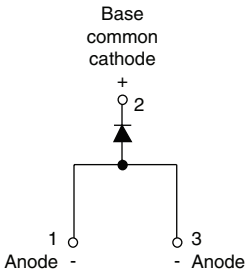
Surface Mountable
Fast Soft Recovery Diode, 8 A

D-PAK



FEATURES/DESCRIPTION

The 8EWF..SPbF fast soft recovery rectifier series has been optimized for combined short reverse recovery time, low forward voltage drop and low leakage current.

RoHS COMPLIANT

The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

This series is designed and qualified for industrial level.

Compliant to RoHS directive 2002/95/EC.

APPLICATIONS

- Output rectification and freewheeling diode in inverters, choppers and converters
- Input rectifications where severe restrictions on conducted EMI should be met

PRODUCT SUMMARY	
V_F at 8 A	< 1.2 V
t_{rr}	55 ns
V_{RRM}	200 to 600 V

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	8	A
V_{RRM}		200 to 600	V
I_{FSM}		170	A
V_F	8 A, T_J = 25 °C	1.2	V
t_{rr}	1 A, 100 A/µs	55	ns
T_J	Range	- 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
8EWF02SPbF	200	300	3
8EWF04SPbF	400	500	
8EWF06SPbF	600	700	

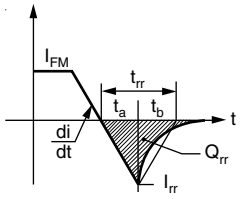
ABSOLUTE MAXIMUM RATINGS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	T_C = 96 °C, 180° conduction half sine wave	8	A
Maximum peak one cycle non-repetitive surge current	I_{FSM}	10 ms sine pulse, rated V_{RRM} applied	170	
		10 ms sine pulse, no voltage reapplied	200	
Maximum I^2t for fusing	I^2t	10 ms sine pulse, rated V_{RRM} applied	140	A^2s
		10 ms sine pulse, no voltage reapplied	200	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied	2000	$A^2\sqrt{s}$

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V_{FM}	8 A, T_J = 25 °C		1.2	V
Forward slope resistance	r_t	T_J = 150 °C		16	mΩ
Threshold voltage	$V_{F(TO)}$			1.13	V
Maximum reverse leakage current	I_{RM}	T_J = 25 °C	V_R = Rated V_{RRM}	0.1	mA
		T_J = 150 °C		3	

RECOVERY CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Reverse recovery time	t_{rr}	I_F at 8 Apk 25 A/µs T_J = 25 °C	140	ns
Reverse recovery current	I_{rr}		2.6	A
Reverse recovery charge	Q_{rr}		0.25	µC
Snap factor	S		0.5	



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	For 10 seconds	240	
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)		50	
Approximate weight			1	g
			0.03	oz.
Marking device		Case style TO-252AA (D-PAK)	8EWF06S	

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

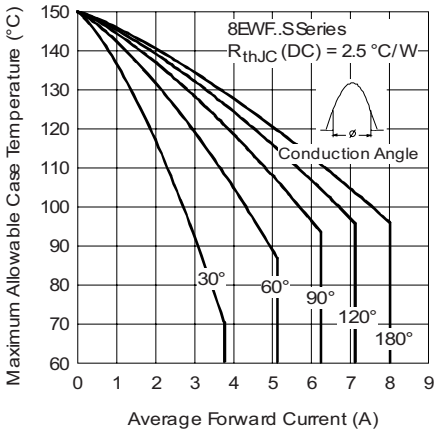


Fig. 1 - Current Rating Characteristics

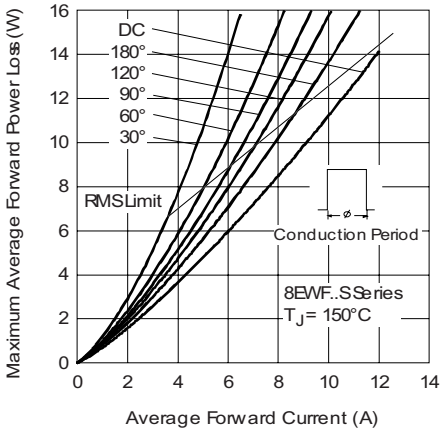


Fig. 4 - Forward Power Loss Characteristics

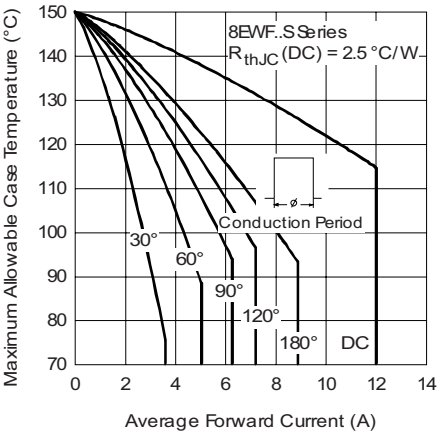


Fig. 2 - Current Rating Characteristics

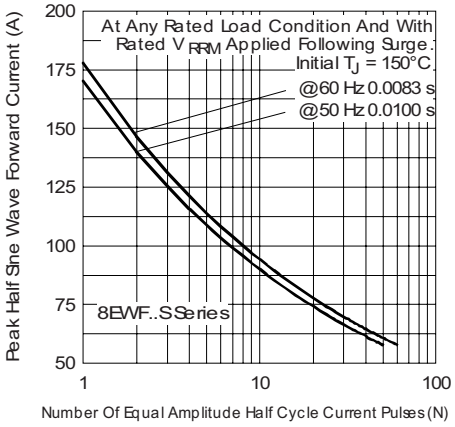


Fig. 5 - Maximum Non-Repetitive Surge Current

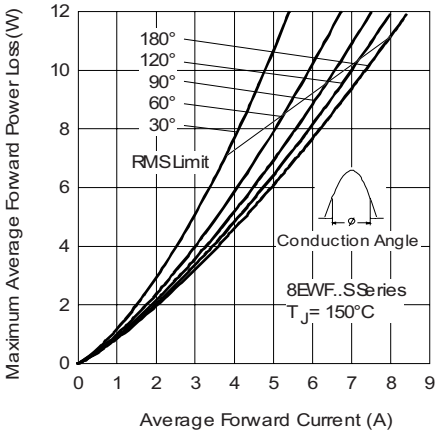


Fig. 3 - Forward Power Loss Characteristics

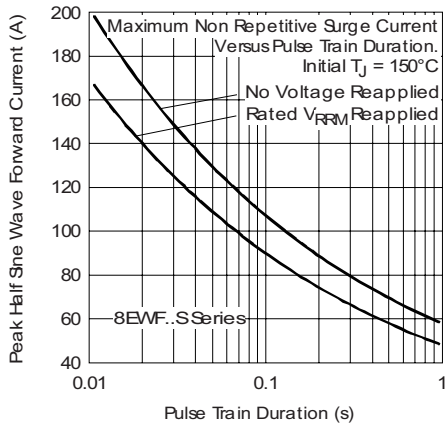


Fig. 6 - Maximum Non-Repetitive Surge Current

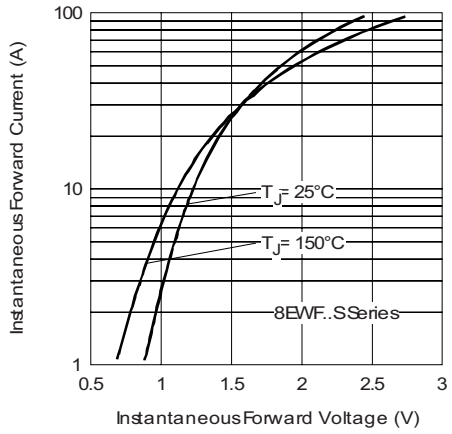


Fig. 7 - Forward Voltage Drop Characteristics

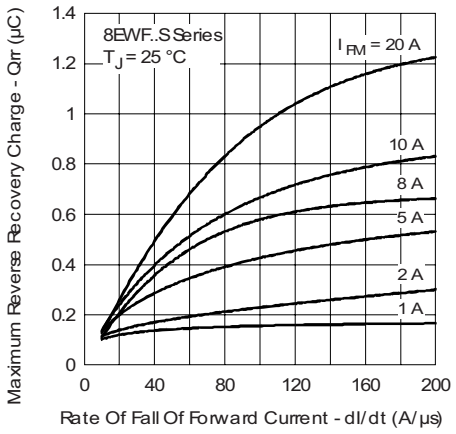


Fig. 10 - Recovery Charge Characteristics, T_J = 25 °C

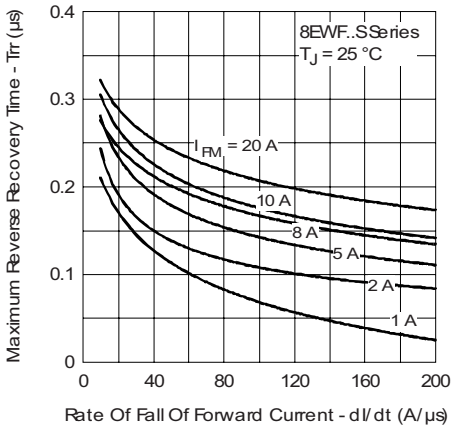


Fig. 8 - Recovery Time Characteristics, T_J = 25 °C

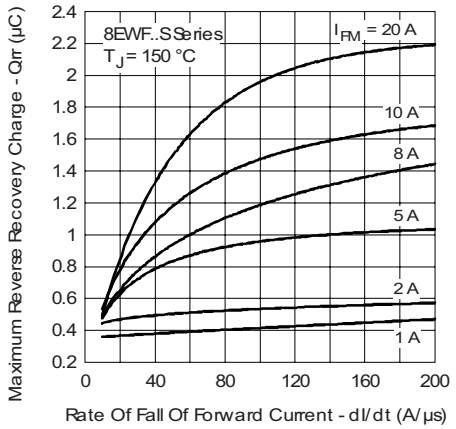


Fig. 11 - Recovery Charge Characteristics, T_J = 150 °C

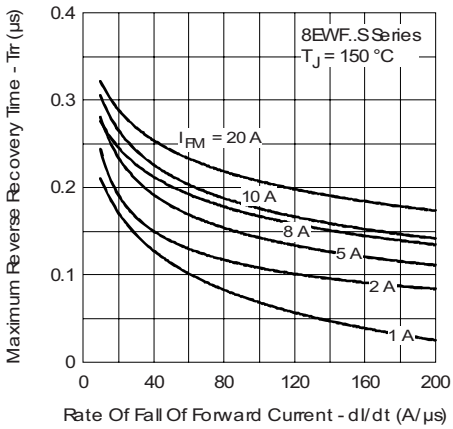


Fig. 9 - Recovery Time Characteristics, T_J = 150 °C

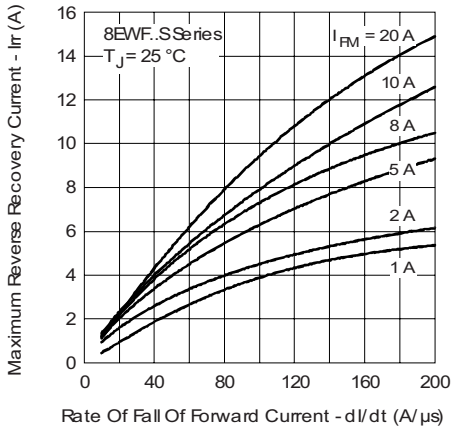


Fig. 12 - Recovery Current Characteristics, T_J = 25 °C

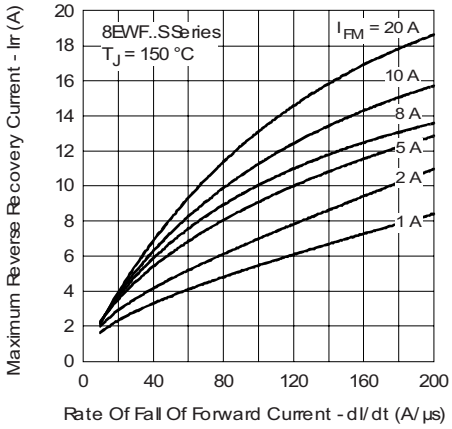


Fig. 13 - Recovery Current Characteristics, T_J = 150 °C

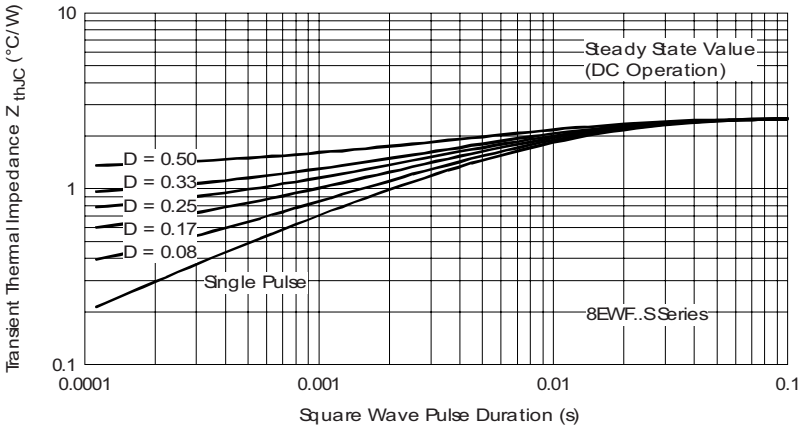


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code

8	E	W	F	06	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:
F = Fast soft recovery rectifier

5 - Voltage code x 100 = V_{RRM}
- 02 = 200 V
- 04 = 400 V
- 06 = 600 V

6 - S = Surface mountable

7 - • TR = Tape and reel
• TRR = Tape and reel (right oriented)
• TRL = Tape and reel (left oriented)

8 - PbF = Lead (Pb)-free

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

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