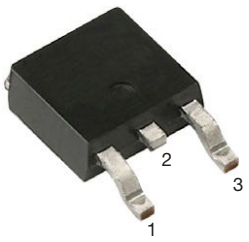
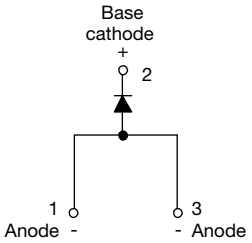
High Voltage Surface Mount Input Rectifier Diode, 8 A



DPAK (TO-252AA)



FEATURES

- Glass passivated pellet chip junction
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Meets JESD 201 class 2 whisker test
- Flexible solution for reliable AC power rectification
- High surge, low V_F rugged blocking diode for DC charging stations
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

HALOGEN FREE

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8 A
V_R	1600 V
V_F at I_F	1.1 V
I_{FSM}	150 A
T_J max.	150 °C
Package	DPAK (TO-252AA)
Circuit configuration	Single

APPLICATIONS

- On-board and off-board EV / HEV battery chargers
- Renewable energy inverters

DESCRIPTION

The VS-8EWS16SLHM3 rectifier high voltage series has been optimized for very low forward voltage drop, with moderate leakage.

The **high reverse voltage** range available allows design of input stage primary rectification with **outstanding voltage surge** capability.

OUTPUT CURRENT IN TYPICAL APPLICATIONS			
APPLICATIONS	SINGLE-PHASE BRIDGE	THREE-PHASE BRIDGE	UNITS
NEMA FR-4 or G10 glass fabric-based epoxy with 4 oz. (140 µm) copper	1.2	1.6	A
Aluminum IMS, R_{thCA} = 15 °C/W	2.5	2.8	
Aluminum IMS with heatsink, R_{thCA} = 5 °C/W	5.5	6.5	

Note

- T_A = 55 °C, T_J = 125 °C, footprint 300 mm^2

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	8	A
V_{RRM}		1600	V
I_{FSM}		150	A
V_F	8 A, T_J = 25 °C	1.10	V
T_J		-40 to +150	°C

VOLTAGE RATINGS			
PART NUMBER	V_{RRM}, MAXIMUM PEAK REVERSE VOLTAGE V	V_{RSM}, MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} AT 150 °C mA
VS-8EWS16SLHM3	1600	1700	0.5

ABSOLUTE MAXIMUM RATINGS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum average forward current	$I_{F(AV)}$	T_C = 105 °C, 180° conduction half sine wave	8	A
Maximum peak one cycle non-repetitive surge current	I_{FSM}	10 ms sine pulse, rated V_{RRM} applied	125	
		10 ms sine pulse, no voltage reapplied	150	
Maximum I^2t for fusing	I^2t	10 ms sine pulse, rated V_{RRM} applied	78	A^2s
		10 ms sine pulse, no voltage reapplied	110	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied	1100	$A^2\sqrt{s}$

ELECTRICAL SPECIFICATIONS					
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**VALUES**	**UNITS**
Maximum forward voltage drop	V_{FM}	8 A, T_J = 25 °C		1.1	V
Forward slope resistance	r_t	T_J = 150 °C		20	mΩ
Threshold voltage	$V_{F(TO)}$			0.82	V
Maximum reverse leakage current	I_{RM}	T_J = 25 °C	V_R = Rated V_{RRM}	0.05	mA
		T_J = 150 °C		0.50	

THERMAL - MECHANICAL SPECIFICATIONS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum junction and storage temperature range	T_J, T_{Stg}		-40 to +150	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	2.5	°C/W
Typical thermal resistance, junction to ambient (PCB mount)	R_{thJA} (1)		62	
Approximate weight			1	g
			0.03	oz.
Marking device		Case style DPAK (TO-252AA)	8EWS16SH	

Note

(1) When mounted on 1" square (650 mm^2) PCB of FR-4 or G-10 material 4 oz. (140 µm) copper 40 °C/W

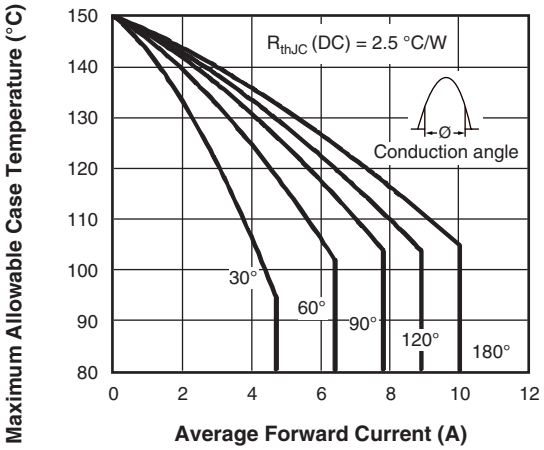


Fig. 1 - Current Rating Characteristics

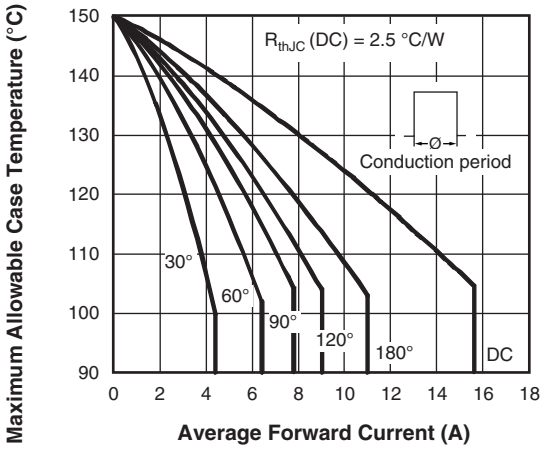


Fig. 2 - Current Rating Characteristics

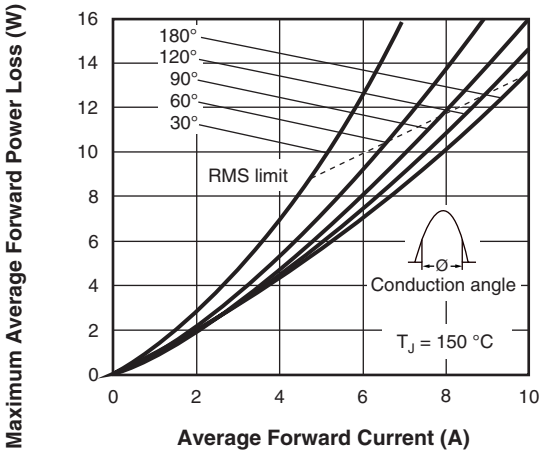


Fig. 3 - Forward Power Loss Characteristics

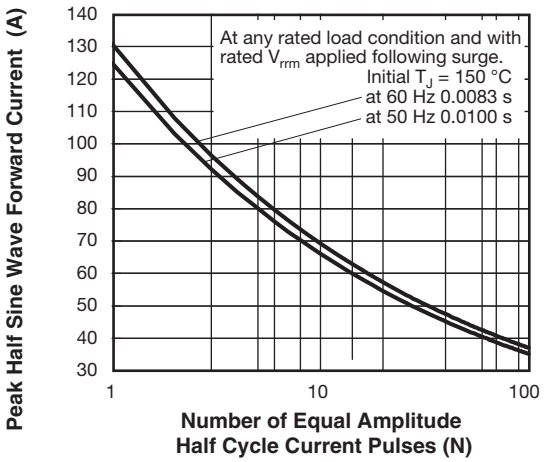


Fig. 5 - Maximum Non-Repetitive Surge Current

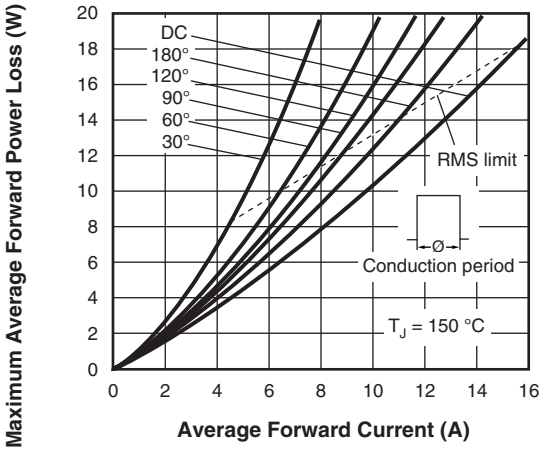


Fig. 4 - Forward Power Loss Characteristics

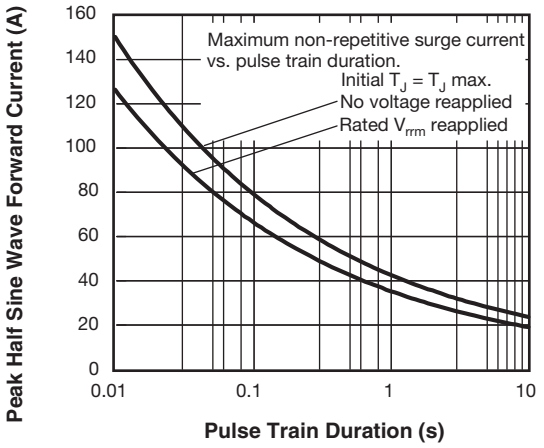


Fig. 6 - Maximum Non-Repetitive Surge Current

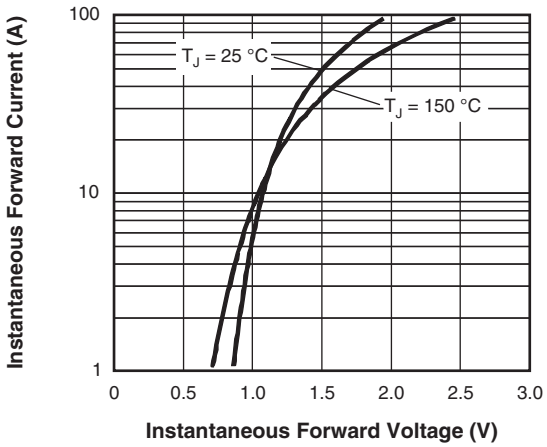


Fig. 7 - Forward Voltage Drop Characteristics

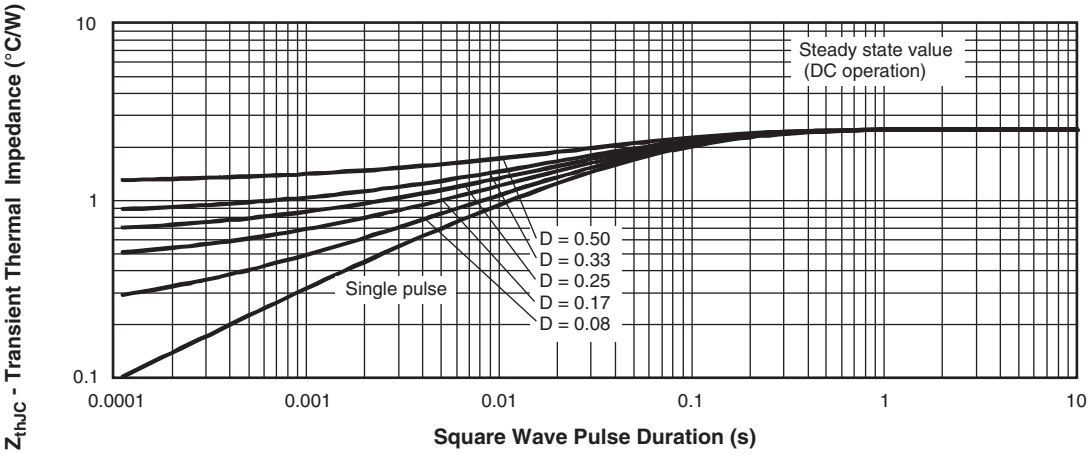


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code	VS-	8	E	W	S	16	S	L	H	M3
	1	2	3	4	5	6	7	8	9	10

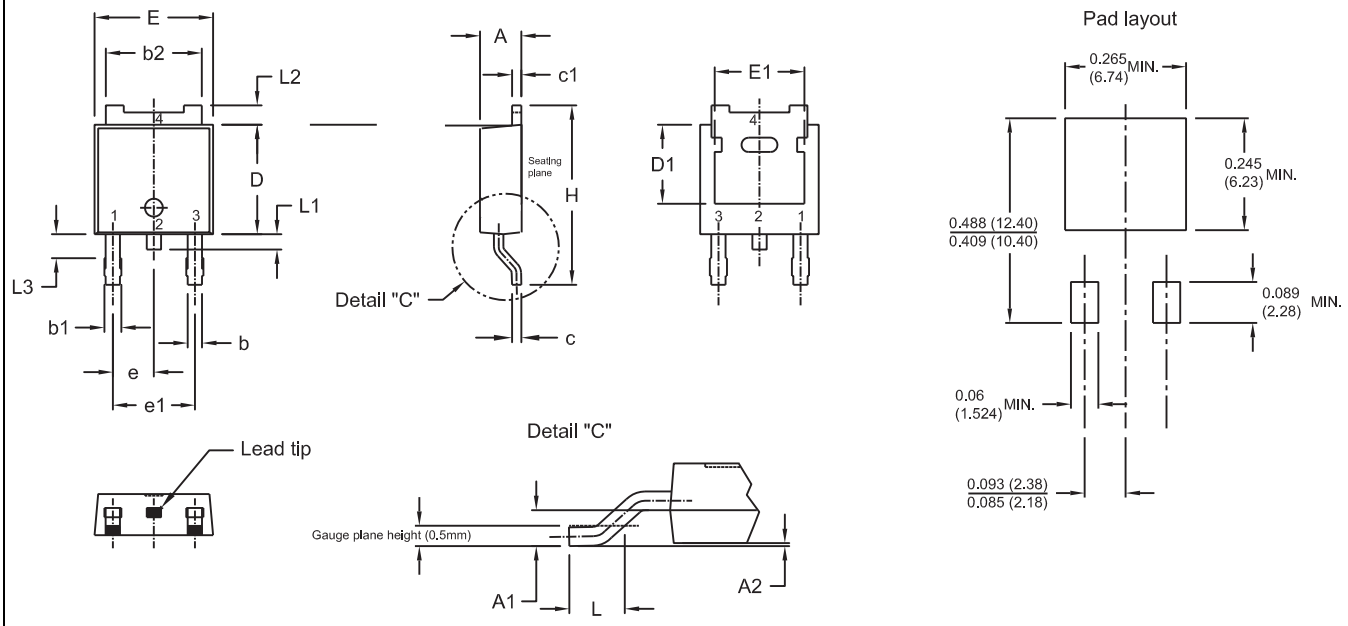
- 1 - Vishay Semiconductors product
- 2 - Current rating (8 = 8 A)
- 3 - Circuit configuration:
  E = single
- 4 - Package:
  W = DPAK (TO-252AA)
- 5 - Type of silicon:
  S = standard recovery rectifier
- 6 - Voltage code x 100 = V_{RRM} (16 = 1600 V)
- 7 - S = surface mountable
- 8 - L = tape and reel (left oriented), for different orientation contact factory
- 9 - H = AEC-Q101 qualified
- 10 - Environmental digit:
  M3 = halogen-free, RoHS-compliant, and terminations lead (Pb)-free

ORDERING INFORMATION (Example)			
PREFERRED P/N	**QUANTITY PER T/R**	**MINIMUM ORDER QUANTITY**	**PACKAGING DESCRIPTION**
VS-8EWS16SLHM3	3000	3000	13" diameter reel

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95519
Part marking information	www.vishay.com/doc?95518
Packaging information	www.vishay.com/doc?96495

D-PAK (TO-252AA)

DIMENSIONS in millimeters and inches



SYMBOL	MILLIMETERS		INCHES		NOTES	SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.			MIN.	MAX.	MIN.	MAX.	
A	2.21	2.38	0.087	0.094		A1	0.89	1.14	0.035	0.045	
A2	0.03	0.127	0.001	0.005		H	9.65	10.41	0.380	0.410	
b	0.71	0.88	0.028	0.035		L	1.40	1.78	0.055	0.070	
b1	0.76	1.14	0.030	0.045		e	2.28 BSC		0.09 BSC		
b2	5.23	5.44	0.206	0.214		e1	4.57 BSC		0.18 BSC		
C	0.46	0.58	0.018	0.023		L1	0.64	1.02	0.025	0.040	
C1	0.46	0.58	0.018	0.023		L2	0.89	1.27	0.035	0.050	
D	5.97	6.22	0.235	0.2455		L3	1.15	1.52	0.040	0.060	
D1	4.32	4.45	0.170	0.175							
E	6.48	6.73	0.255	0.2655							
E1	4.49	5.50	0.177	0.217							

Notes

(1) Dimensioning and tolerancing as per ASME Y14.5M-1994

(2) Lead dimension uncontrolled in L3 only for reference

(3) Dimension D1, E1, L2 and b2 establish a minimum mounting surface for thermal pad

(4) Dimensions D and E do not include mold flash.

(5) Outline conforms to JEDEC outline TO-252AA

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Rectifiers ***category:***

Click to view products by Vishay ***manufacturer:***

Other Similar products are found below :

70HFR40 RL252-TP 150KR30A 1N5397 NTE5841 NTE6038 SCF5000 1N4002G 1N4005-TR JANS1N6640US VS-80-7161 481235F RRE02VS6SGTR 067907F MS306 70HF40 T85HFL60S02 US2JFL-TP A1N5404G-G CRS04(T5L,TEMQ) ACGRA4007-HF ACGRB207-HF CLH03(TE16L,Q) ACGRC307-HF ACEFC304-HF NTE6356 NTE6359 NTE6002 NTE6023 NTE6039 NTE6077 85HFR60 40HFR60 1N1186RA 70HF120 85HFR80 D126A45C SCF7500 D251N08B SCHJ22.5K SM100 SCPA2 SCH10000 SDHD5K VS-12FL100S10 ACGRA4001-HF D1821SH45T PR D1251S45T NTE5990 NTE6358