

VS-SD1500C25L Datasheet



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DiGi Electronics Part Number	VS-SD1500C25L-DG
Manufacturer	Vishay General Semiconductor - Diodes Division
Manufacturer Product Number	VS-SD1500C25L
Description	DIODE GP 2.5KV 1600A DO200AB
Detailed Description	Diode 2500 V 1600A Clamp On DO-200AB, B-PUK

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Purchase and inquiry

Manufacturer Product Number:

VS-SD1500C25L

Series:

-

Technology:

Standard

Current - Average Rectified (Io):

1600A

Speed:

Standard Recovery >500ns, > 200mA (Io)

Capacitance @ Vr, F:

-

Package / Case:

DO-200AB, B-PUK

Base Product Number:

SD1500

Manufacturer:

Vishay General Semiconductor - Diodes Division

Product Status:

Active

Voltage - DC Reverse (Vr) (Max):

2500 V

Voltage - Forward (Vf) (Max) @ If:

1.64 V @ 3000 A

Current - Reverse Leakage @ Vr:

50 mA @ 2500 V

Mounting Type:

Clamp On

Supplier Device Package:

DO-200AB, B-PUK

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.10.0080

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99


www.vishay.com

VS-SD1500C..L Series

Vishay Semiconductors

Standard Recovery Diodes, (Hockey PUK Version), 1600 A



B-PUK (DO-200AB)

FEATURES

- Wide current range
- High voltage ratings up to 3000 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style B-PUK (DO-200AB)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS

$I_{T(AV)}$	1600 A
Package	B-PUK (DO-200AB)
Circuit configuration	Single

MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		1600	A
	T_{hs}	55	°C
$I_{F(RMS)}$		3010	A
	T_{hs}	25	°C
I_{FSM}	50 Hz	16 600	A
	60 Hz	17 400	
I^2t	50 Hz	1386	kA ² s
	60 Hz	1265	
V_{RRM}	Range	400 to 3000	V
T_J		-40 to +180	°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
VS-SD1500C..L	04	400	500	50
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	25	2500	2600	
	30	3000	3100	



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		1600 (820)	A
				55 (85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled		3010	A
Maximum peak, one cycle, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	16 600	
		t = 8.3 ms		17 400	
		t = 10 ms	100 % V_{RRM} reapplied	14 000	
		t = 8.3 ms		14 700	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied	1386	kA ² s
		t = 8.3 ms		1265	
		t = 10 ms	100 % V_{RRM} reapplied	980	
		t = 8.3 ms		895	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		13 860	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		0.83	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum		0.95	
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		0.27	mΩ
High level value of forward slope resistance	r_{f2}	(I > $\pi \times I_{F(AV)}$), $T_J = T_J$ maximum		0.25	
Maximum forward voltage drop	V_{FM}	$I_{pk} = 3000$ A $T_J = T_J$ maximum, $t_p = 10$ ms sinusoidal wave		1.64	V

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating temperature range	T_J			-40 to 180	°C
Maximum storage temperature range	T_{Stg}			-55 to 200	
Maximum thermal resistance, junction to heatsink	R_{thJ-hs}	DC operation single side cooled		0.073	K/W
		DC operation double side cooled		0.031	
Mounting force, ± 10 %				14 700 (1500)	N (kg)
Approximate weight				255	g
Case style		See dimensions - link at the end of datasheet		B-PUK (DO-200AB)	

ΔR_{thJ-hs} CONDUCTION						
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.009	0.009	0.006	0.006	$T_J = T_J$ maximum	K/W
120°	0.011	0.011	0.011	0.011		
90°	0.014	0.014	0.015	0.015		
60°	0.020	0.020	0.021	0.021		
30°	0.035	0.035	0.036	0.036		

Note

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



VS-SD1500C..L Series

Vishay Semiconductors

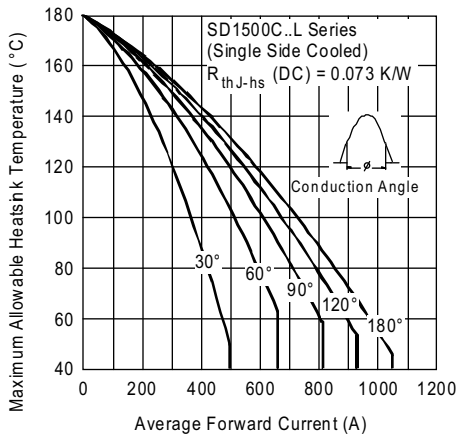


Fig. 1 - Current Ratings Characteristics

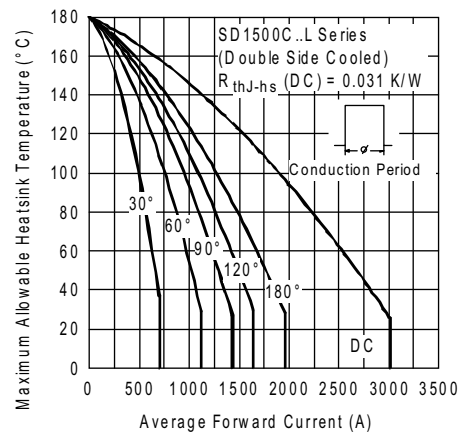


Fig. 4 - Current Ratings Characteristics

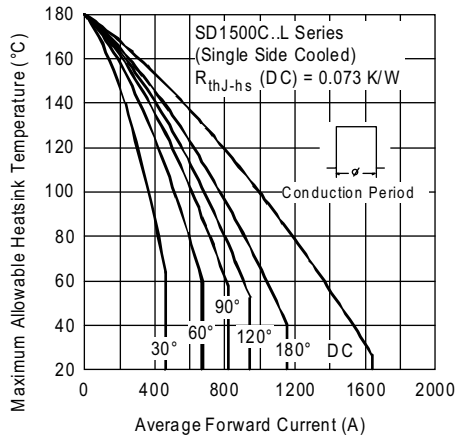


Fig. 2 - Current Ratings Characteristics

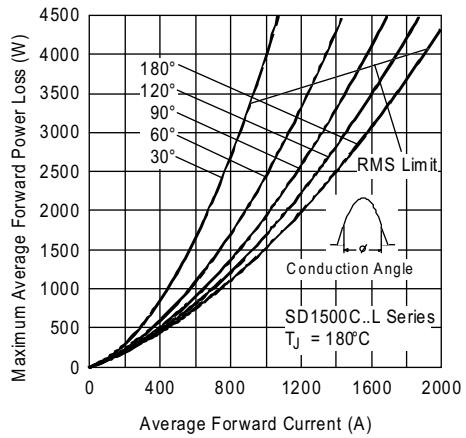


Fig. 5 - Forward Power Loss Characteristics

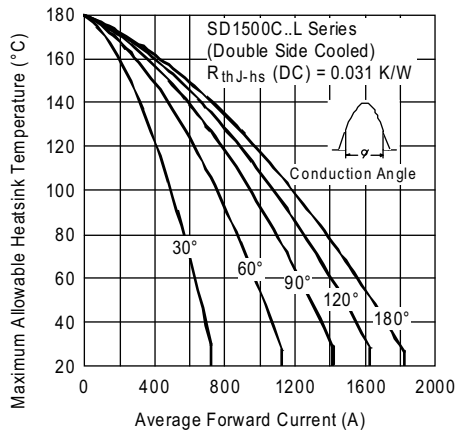


Fig. 3 - Current Ratings Characteristics

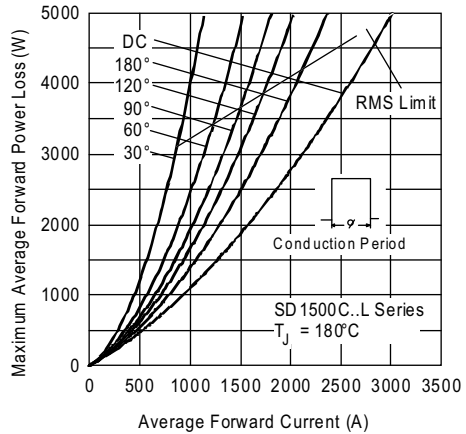


Fig. 6 - Forward Power Loss Characteristics

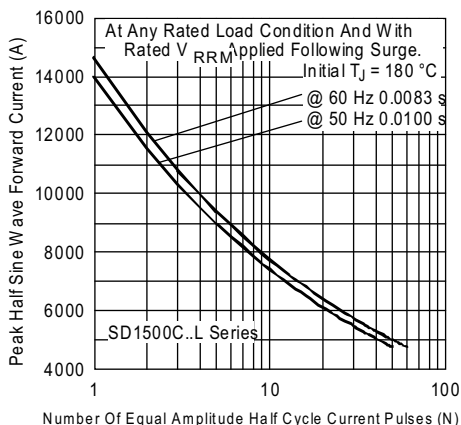


Fig. 7 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

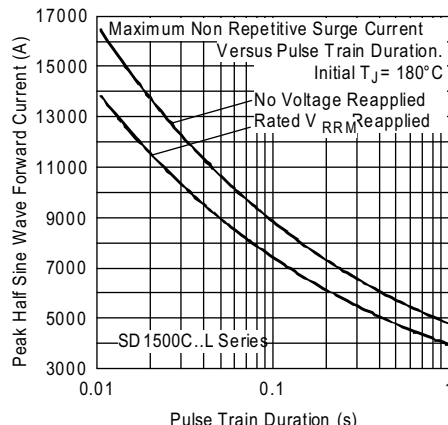


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

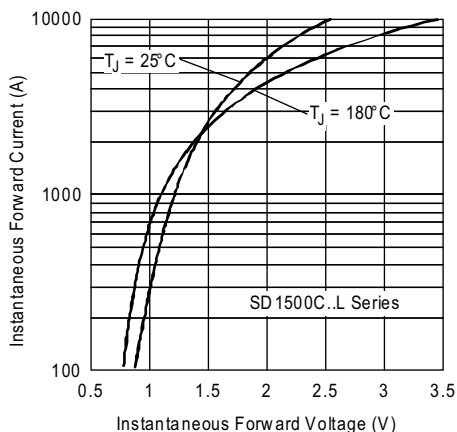


Fig. 9 - Forward Voltage Drop Characteristics

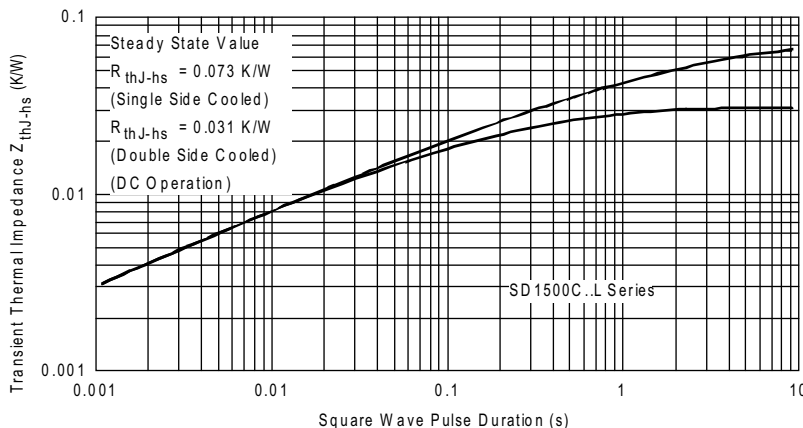


Fig. 10 - Thermal Impedance Z_{thJC} Characteristics


ORDERING INFORMATION TABLE

Device code	VS-	SD	150	0	C	30	L
	①	②	③	④	⑤	⑥	⑦
	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	-	L = PUK case B-PUK (DO-200AB)				

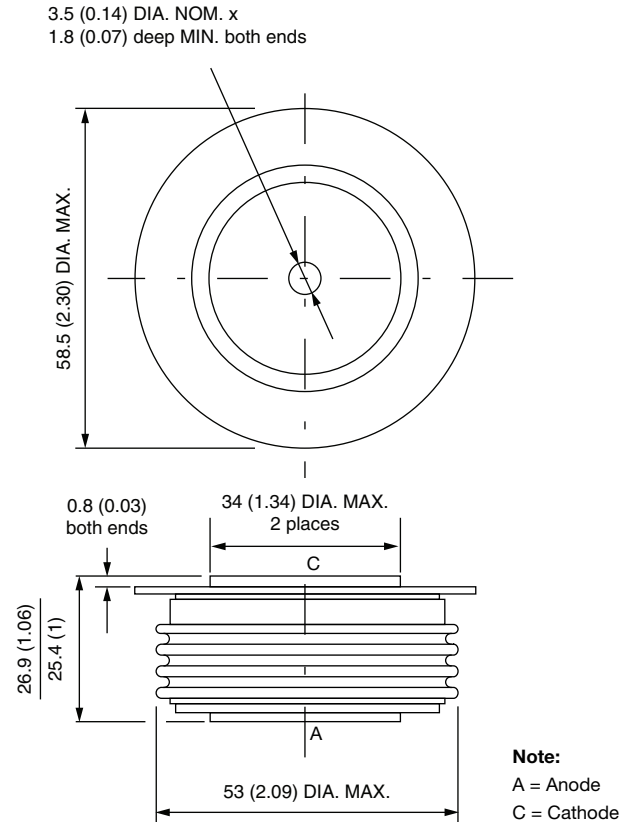
LINKS TO RELATED DOCUMENTS

Dimensions	www.vishay.com/doc?95246
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B-PUK (DO-200AB)

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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