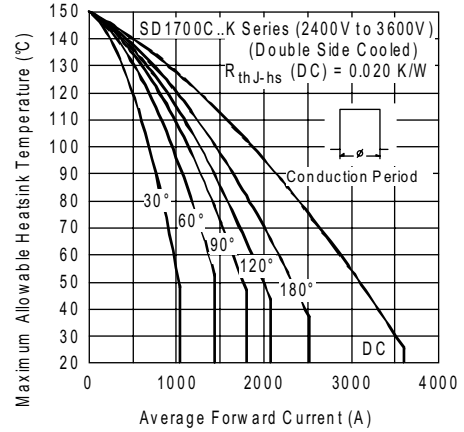


Fig. 4 - Current Ratings Characteristics

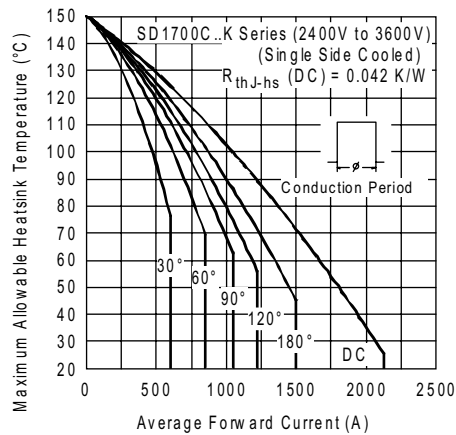


Fig. 2 - Current Ratings Characteristics

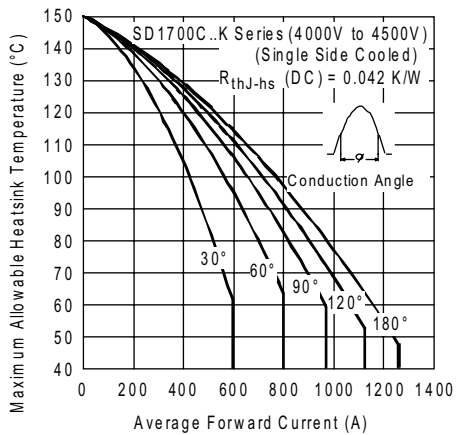


Fig. 5 - Current Ratings Characteristics

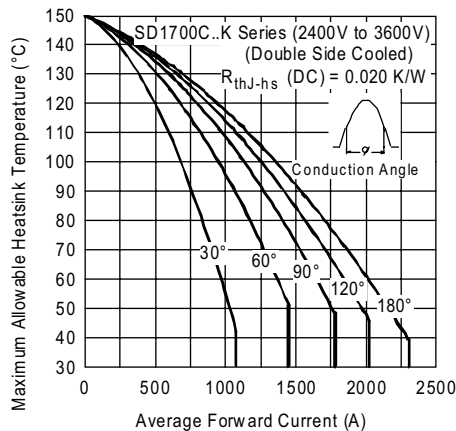


Fig. 3 - Current Ratings Characteristics

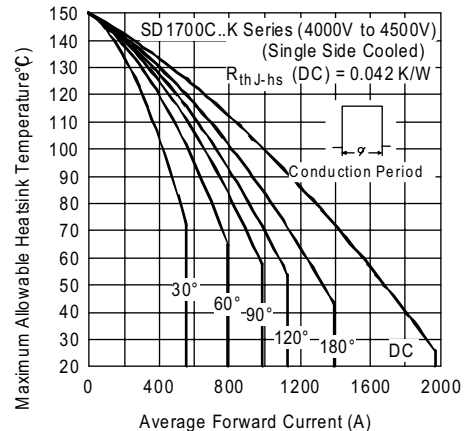


Fig. 6 - Current Ratings Characteristics

SD1700C..K Series



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

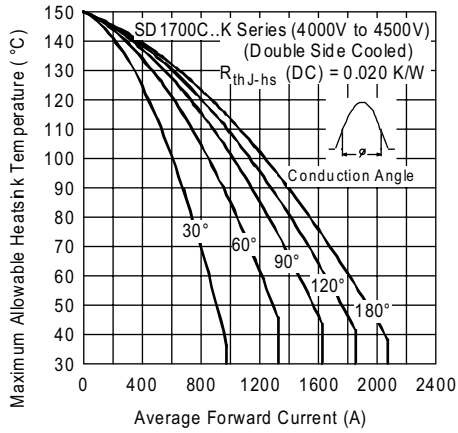


Fig. 7 - Current Ratings Characteristics

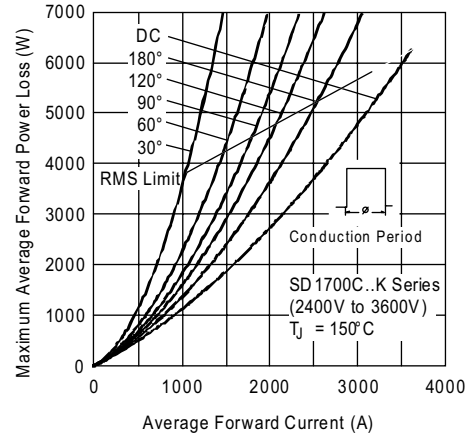


Fig. 10 - Forward Power Loss Characteristics

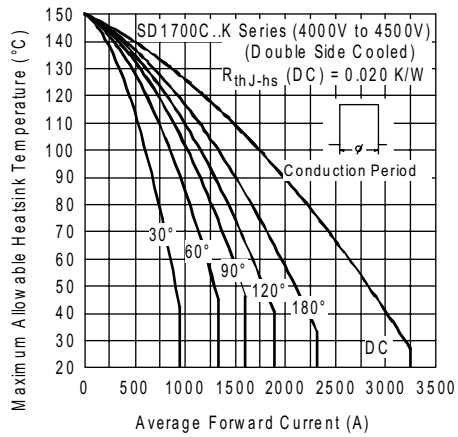


Fig. 8 - Current Ratings Characteristics

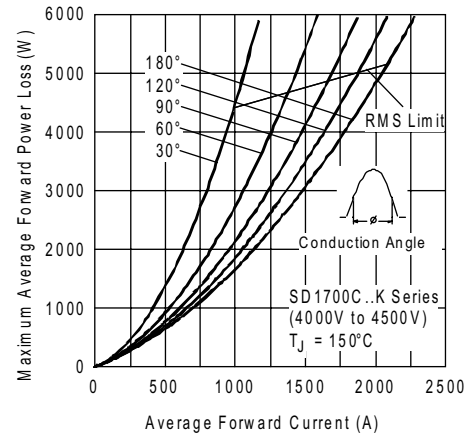


Fig. 11 - Forward Power Loss Characteristics

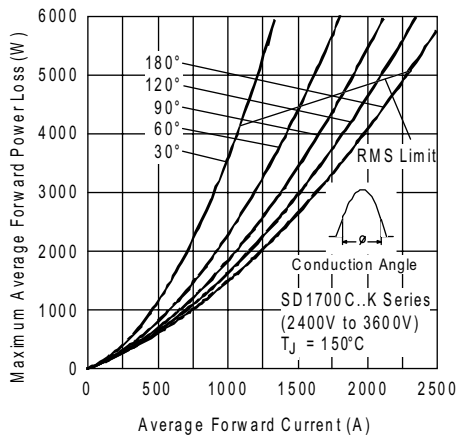


Fig. 9 - Forward Power Loss Characteristics

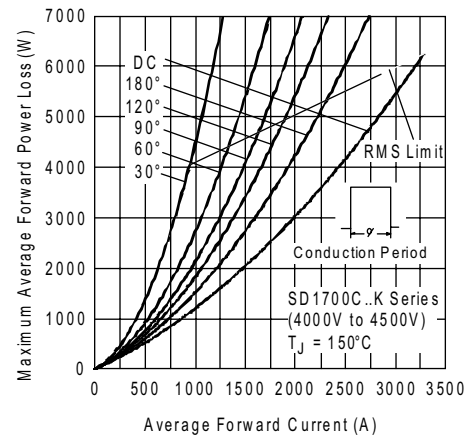


Fig. 12 - Forward Power Loss Characteristics



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

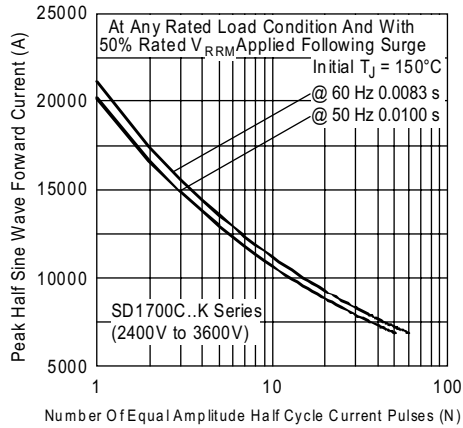


Fig. 13 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

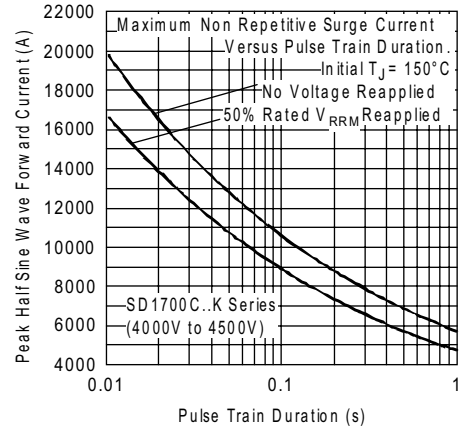


Fig. 16 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

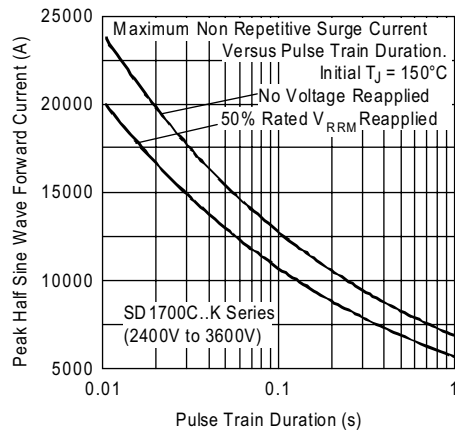


Fig. 14 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

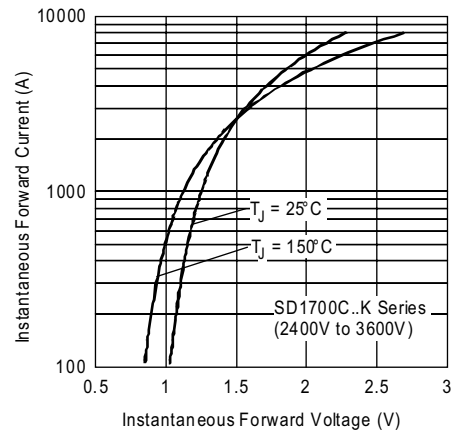


Fig. 17 - Forward Voltage Drop Characteristics

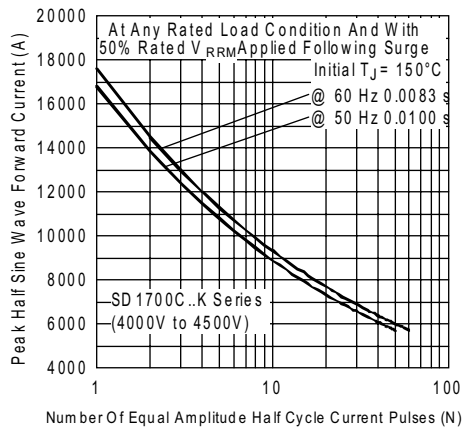


Fig. 15 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

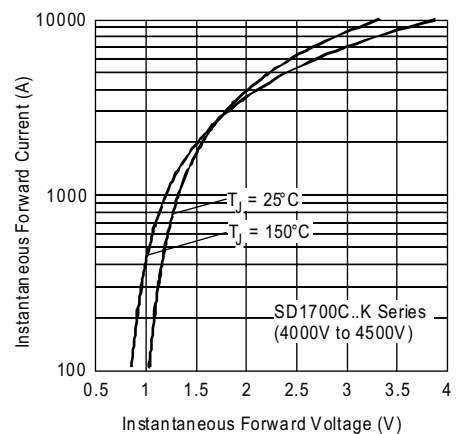


Fig. 18 - Forward Voltage Drop Characteristics

SD1700C..K Series



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

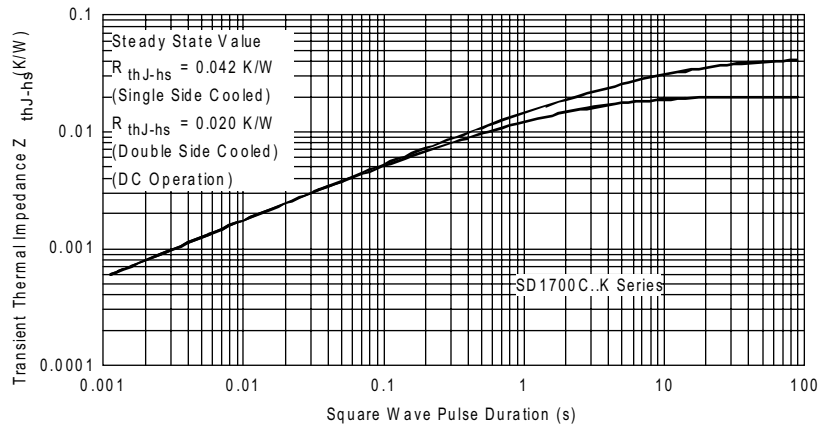


Fig. 19 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code	SD	170	0	C	45	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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