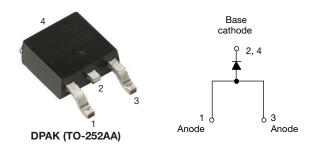


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Vishay Semiconductors

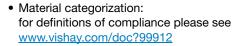
High Voltage Surface Mountable Input Rectifier Diode, 8 A



PRIMARY CHARACTERISTICS					
I _{F(AV)}	8 A				
V_{R}	800 V, 1200 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				

FEATURES

- · Glass passivated pellet chip junction
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C







ROHS COMPLIANT HALOGEN FREE

APPLICATIONS

- · Input rectification
- Vishay Semiconductors switches and output rectifiers which are available in identical package outlines

DESCRIPTION

The VS-8EWS..S-M3 rectifier high voltage series has been optimized for very low forward voltage drop, with moderate leakage. The glass passivation technology used has reliable operation up to 150 °C junction temperature.

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	٨			
Aluminum IMS, R _{thCA} = 15 °C/W 2.5 2.8		А				
Aluminum IMS with heatsink, R _{thCA} = 5 °C/W	5.5	6.5				

Note

• T_A = 55 °C, T_J = 125 °C, footprint 300 mm²

MAJOR RATINGS AND CHARACTERISTICS						
SYMBOL	CHARACTERISTICS	VALUES	UNITS			
I _{F(AV)}	Sinusoidal waveform	8	A			
V_{RRM}		800/1200	V			
I _{FSM}		150	A			
V _F	8 A, T _J = 25 °C	1.10	V			
T _J		-55 to +150	°C			

VOLTAGE RATINGS						
PART NUMBER V _{RRM} , MAXIMUM PEAK REVERSE VOLTAGE V V _{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V						
VS-8EWS08S-M3	800	900	0.5			
VS-8EWS12S-M3	1200	1300	0.5			



VS-8EWS08S-M3, VS-8EWS12S-M3

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ABSOLUTE MAXIMUM RATINGS						
PARAMETER	PARAMETER SYMBOL TEST CONDITIONS					
Maximum average forward current	I _{F(AV)}	$T_C = 105$ °C, 180° conduction half sine wave	8			
Maximum peak one cycle		10 ms sine pulse, rated V _{RRM} applied	125	Α		
non-repetitive surge current	I _{FSM}	10 ms sine pulse, no voltage reapplied	150			
Maximum I ² t for fusing	l ² t	10 ms sine pulse, rated V _{RRM} applied	78	A ² s		
IVIAXIIIIUIII I-t for fusiing	1-1	10 ms sine pulse, no voltage reapplied 110		7.3		
Maximum I ² √t for fusing	I ² √t	t = 0.1 ms to 10 ms, no voltage reapplied	1100	A ² √s		

ELECTRICAL SPECIFICATIONS						
PARAMETER SYMBOL TEST CONDITIONS VALUES UN						
Maximum forward voltage drop	V_{FM}	8 A, T _J	1.1	V		
Forward slope resistance	r _t	T _{.I} = 150 °C		20	mΩ	
Threshold voltage	$V_{F(TO)}$	ı j = 1	0.82	V		
Maximum rayaraa laakaga aurrant		T _J = 25 °C		0.05	mΛ	
Maximum reverse leakage current	I _{RM}	T _J = 150 °C	V _R = Rated V _{RRM}	0.50	mA mA	

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction and storage temperature range	T _J , T _{Stg}		-55 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	O/ VV	
Approximate weight			1	g	
Approximate weight			0.03	OZ.	
Madina davia		Occasion to DDAK (TO OFGAA)	8EWS08S		
Marking device		Case style DPAK (TO-252AA)	8EWS12S		

Note

⁽¹⁾ When mounted on 1" square (650 mm²) PCB of FR-4 or G-10 material 4 oz. (140 µm) copper 40 °C/W For recommended footprint and soldering techniques refer to application note #AN-994

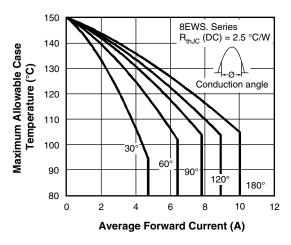


Fig. 1 - Current Rating Characteristics

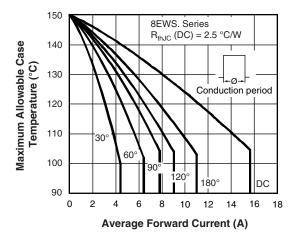


Fig. 2 - Current Rating Characteristics

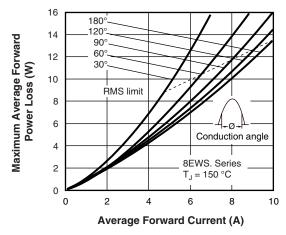


Fig. 3 - Forward Power Loss Characteristics

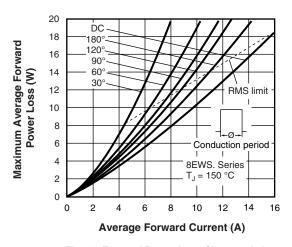


Fig. 4 - Forward Power Loss Characteristics

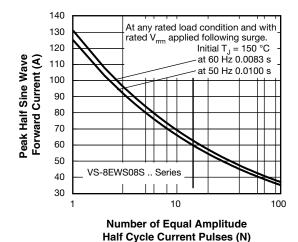


Fig. 5 - Maximum Non-Repetitive Surge Current

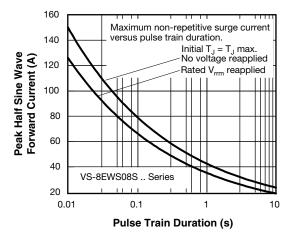


Fig. 6 - Maximum Non-Repetitive Surge Current

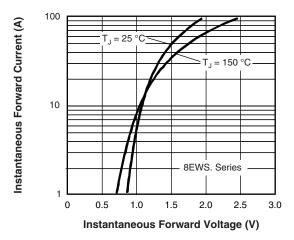


Fig. 7 - Forward Voltage Drop Characteristics

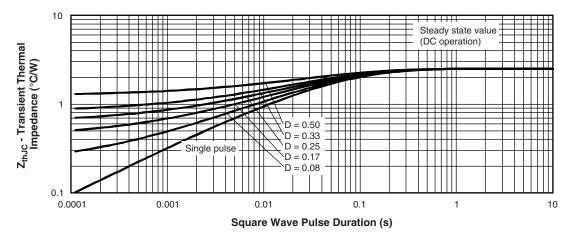
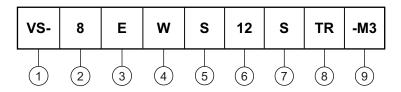


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code



1 - Vishay Semiconductors product

- Current rating (8 = 8 A)

3 - Circuit configuration:

E = single diode

4 - Package:

W = D-PAK

5 - Type of silicon:

S = standard recovery rectifier

6 - Voltage code x 100 = V_{RRM} ---- 08 = 800 V 12 = 1200 V

7 - S = surface mountable

8 - • TR = tape and reel

• TRR = tape and reel (right oriented)

• TRL = tape and reel (left oriented)

9 - Environmental digit:

-M3 = halogen-free, RoHS-compliant, and terminations lead (Pb)-free

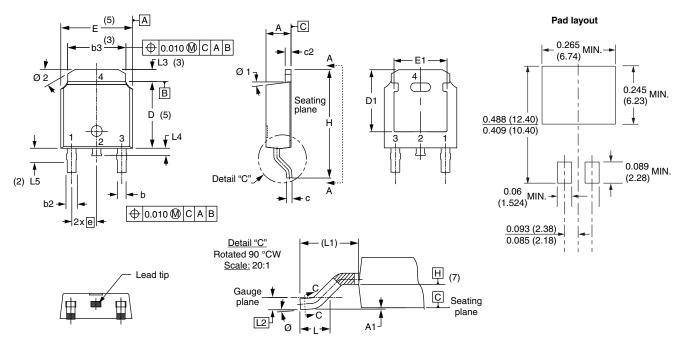
ORDERING INFORMATION (Example)						
PREFERRED P/N	QUANTITY PER T/R MINIMUM ORDER QUANT		PACKAGING DESCRIPTION			
VS-8EWS08S-M3	75	3000	Antistatic plastic tubes			
VS-8EWS08STR-M3	2000	2000	13" diameter reel			
VS-8EWS08STRL-M3	3000	3000	13" diameter reel			
VS-8EWS08STRR-M3	3000	3000	13" diameter reel			
VS-8EWS12S-M3	75	3000	Antistatic plastic tubes			
VS-8EWS12STR-M3	2000	2000	13" diameter reel			
VS-8EWS12STRL-M3	3000	3000	13" diameter reel			
VS-8EWS12STRR-M3	3000	3000	13" diameter reel			

LINKS TO RELATED DOCUMENTS				
Dimensions	www.vishay.com/doc?95627			
Part marking information	www.vishay.com/doc?95176			
Packaging information	www.vishay.com/doc?95033			
SPICE model	www.vishay.com/doc?96668			



D-PAK (TO-252AA) "M"

DIMENSIONS in millimeters and inches



SYMBOL	MILLIN	IETERS	INC	HES	NOTES
STIVIDOL	MIN.	MAX.	MIN.	MAX.	NOTES
Α	2.18	2.39	0.086	0.094	
A1	-	0.13	-	0.005	
b	0.64	0.89	0.025	0.035	
b2	0.76	1.14	0.030	0.045	
b3	4.95	5.46	0.195	0.215	3
С	0.46	0.61	0.018	0.024	
c2	0.46	0.89	0.018	0.035	
D	5.97	6.22	0.235	0.245	5
D1	5.21	-	0.205	-	3
Е	6.35	6.73	0.250	0.265	5
E1	4.32	-	0.170	-	3

SYMBOL	MILLIMETERS		INCHES		NOTES
STWIBOL	MIN.	MAX.	MIN.	MAX.	NOILS
е	2.29	BSC	0.090	BSC	
Н	9.40	10.41	0.370	0.410	
L	1.40	1.78	0.055	0.070	
L1	2.74	2.74 BSC		REF.	
L2	0.51	BSC	0.020 BSC		
L3	0.89	1.27	0.035	0.050	3
L4	-	1.02	-	0.040	
L5	1.14	1.52	0.045	0.060	2
Ø	0°	10°	0°	10°	
Ø1	0°	15°	0°	15°	
Ø2	25°	35°	25°	35°	

Notes

- (1) Dimensioning and tolerancing as per ASME Y14.5M-1994
- (2) Lead dimension uncontrolled in L5
- (3) Dimension D1, E1, L3 and b3 establish a minimum mounting surface for thermal pad
- (4) Section C C dimension apply to the flat section of the lead between 0.13 and 0.25 mm (0.005 and 0.10") from the lead tip
- (5) Dimension D, and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
- (6) Dimension b1 and c1 applied to base metal only
- (7) Datum A and B to be determined at datum plane H
- (8) Outline conforms to JEDEC® outline TO-252AA



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