THE DATASHEET OF

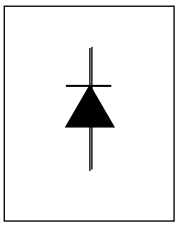
8EWF04S

I2124 rev. B 10/99

International
IOR Rectifier

*QUIET**IR*** Series
8EWF..S

SURFACE MOUNTABLE FAST SOFT RECOVERY DIODE



V_F < 1.2V @ 8A
t_{rr} = 55ns
V_{RRM} 200 to 600V

Description/Features

The 8EWF..S fast soft recovery *QUIET**IR*** rectifier series has been optimized for combined short reverse recovery time, low forward voltage drop and low leakage current
The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

Typical applications are both:
- Output rectification and freewheeling diode in inverters, choppers and converters.
- Input rectifications where severe restrictions on conducted EMI should be met.

Major Ratings and Characteristics

Characteristics	8EWF..S	Units
$I_{F(AV)}$ Sinusoidal waveform	8	A
V_{RRM}	200 to 600	V
I_{FSM}	170	A
V_F @ 8A, T_J = 25°C	1.2	V
t_{rr} @ 1A, 100A/µs	55	ns
T_J	-40 to 150	°C

Package Outline

TO-252AA (D-Pak)

Voltage Ratings

Part Number	V_{RRM}, maximum peak reverse voltage V	V_{RSM}, maximum non repetitive peak reverse voltage V	I_{RRM} 150°C mA
8EWF02S	200	300	3
8EWF04S	400	500	
8EWF06S	600	700	

Absolute Maximum Ratings

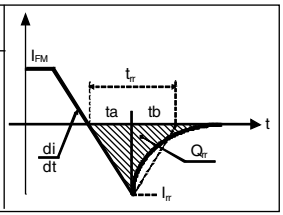
	Parameters	8EWF..S	Units	Conditions
$I_{F(AV)}$	Max. Average Forward Current	8	A	@ T_C = 96°C, 180° conduction half sine wave
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current	170	A	10ms Sine pulse, rated V_{RRM} applied
		200		10ms Sine pulse, no voltage reapplied
I^2t	Max. I^2t for fusing	140	A^2s	10ms Sine pulse, rated V_{RRM} applied
		200		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for fusing	2000	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied

Electrical Specifications

	Parameters	8EWF..S	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop	1.2	V	@ 8A, T_J = 25°C	
r_t	Forward slope resistance	16	mΩ	T_J = 150°C	
$V_{F(TO)}$	Threshold voltage	1.13	V		
I_{RM}	Max. Reverse Leakage Current	0.1	mA	T_J = 25 °C	V_R = rated V_{RRM}
		3		T_J = 150 °C	

Typical Reverse Recovery Characteristics

	Parameters	8EWF..S	Units	Conditions
t_{rr}	Reverse Recovery Time	140	ns	I_F @ 8Apk
I_{rr}	Reverse Recovery Current	2.6	A	@ 25A/µs
Q_{rr}	Reverse Recovery Charge	0.25	µC	@ T_J = 25°C
S	Snap Factor tb/ta	0.5	-	



Thermal-Mechanical Specifications

	Parameters	8EWF..S	Units	Conditions
T_J	Max. Junction Temperature Range	-40 to 150	°C	
T_{stg}	Max. Storage Temperature Range	-40 to 150	°C	
	Soldering Temperature	240	°C	for 10 seconds
R_{thJC}	Max. Thermal Resistance Junction to Case	2.5	°C/W	DC operation
R_{thJA}	Typ. Thermal Resistance Junction to Ambient (PCB Mount)**	50	°C/W	
wt	Approximate Weight	1 (0.03)	g (oz.)	
	Case Style	TO-252AA (D-Pak)		

**When mounted on 1" square (650mm^2) PCB of FR-4 or G-10 material 4 oz (140µm) copper 40°C/W
For recommended footprint and soldering techniques refer to application note #AN-994

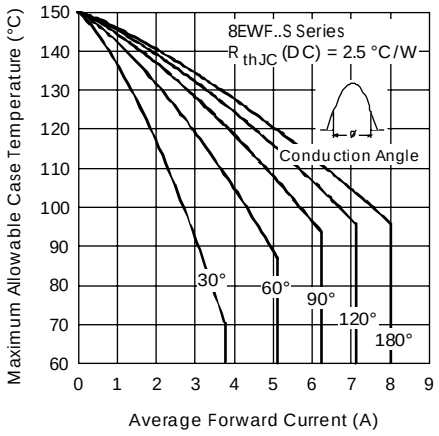


Fig. 1 - Current Rating Characteristics

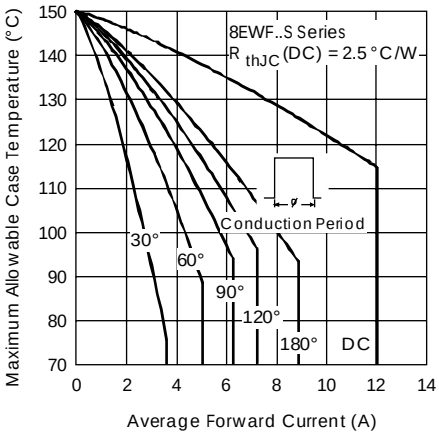


Fig. 2 - Current Rating Characteristics

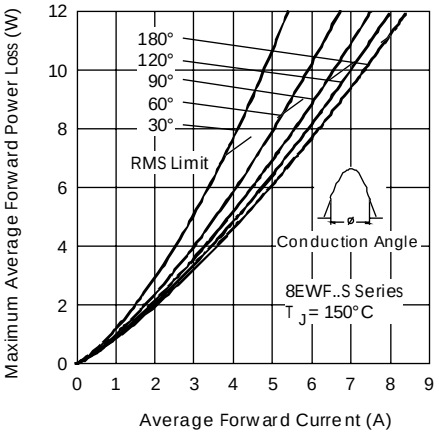


Fig. 3 - Forward Power Loss Characteristics

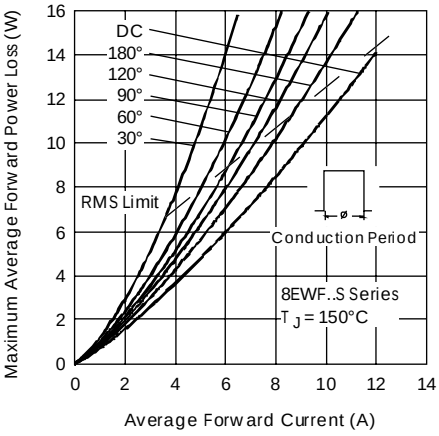


Fig. 4 - Forward Power Loss Characteristics

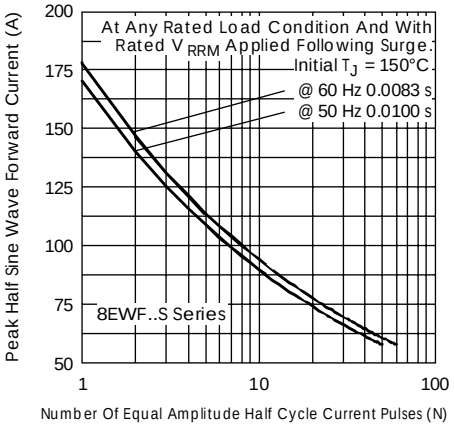


Fig. 5 - Maximum Non-Repetitive Surge Current

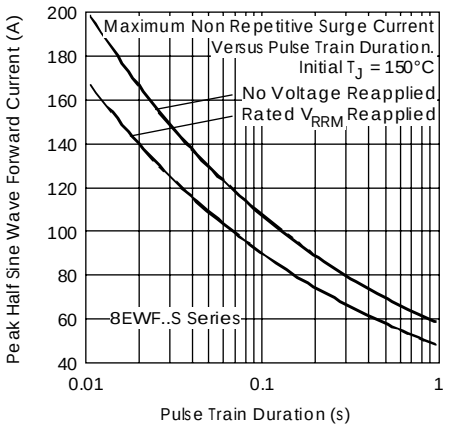


Fig. 6 - Maximum Non-Repetitive Surge Current

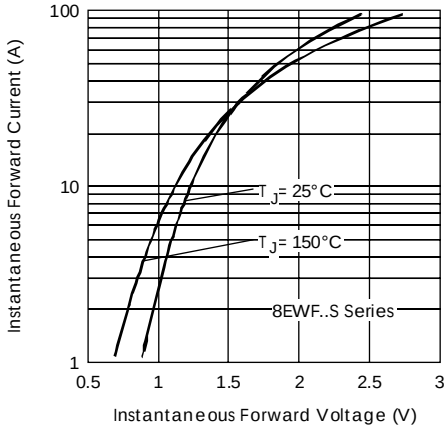


Fig. 7 - Forward Voltage Drop Characteristics

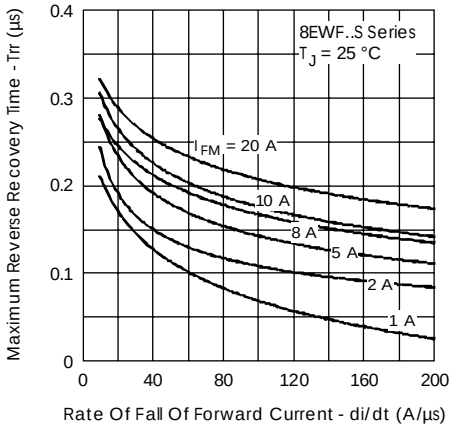


Fig. 8 - Recovery Time Characteristics, T_J = 25°C

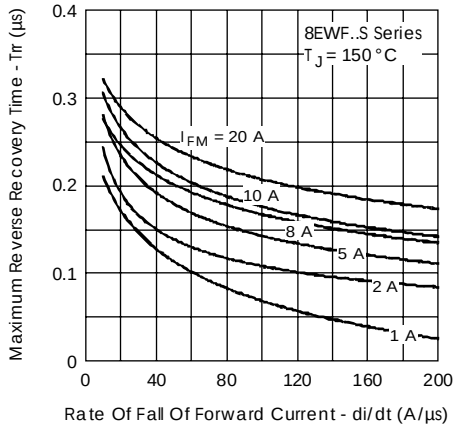


Fig. 9 - Recovery Time Characteristics, T_J = 150°C

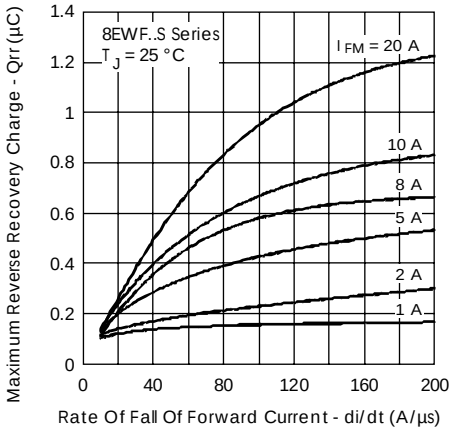


Fig. 10 - Recovery Charge Characteristics, T_J=25°C

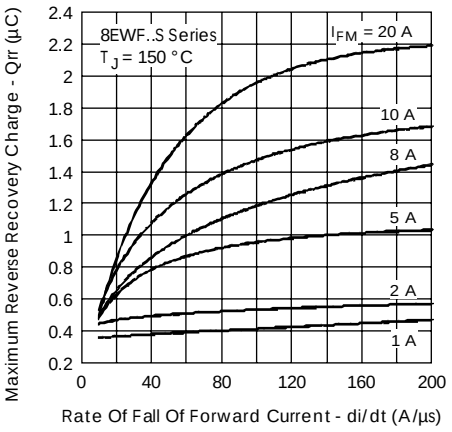


Fig. 11 - Recovery Charge Characteristics, T_J=150°C

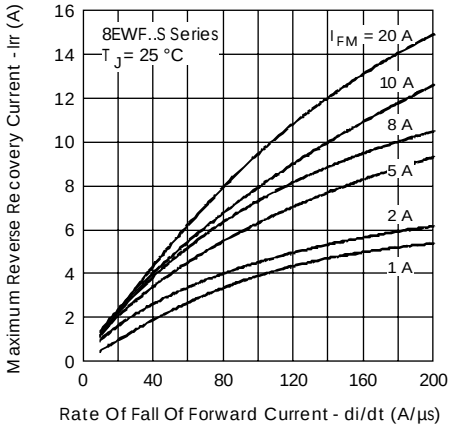


Fig. 12 - Recovery Current Characteristics, T_J=25°C

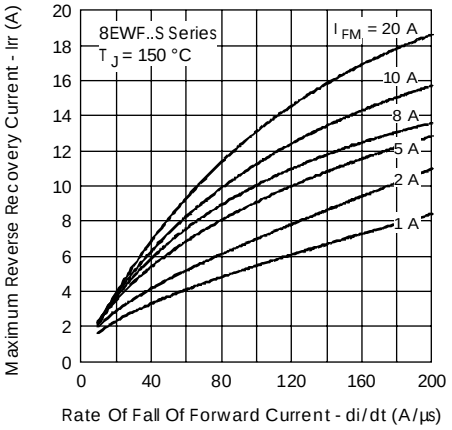


Fig. 13 - Recovery Current Characteristics, T_J=150°C

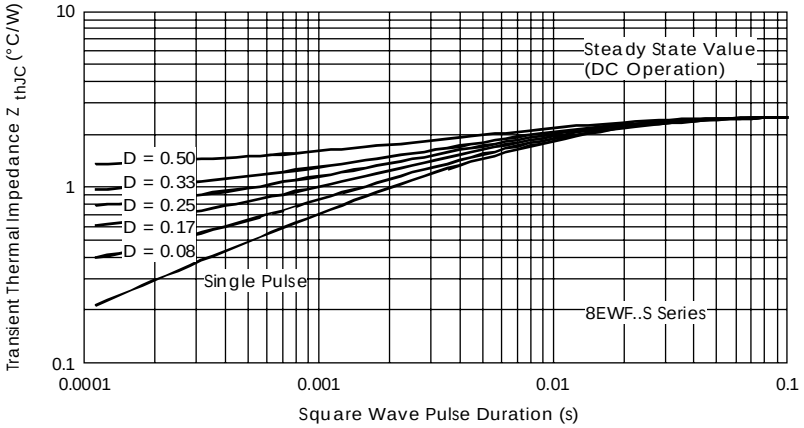
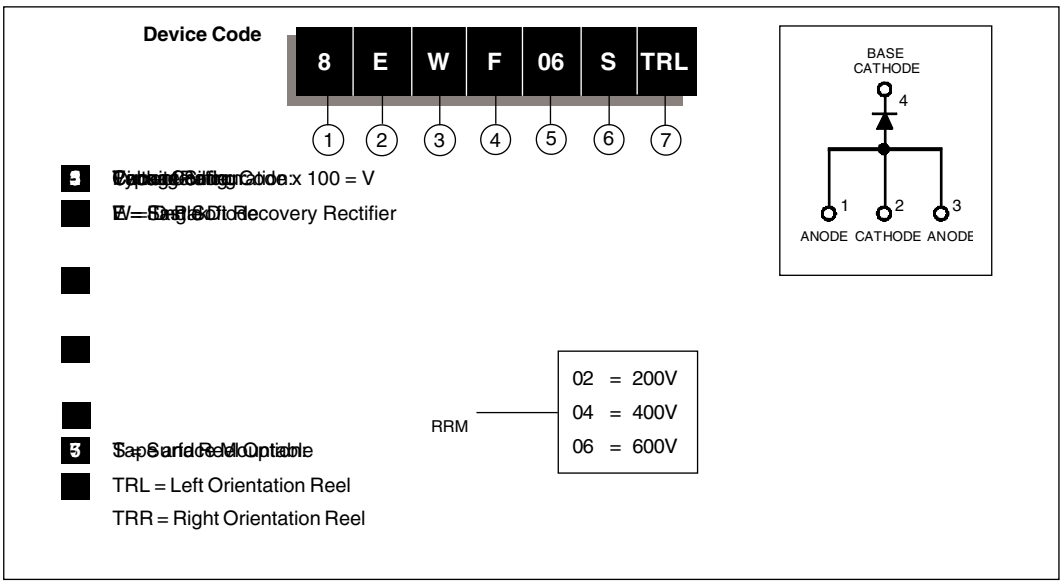
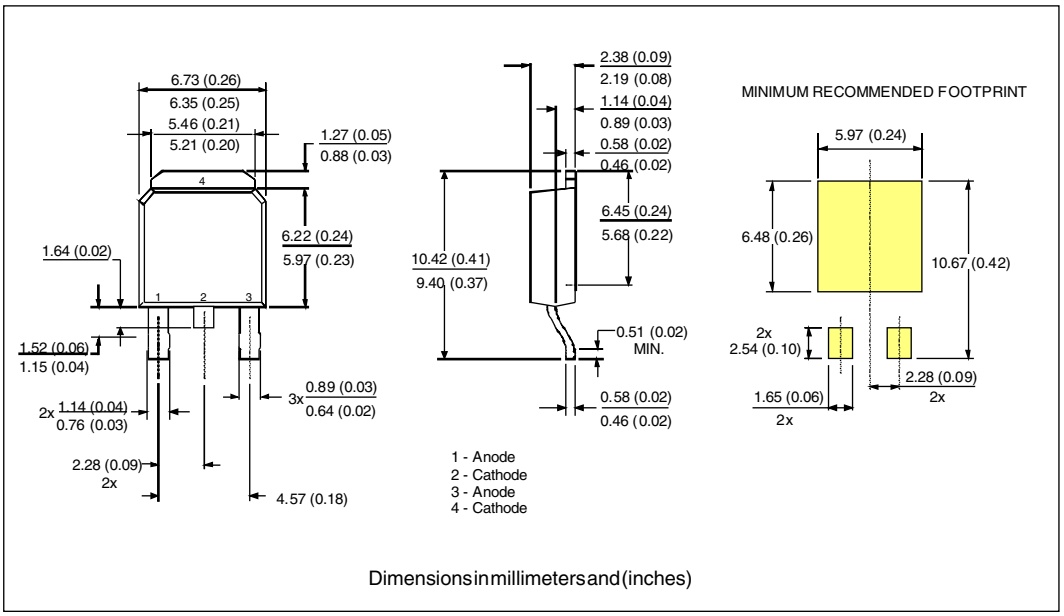


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

Ordering Information Table



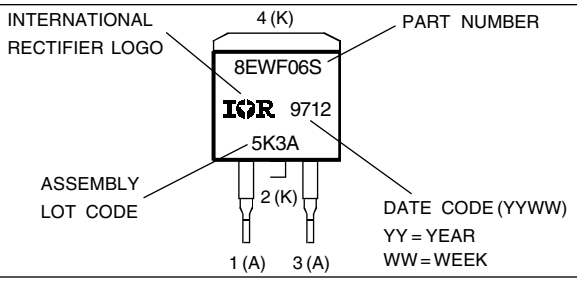
Outline Table



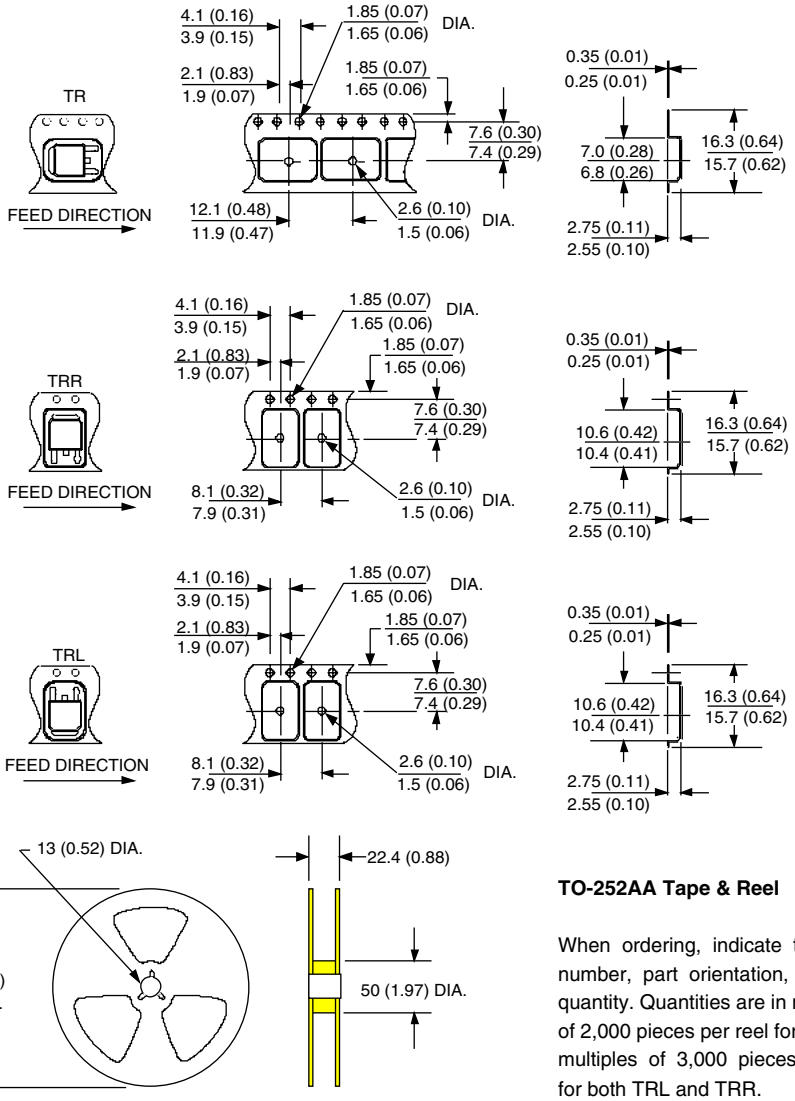
Dimensions in millimeters and (inches)

Marking Information

EXAMPLE: THIS IS AN 8EWF06S



Tape & Reel Information



TO-252AA Tape & Reel

When ordering, indicate the part number, part orientation, and the quantity. Quantities are in multiples of 2,000 pieces per reel for TR and multiples of 3,000 pieces per reel for both TRL and TRR.

International IOR Rectifier

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