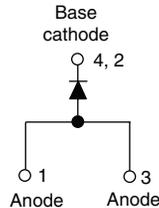


Surface Mountable Input Rectifier Diode, 8 A



D-PAK



DESCRIPTION/FEATURES

The 8EWS..SPbF 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.

Typical applications are in input rectification and these products are designed to be used with Vishay HPP switches and output rectifiers which are available in identical package outlines.

This product has been designed and qualified for industrial level and lead (Pb)-free.



RoHS*
COMPLIANT

PRODUCT SUMMARY

V_F at 5 A	1 V
I_{FSM}	200 A
V_{RRM}	800/1200 V

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 μ m) 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 mm²

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	8	A
V_{RRM}		800/1200	V
I_{FSM}		200	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	I_{RRM} AT 150 °C mA
8EWS08SPbF	800	900	0.5
8EWS12SPbF	1200	1300	

* Pb containing terminations are not RoHS compliant, exemptions may apply

8EWS..SPbF High Voltage Series



Vishay High Power Products Surface Mountable
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ABSOLUTE MAXIMUM RATINGS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	$T_C = 105\text{ }^\circ\text{C}$, 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	170	
		10 ms sine pulse, no voltage reapplied	200	
Maximum I^2t for fusing	I^2t	10 ms sine pulse, rated V_{RRM} applied	130	A^2s
		10 ms sine pulse, no voltage reapplied	145	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ to 10 ms, no voltage reapplied	1450	$A^2\sqrt{s}$

ELECTRICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum forward voltage drop	V_{FM}	8 A, $T_J = 25\text{ }^\circ\text{C}$	1.1	V
Forward slope resistance	r_t	$T_J = 150\text{ }^\circ\text{C}$	20	$m\Omega$
Threshold voltage	$V_{F(TO)}$		0.82	V
Maximum reverse leakage current	I_{RM}	$T_J = 25\text{ }^\circ\text{C}$	0.05	mA
		$T_J = 150\text{ }^\circ\text{C}$		

THERMAL - MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T_J, T_{Stg}		- 55 to 150	$^\circ\text{C}$
Soldering temperature	T_S		240	
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	2.5	$^\circ\text{C/W}$
Typical thermal resistance, junction to ambient (PCB mount)	$R_{thJA}^{(1)}$		62	
Approximate weight			1	g
			0.03	oz.
Marking device		Case style D-PAK (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 $^\circ\text{C/W}$
For recommended footprint and soldering techniques refer to application note #AN-994



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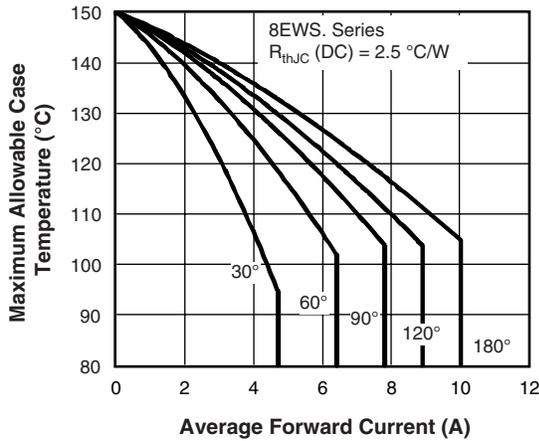


Fig. 1 - Current Rating Characteristics

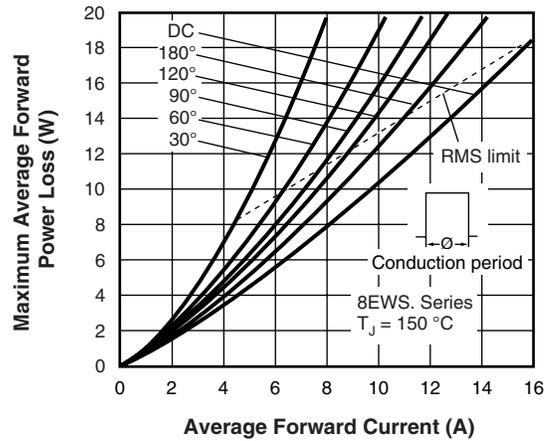


Fig. 4 - Forward Power Loss Characteristics

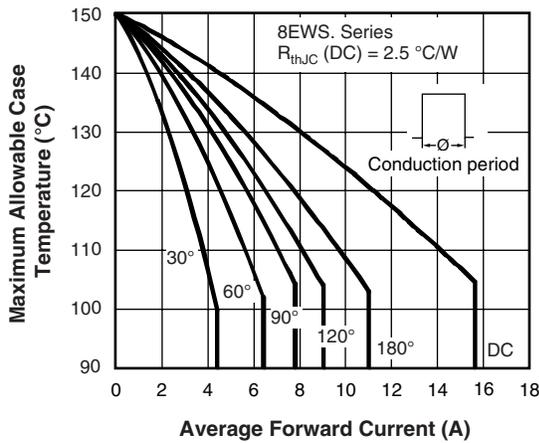


Fig. 2 - Current Rating Characteristics

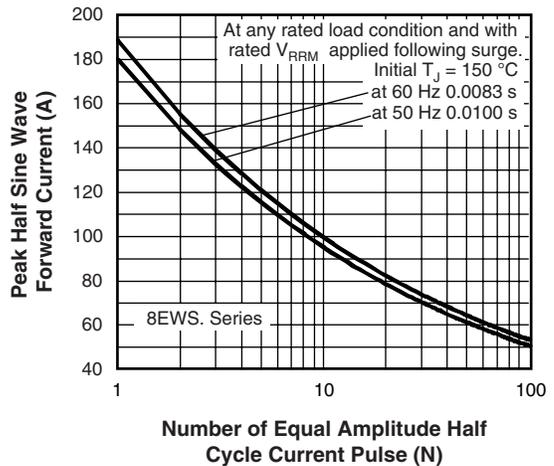


Fig. 5 - Maximum Non-Repetitive Surge Current

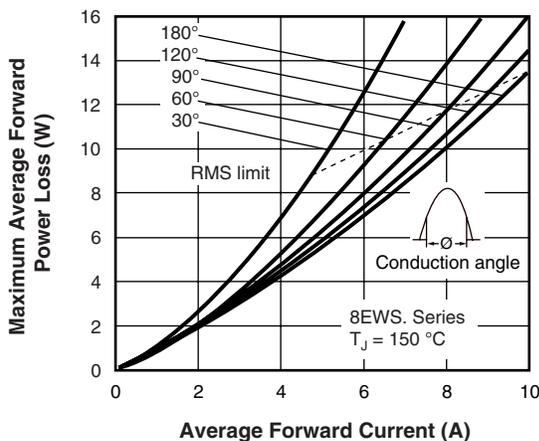


Fig. 3 - Forward Power Loss Characteristics

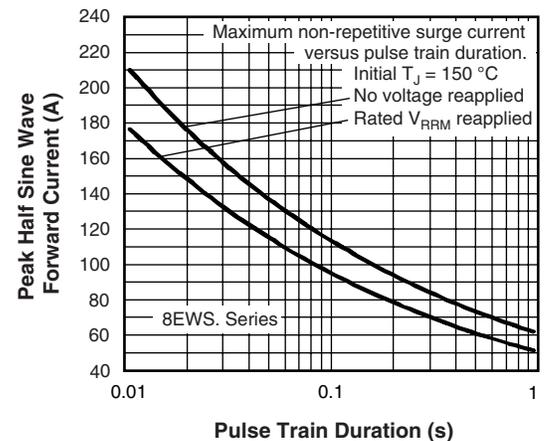


Fig. 6 - Maximum Non-Repetitive Surge Current

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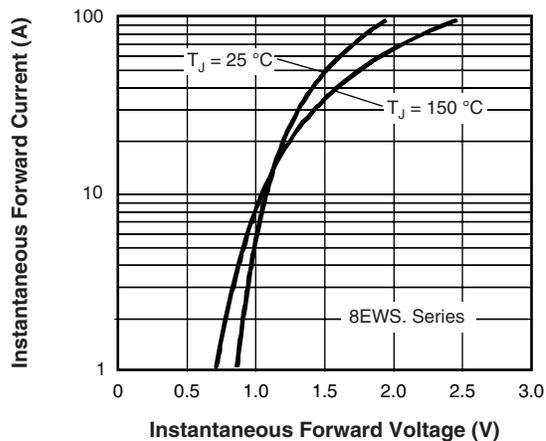


Fig. 7 - Forward Voltage Drop Characteristics

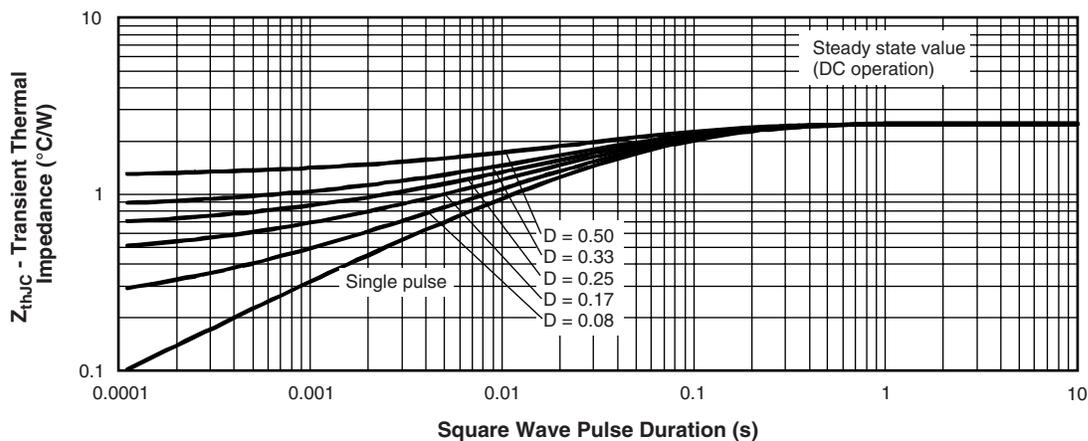


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

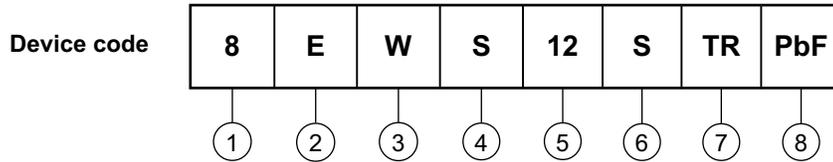


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Vishay High Power Products

ORDERING INFORMATION TABLE



- 1** - Current rating (8 = 8 A)
- 2** - Circuit configuration:
E = Single diode
- 3** - Package:
W = D-PAK
- 4** - Type of silicon:
S = Standard recovery rectifier
- 5** - Voltage ratings
- 6** - S = Surface mountable
- 7** -
 - TR = Tape and reel
 - TRR = Tape and reel (right oriented)
 - TRL = Tape and reel (left oriented)
- 8** -
 - None = Standard production
 - PbF = Lead (Pb)-free

08 = 800 V 12 = 1200 V

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95016
Part marking information	http://www.vishay.com/doc?95059
Packaging information	http://www.vishay.com/doc?95033



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