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	

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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			800 (425) 55 (85)	A °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	A
		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	$R_{thJ\text{-}hs}$	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)	

$\Delta R_{thJ\text{-}hs}$ 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 $R_{thJ\text{-}hs}$ when devices operate at different conduction angles than DC

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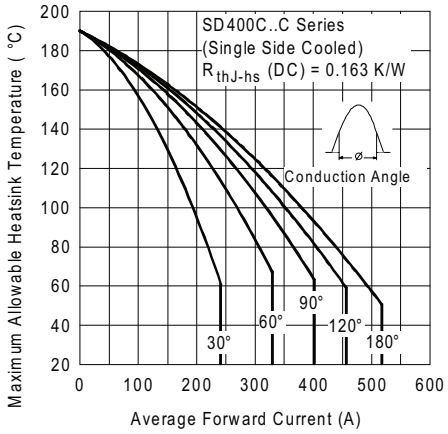


Fig. 1 - Current Ratings Characteristics

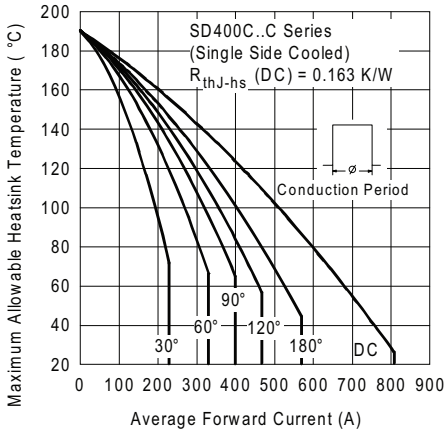


Fig. 2 - Current Ratings Characteristics

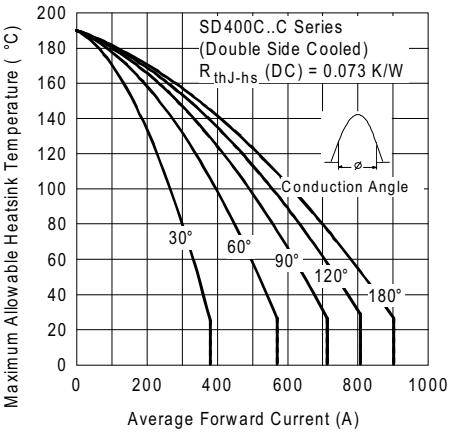


Fig. 3 - Current Ratings Characteristics

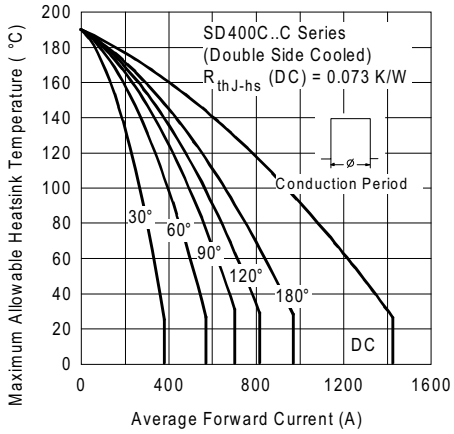


Fig. 4 - Current Ratings Characteristics

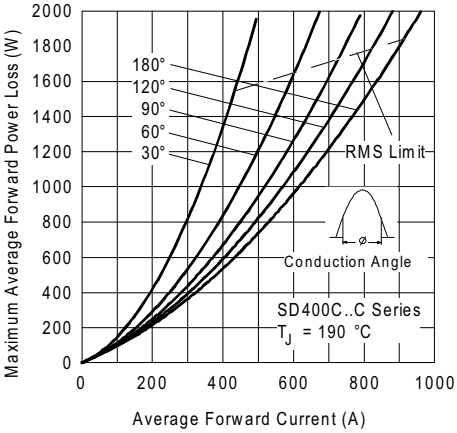


Fig. 5 - Forward Power Loss Characteristics

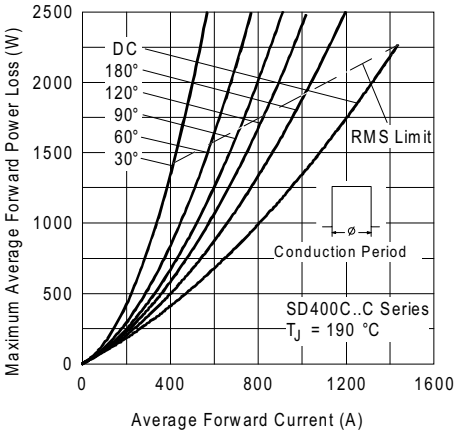


Fig. 6 - Forward Power Loss Characteristics

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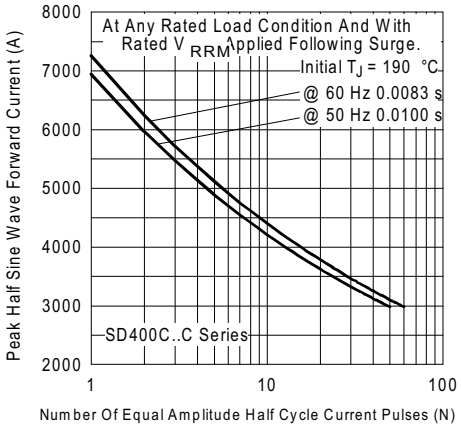


Fig. 7 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

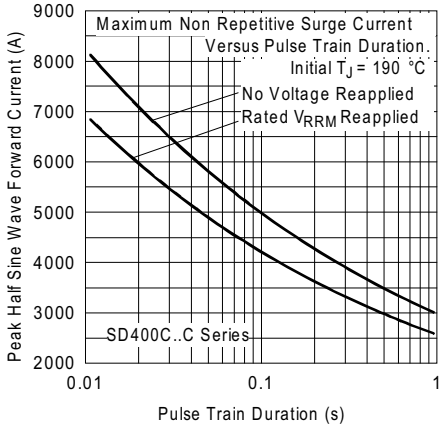


Fig. 8 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

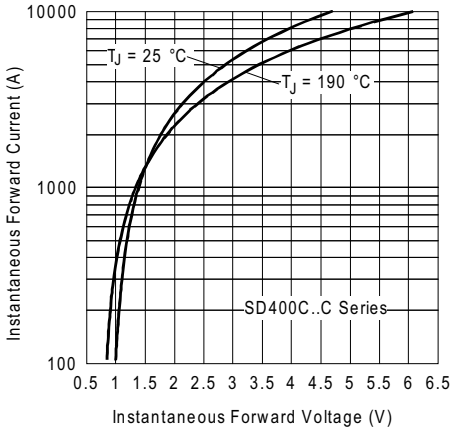


Fig. 9 - Forward Voltage Drop Characteristics

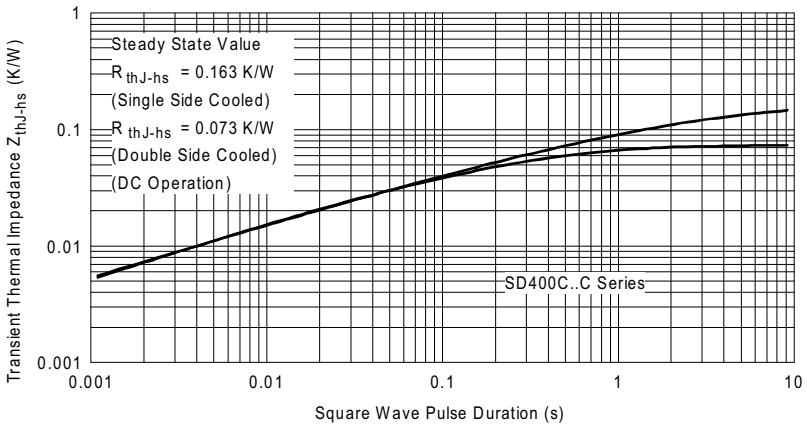
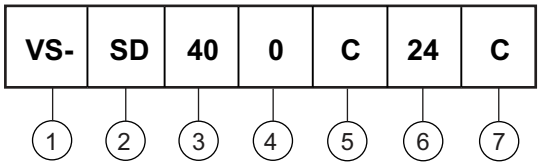


Fig. 10 - Thermal Impedance Z_{thJC} Characteristics

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ORDERING INFORMATION TABLE

Device code



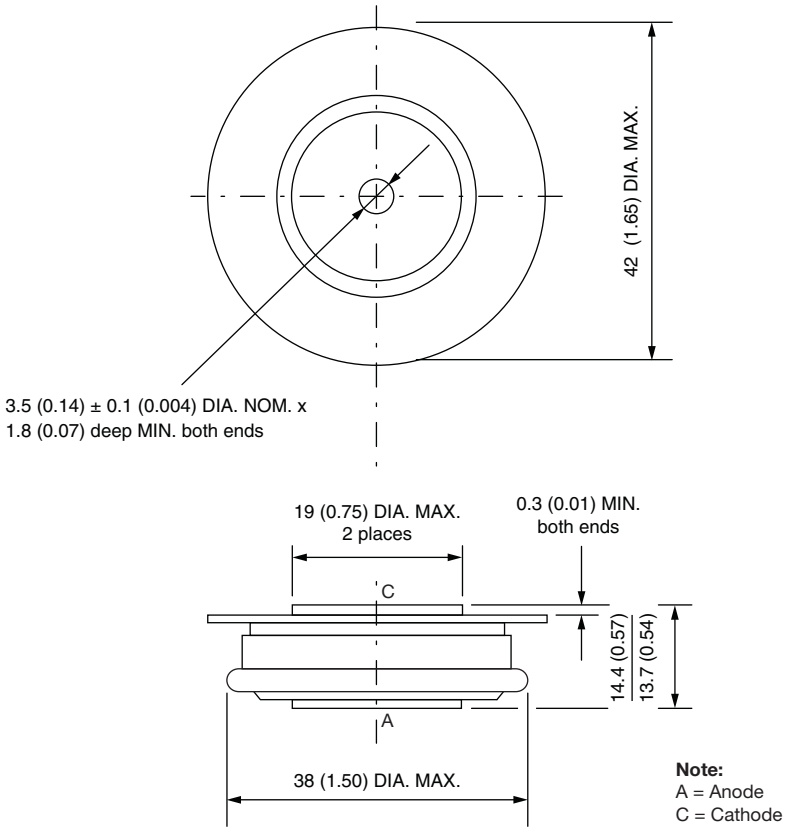
1 - Vishay Semiconductors product
2 - Diode
3 - Essential part number
4 - 0 = standard recovery
5 - C = ceramic PUK
6 - Voltage code x 100 = V_{RRM} (see Voltage Ratings table)
7 - C = PUK case A-PUK (DO-200AA)

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

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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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