

COMPLIANT

Standard Recovery Diodes (Hockey PUK Version), 1400 A



PRIMARY CHARACTERISTICS				
I _{F(AV)}	1400 A			
Package	B-43			
Circuit configuration	Single			

FEATURES

- Wide current range
- High voltage ratings up to 3200 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style B-43
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

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

MAJOR RATINGS AND CHARACTERISTICS						
	TEST CONDITIONS	SD11	SD1100CC			
PARAMETER	TEST CONDITIONS	04 to 20		UNITS		
1		1400	1100	Α		
I _{F(AV)}	T _{hs}	55	55	°C		
I _{F(RMS)}		2500	2000	Α		
	T _{hs}	25	25	°C		
I _{FSM}	50 Hz	13 000	10 500	A		
	60 Hz	13 600	11 000	A		
l ² t	50 Hz	846	551	kA ² s		
	60 Hz	772	503	KA-S		
V _{RRM}	Range	400 to 2000	2500 to 3200	V		
T _J		-40 to +180	-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	$I_{RRM} \ MAXIMUM \\ AT \ T_J = T_J \ MAXIMUM \\ mA$			
	04	400	500				
	08	800	900				
	12	1200	1300				
	16	1600	1700				
VS-SD1100CC	20	2000	2100	35			
	22	2200	2300				
	25	2500	2600				
	30	3000	3100				
	32	3200	3300				



FORWARD CONDUCTION							
PARAMETER	AMETER SYMBOL TEST CONDITIONS			SD1100CC		UNITS	
PARAMETER	STIVIBOL	TEST CONDITIONS			04 to 20	25 to 32	UNITS
Maximum average forward current	I _{F(AV)}		uction, half sine		1400 (795)	1100 (550)	Α
at heatsink temperature	'F(AV)	Double sid	e (single side) o	cooled	55 (85)	55 (85)	°C
Maximum RMS forward current	I _{F(RMS)}	25 °C heat	sink temperatu	re double side cooled	2500	2000	
		t = 10 ms	No voltage		13 000	10 500	А
Maximum peak, one-cycle forward,	l	t = 8.3 ms	reapplied		13 600	11 000	
non-repetitive current	I _{FSM}	t = 10 ms	100 % V _{RRM}	Sinusoidal half wave,	10 930	8830	
		t = 8.3 ms	reapplied		11 450	9250	
Maximum I ² t for fusing	l ² t	t = 10 ms	No voltage	initial $T_J = T_J$ maximum	846	551	- kA ² s
		t = 8.3 ms	reapplied		772	503	
		t = 10 ms	100 % V _{RRM}		598	390	
		t = 8.3 ms	reapplied		546	356	
Maximum I ² √t for fusing	I ² √t	t = 0.1 to 10 ms, no voltage reapplied		8460	5510	kA²√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		0.78	0.84	V	
High level value of threshold voltage	V _{F(TO)2}	$(I > \pi \times I_{F(AV)}), T_J = T_J \text{ maximum}$			0.94	0.88	V
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		0.35	0.40	~ 0	
High level value of forward slope resistance	r _{f2}	$(I > \pi \times I_{F(AV)}), T_J = T_J \text{ maximum}$			0.26	0.38	mΩ
Maximum forward voltage drop	V _{FM}	$I_{pk} = 1500 \text{ A}, T_J = T_J \text{ maximum}$ $t_p = 10 \text{ ms sinusoidal wave}$			1.31	1.44	V

THERMAL AND MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS	SD1100CC		UNITS	
		TEST CONDITIONS	04 to 20	25 to 32	DINITS	
Maximum junction operating temperature range	T _J		-40 to +180	-40 to +150	°C	
Maximum storage temperature range	T _{Stg}		-55 to	+200		
Maximum thermal resistance,	R _{thJ-hs}	DC operation single side cooled	0.076		K/W	
junction to heatsink		DC operation double side cooled	0.038		IVVV	
Mounting force, ± 10 %			9800	(1000)	N (kg)	
Approximate weight			8	3	g	
Case style		See dimensions - link at the end of datasheet		B-43		

△R _{thJ-hs} CONDUCTION							
CONDUCTION ANGLE SINUSOIDAL CONDUCTION		ONDUCTION	RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS	
CONDUCTION ANGLE	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE	TEST CONDITIONS	UNITS	
180°	0.007	0.007	0.005	0.005			
120°	0.008	0.008	0.008	0.008	$T_J = T_J$ maximum		
90°	0.010	0.010	0.011	0.011		K/W	
60°	0.015	0.015	0.016	0.016			
30°	0.026	0.026	0.026	0.026			

Note

• The table above shows the increment of thermal resistance RthJ-hs when devices operate at different conduction angles than DC



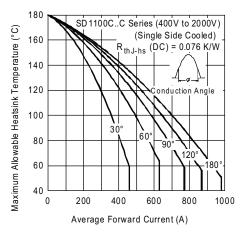


Fig. 1 - Current Ratings Characteristics

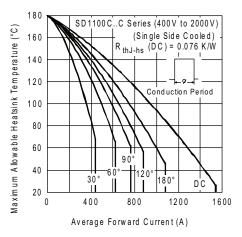


Fig. 2 - Current Ratings Characteristics

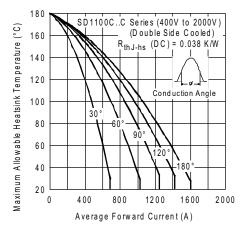


Fig. 3 - Current Ratings Characteristics

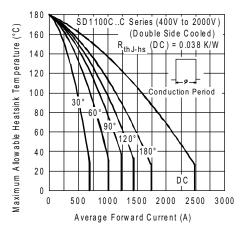


Fig. 4 - Current Ratings Characteristics

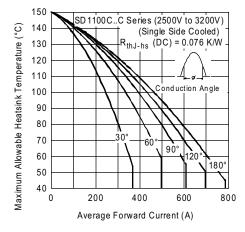


Fig. 5 - Current Ratings Characteristics

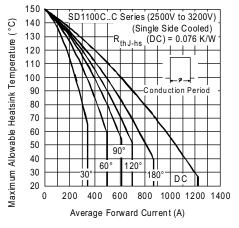


Fig. 6 - Current Ratings Characteristics

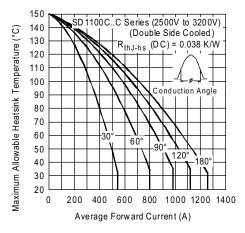


Fig. 7 - Current Ratings Characteristics

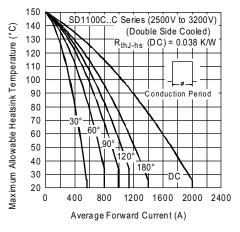


Fig. 8 - Current Ratings Characteristics

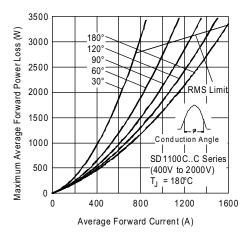


Fig. 9 - Forward Power Loss Characteristics

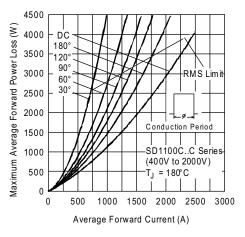


Fig. 10 - Forward Power Loss Characteristics

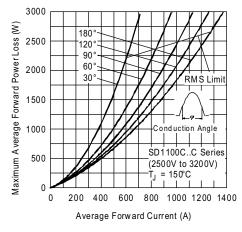


Fig. 11 - Forward Power Loss Characteristics

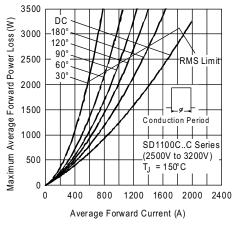


Fig. 12 - Forward Power Loss Characteristics

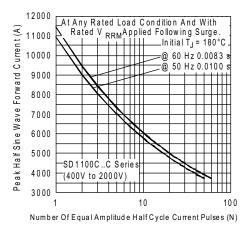


Fig. 13 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

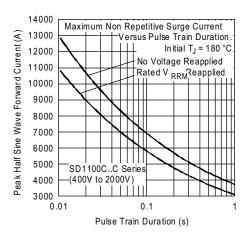


Fig. 14 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

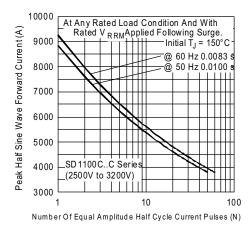


Fig. 15 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

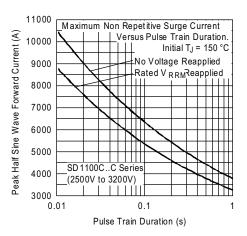


Fig. 16 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

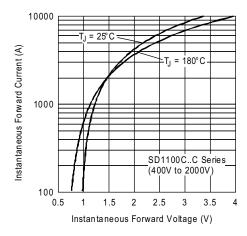


Fig. 17 - Forward Voltage Drop Characteristics

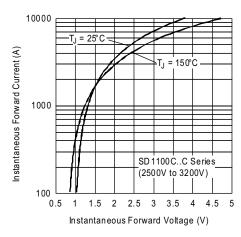


Fig. 18 - Forward Voltage Drop Characteristics

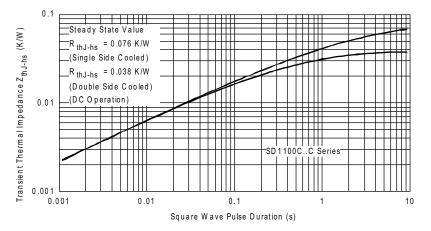
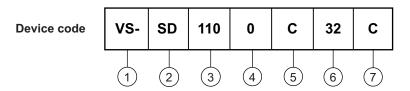


Fig. 19 - Thermal Impedance Z_{thJ-hs} Characteristics

ORDERING INFORMATION TABLE



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)

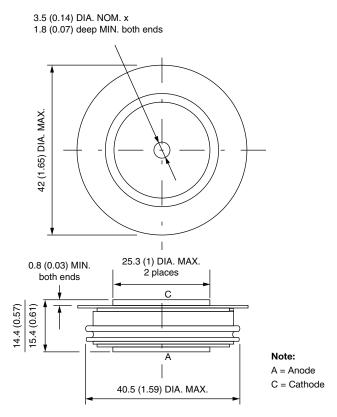
7 - C = PUK case B-43

LINKS TO RELATED DOCUMENTS				
Dimensions	www.vishay.com/doc?95249			



B-43

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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