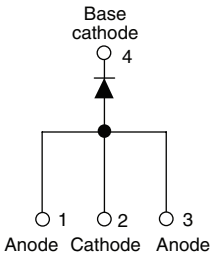
Surface Mountable
Input Rectifier Diode, 8 A

D-PAK



DESCRIPTION/FEATURES

Available
RoHS* COMPLIANT

The 8EWS16SPbF 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.

PRODUCT SUMMARY	
V_F at 10 A	1 V
I_{FSM}	200 A
V_{RRM}	1600 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 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}		200	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
8EWS16SPbF	1600	1700	0.5

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

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	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 °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
Soldering temperature	T_S		240	
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	2.5	°C/W
Typical thermal resistance, junction to ambient (PCB mount) (1)	R_{thJA}		62	
Approximate weight			1	g
			0.03	oz.
Marking device		Case style TO-252AA (D-PAK)	8EWS16S	

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
For recommended footprint and soldering techniques refer to application note #AN-994

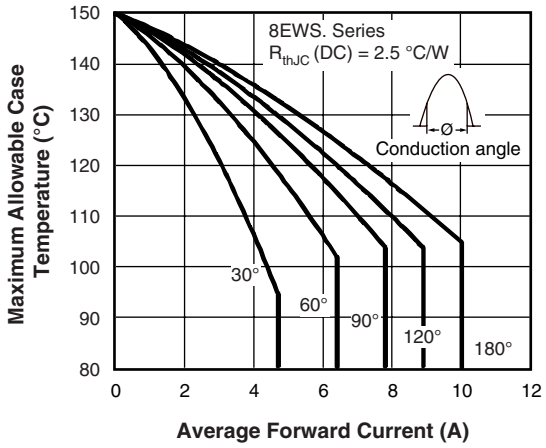


Fig. 1 - Current Rating Characteristics

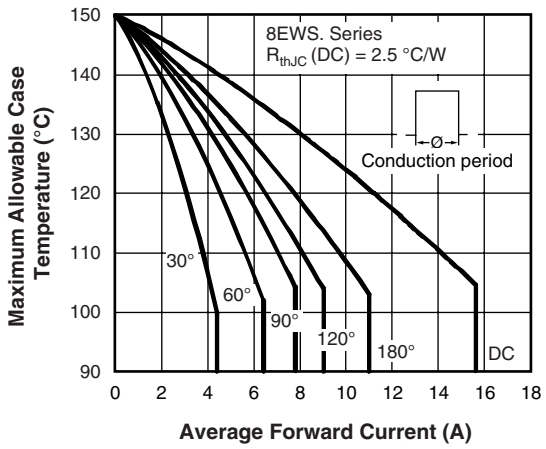


Fig. 2 - Current Rating Characteristics

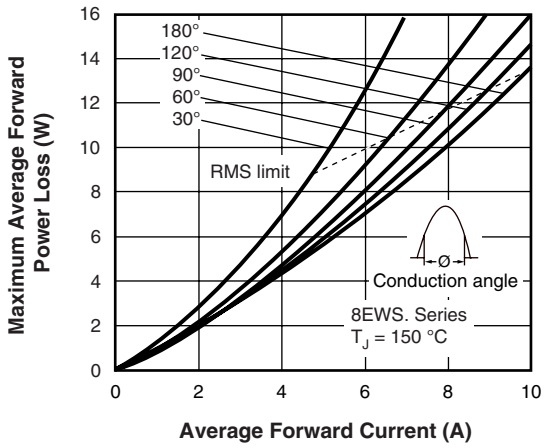


Fig. 3 - Forward Power Loss Characteristics

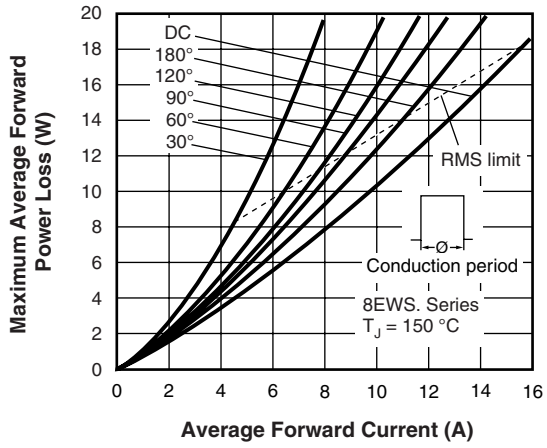


Fig. 4 - Forward Power Loss Characteristics

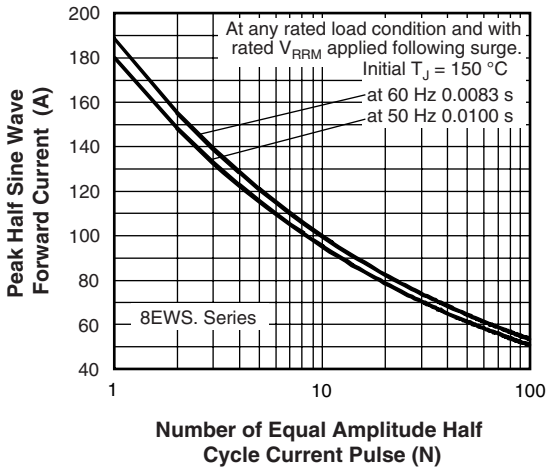


Fig. 5 - Maximum Non-Repetitive Surge Current

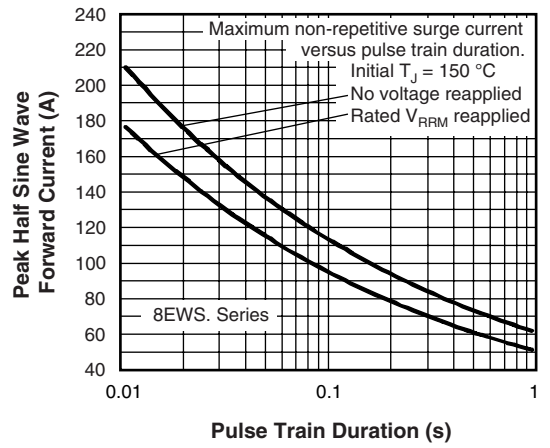


Fig. 6 - Maximum Non-Repetitive Surge Current

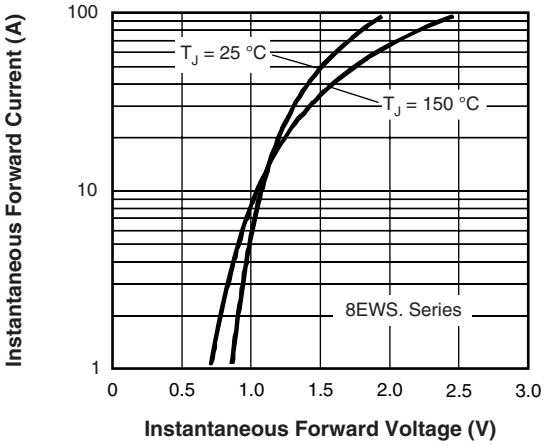


Fig. 7 - Forward Voltage Drop Characteristics

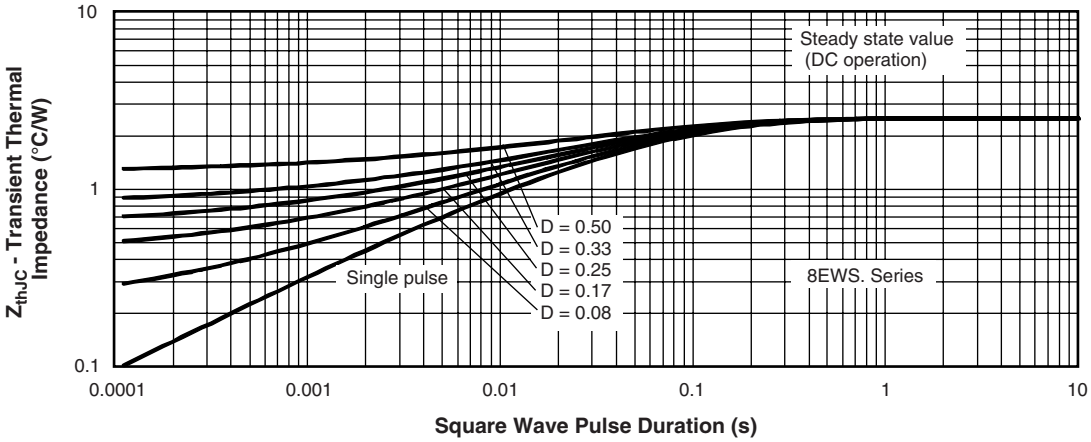


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code

8	E	W	S	16	S	TR	PbF
1	2	3	4	5	6	7	8

- 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 rating (16 = 1600 V)
- 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

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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