Standard Recovery Diodes, (Hockey PUK Version), 800 A

A-PUK (DO-200AA)

FEATURES

- Wide current range
- High voltage ratings up to 2400 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style A-PUK (DO-200AA)
- Designed and qualified for industrial level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free
RoHS COMPLIANT

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	800 A
Package	A-PUK (DO-200AA)
Circuit configuration	Single

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		800	A
	T_{hs}	55	°C
$I_{F(RMS)}$		1435	A
	T_{hs}	25	°C
I_{FSM}	50 Hz	8250	A
	60 Hz	8640	
I^2t	50 Hz	340	kA^2s
	60 Hz	311	
V_{RRM}	Range	400 to 2400	V
T_J		-40 to +190	°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 = 150 °C mA
VS-SD400C..C	04	400	500	15
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	24	2400	2500	

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			800 (425)	A
					55 (85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled			1435	A
Maximum peak, one-cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_J$ maximum	8250	
		t = 8.3 ms			8640	
		t = 10 ms	50 % V_{RRM} reapplied		6940	
		t = 8.3 ms			7265	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied		340	kA^2s
		t = 8.3 ms			311	
		t = 10 ms	50 % V_{RRM} reapplied		241	
		t = 8.3 ms			220	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied			3400	$kA^2\sqrt{s}$
Low level value of threshold voltage	$V_{F(TO)1}$	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ maximum			0.80	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > π x $I_{F(AV)}$), $T_J = T_J$ maximum			0.83	
Low level value of forward slope resistance	r_{f1}	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ maximum			0.55	mΩ
High level value of forward slope resistance	r_{f2}	(I > π x $I_{F(AV)}$), $T_J = T_J$ maximum			0.53	
Maximum forward voltage drop	V_{FM}	I_{pk} = 1930 A, $T_J = T_J$ maximum, t_p = 10 ms sinusoidal wave			1.86	V

THERMAL AND MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating temperature range	T_J		-40 to +190	°C
Maximum storage temperature range	T_{Stg}		-55 to +200	
Maximum thermal resistance, junction to heatsink	R_{thJ-hs}	DC operation single side cooled	0.163	K/W
		DC operation double side cooled	0.073	
Mounting force, ± 10 %			4900 (500)	N (kg)
Approximate weight			70	g
Case style		See dimensions - link on page 5	A-PUK (DO-200AA)	

ΔR_{thJ-hs} CONDUCTION

CONDUCTION ANGLE	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.017	0.018	0.011	0.012	$T_J = T_J$ maximum	K/W
120°	0.020	0.020	0.020	0.020		
90°	0.025	0.025	0.027	0.027		
60°	0.037	0.036	0.038	0.038		
30°	0.064	0.062	0.065	0.062		

Note

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

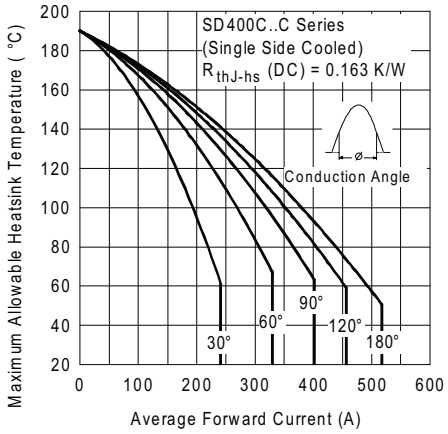


Fig. 1 - Current Ratings Characteristics

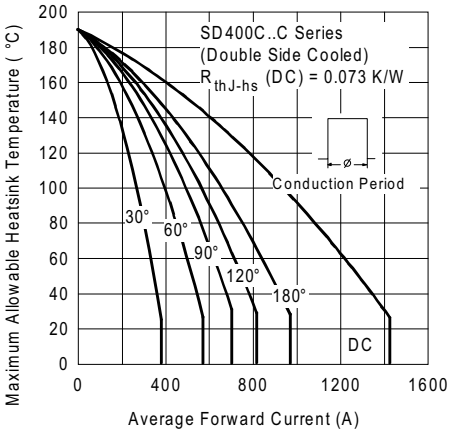


Fig. 4 - Current Ratings Characteristics

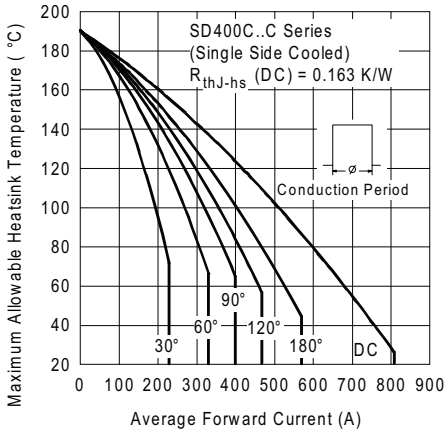


Fig. 2 - Current Ratings Characteristics

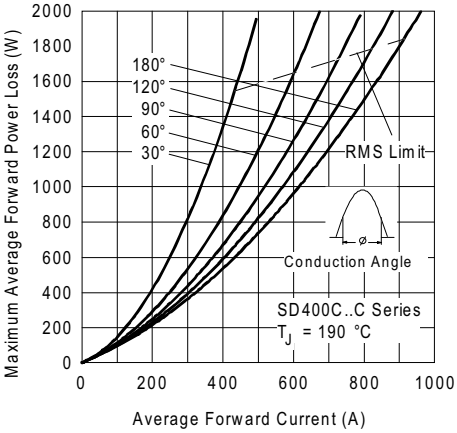


Fig. 5 - Forward Power Loss Characteristics

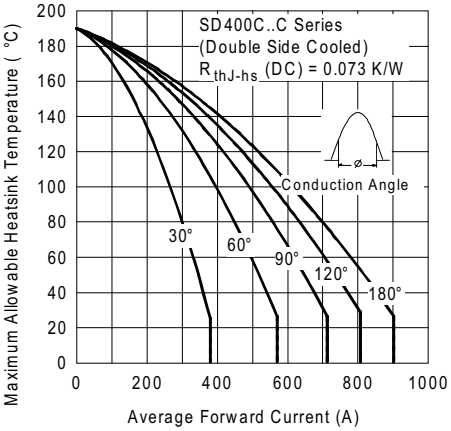


Fig. 3 - Current Ratings Characteristics

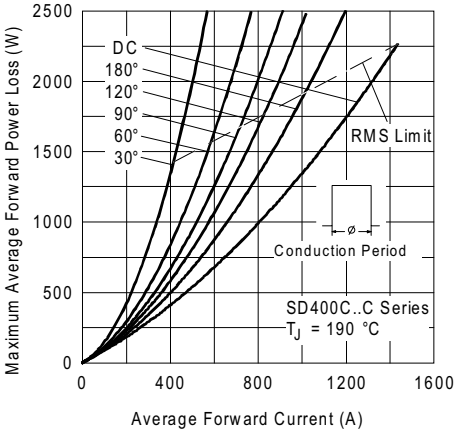


Fig. 6 - Forward Power Loss Characteristics

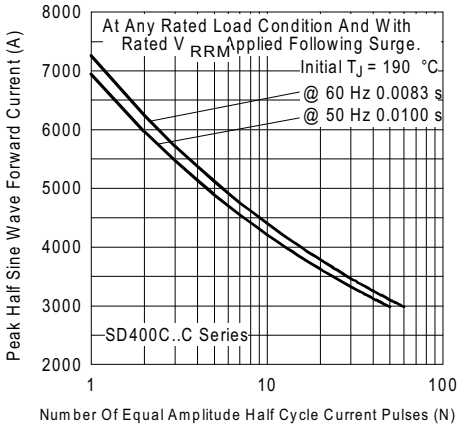


Fig. 7 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

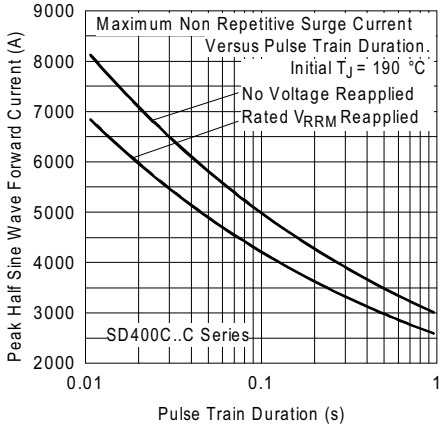


Fig. 8 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

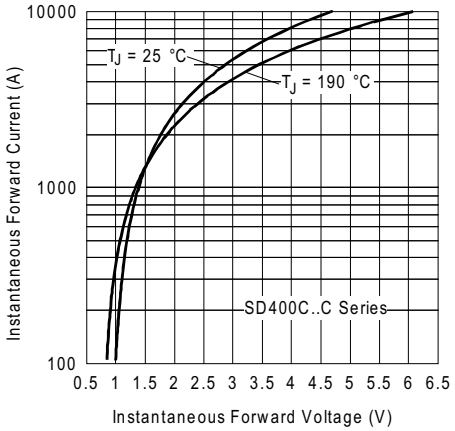


Fig. 9 - Forward Voltage Drop Characteristics

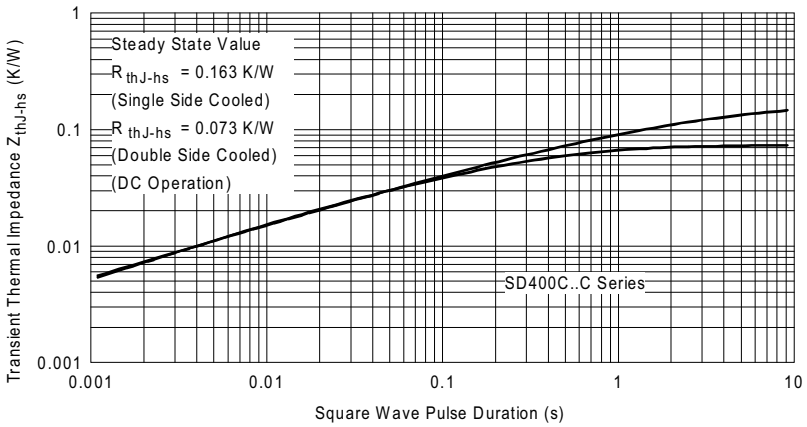
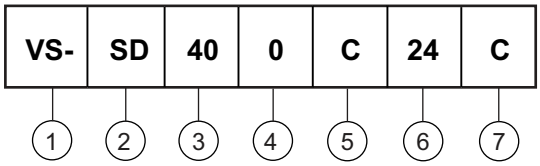


Fig. 10 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code

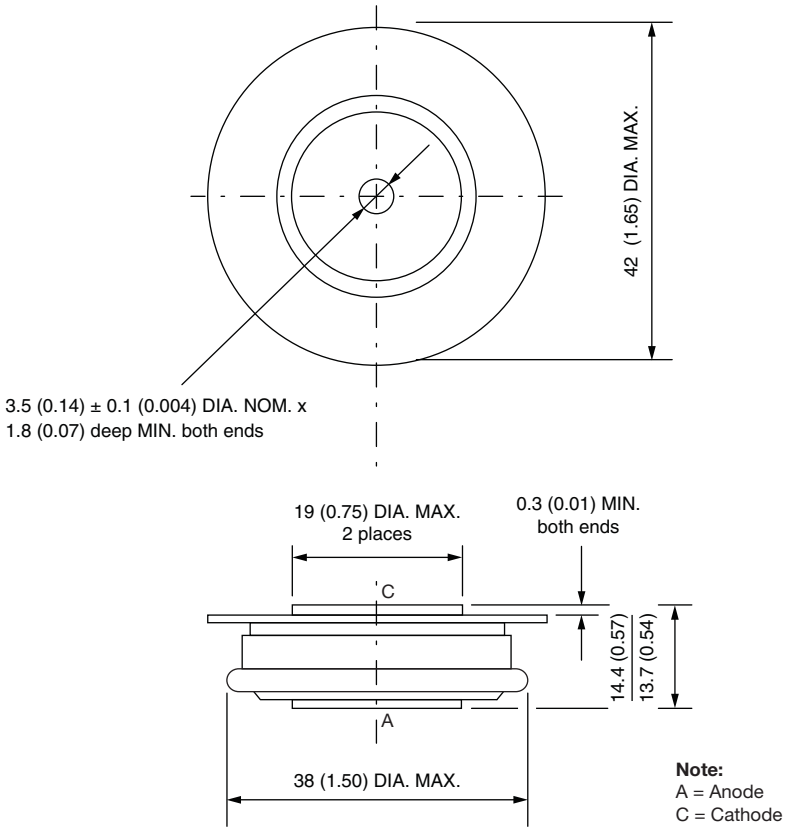


1 - Vishay Semiconductors product
2 - Diode
3 - Essential part number
4 - 0 = standard recovery
5 - C = ceramic PUK
6 - Voltage code x 100 = V_{RRM} (see Voltage Ratings table)
7 - C = PUK case A-PUK (DO-200AA)

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95248

DO-200AA

DIMENSIONS in millimeters (inches)



Quote between upper and lower pole pieces has to be considered after application of mounting force (see Thermal and Mechanical Specifications)

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