

International  
**IOR** Rectifier

**SAFEIR** Series  
8EWS..S

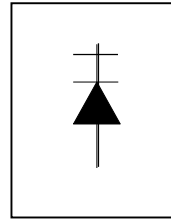
## SURFACE MOUNTABLE INPUT RECTIFIER DIODE

### Description/Features

The 8EWS..S rectifier **SAFEIR** 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 International Rectifier Switches and Output Rectifiers which are available in identical package outlines.



$$V_F < 1V @ 5A$$

$$I_{FSM} = 200A$$

$$V_{RRM} 800 \text{ to } 1200V$$

### Output Current in Typical Applications

Applications	Single-phase Bridge	Three-phase Bridge	Units
NEMA FR-4 or G10 glass fabric-based epoxy with 4oz (140µm) copper	1.2	1.6	A
Aluminum IMS, $R_{thCA} = 15^\circ C/W$	2.5	2.8	
Aluminum IMS with heatsink, $R_{thCA} = 5^\circ C/W$	5.5	6.5	

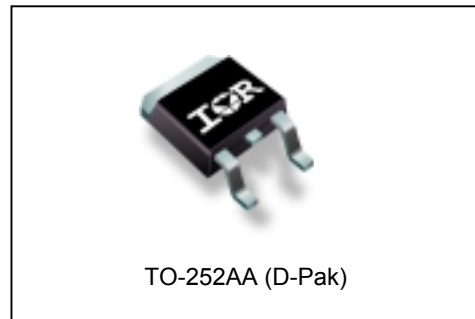
$T_A = 55^\circ C$ ,  $T_J = 125^\circ C$ , footprint 300mm<sup>2</sup>

### Major Ratings and Characteristics

Characteristics	8EWS..S	Units
$I_{F(AV)}$ Sinusoidal waveform	8	A
$V_{RRM}$ Range(*)	800 to 1200	V
$I_{FSM}$	200	A
$V_F$ @ 5A, $T_J = 25^\circ C$	1.0	V
$T_J$	-55 to 150	°C

(\*) for higher voltage up to 1600V contact factory

### Package Outline



## 8EWS..S *SAFEIR* Series

Bulletin I2108 rev. G 08/00

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### 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
8EWS08S	800	900	0.5
8EWS10S	1000	1100	
8EWS12S	1200	1300	

### Absolute Maximum Ratings

Parameters	8EWS..S	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	8	A	@ $T_C = 95^\circ\text{C}$ , 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 reappplied
$I^2t$ Max. $I^2t$ for fusing	144	$A^2s$	10ms Sine pulse, rated $V_{RRM}$ applied
	204		10ms Sine pulse, no voltage reappplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	2040	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reappplied

### Electrical Specifications

Parameters	8EWS..S	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop	1.1	V	@ 8A, $T_J = 25^\circ\text{C}$
$r_t$ Forward slope resistance	21.8	mΩ	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ Threshold voltage	0.81	V	
$I_{RM}$ Max. Reverse Leakage Current	0.05	mA	$T_J = 25^\circ\text{C}$
	0.50		$T_J = 150^\circ\text{C}$

$V_R = \text{rated } V_{RRM}$

### Thermal-Mechanical Specifications

Parameters	8EWS..S	Units	Conditions
$T_J$ Max. Junction Temperature Range	-55 to 150	$^\circ\text{C}$	
$T_{stg}$ Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
Soldering Temperature	240	$^\circ\text{C}$	for 10 seconds (1.6mm from case)
$R_{thJC}$ Max. Thermal Resistance Junction to Case	3	$^\circ\text{C/W}$	DC operation
$R_{thJA}$ Typ. Thermal Resistance Junction to Ambient (PCB Mount)**	50	$^\circ\text{C/W}$	
wt Approximate Weight	1(0.03)	g(oz.)	
T Case Style	TO-252AA(D-PAK)		

\*\*When mounted on 1" square (650mm<sup>2</sup>) 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

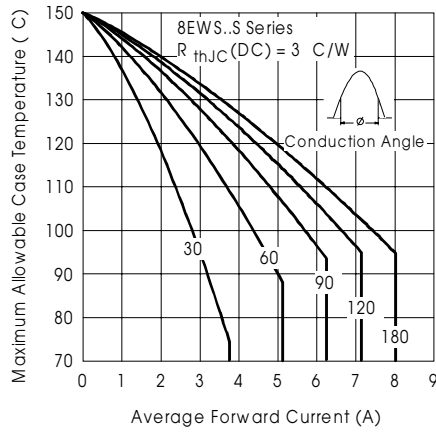


Fig. 1 - Current Rating Characteristics

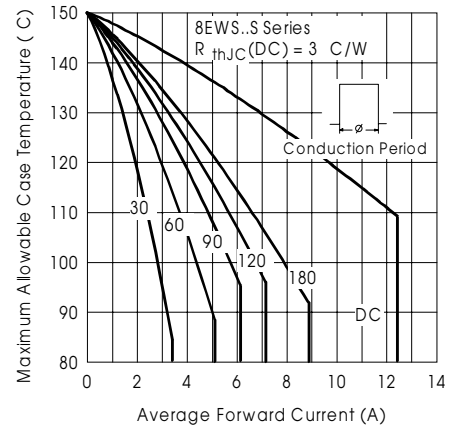


Fig. 2 - Current Rating Characteristics

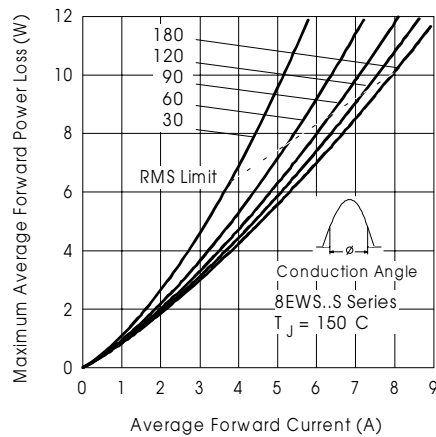


Fig. 3 - Forward Power Loss Characteristics

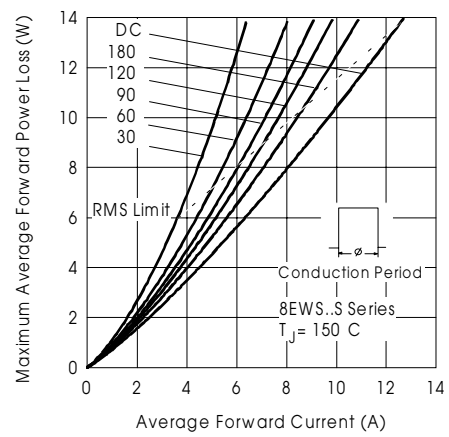


Fig. 4 - Forward Power Loss Characteristics

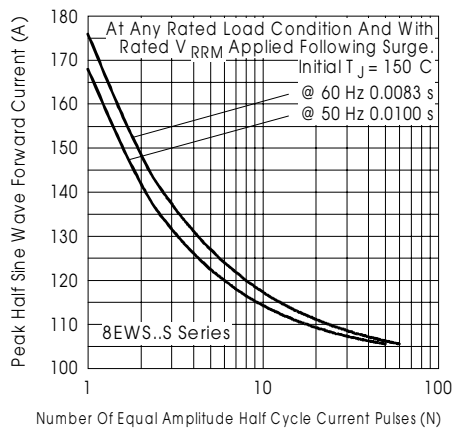


Fig. 5 - Maximum Non-Repetitive Surge Current

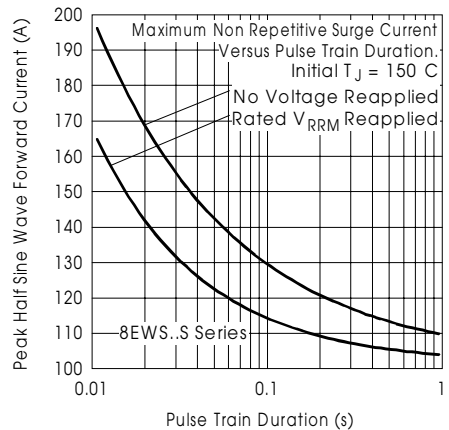


Fig. 6 - Maximum Non-Repetitive Surge Current

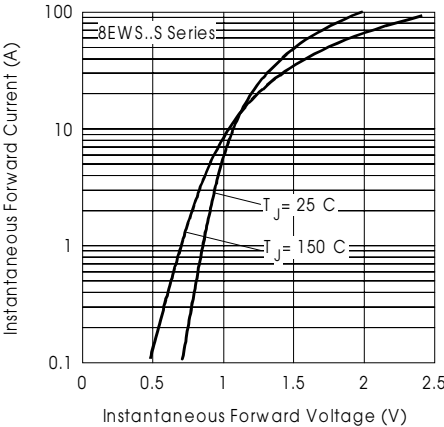


Fig.7-Forward Voltage Drop Characteristics

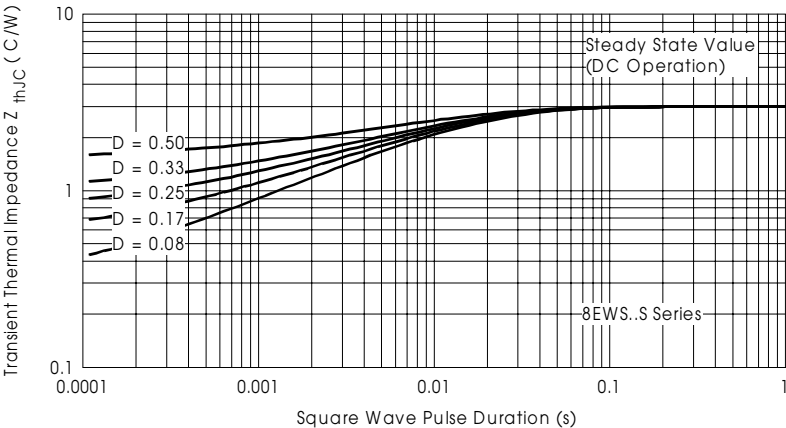


Fig.8- Thermal Impedance  $Z_{thJC}$  Characteristics

## Ordering Information Table

Device Code						
8	E	W	S	12	S	TRL
1	2	3	4	5	6	7

<b>1</b>	-	Current Rating
<b>2</b>	-	Circuit Configuration
		E = Single Diode
<b>3</b>	-	Package
		W = D-PAK
<b>4</b>	-	Type of Silicon
		S = Standard Recovery Rectifier
<b>5</b>	-	Voltage code: Code x 100 = $V_{RRM}$
<b>6</b>	-	S = Surface Mountable
<b>7</b>	-	Tape and Reel Option
		TRL = Left Reel
		TRR = Right Orientation Reel

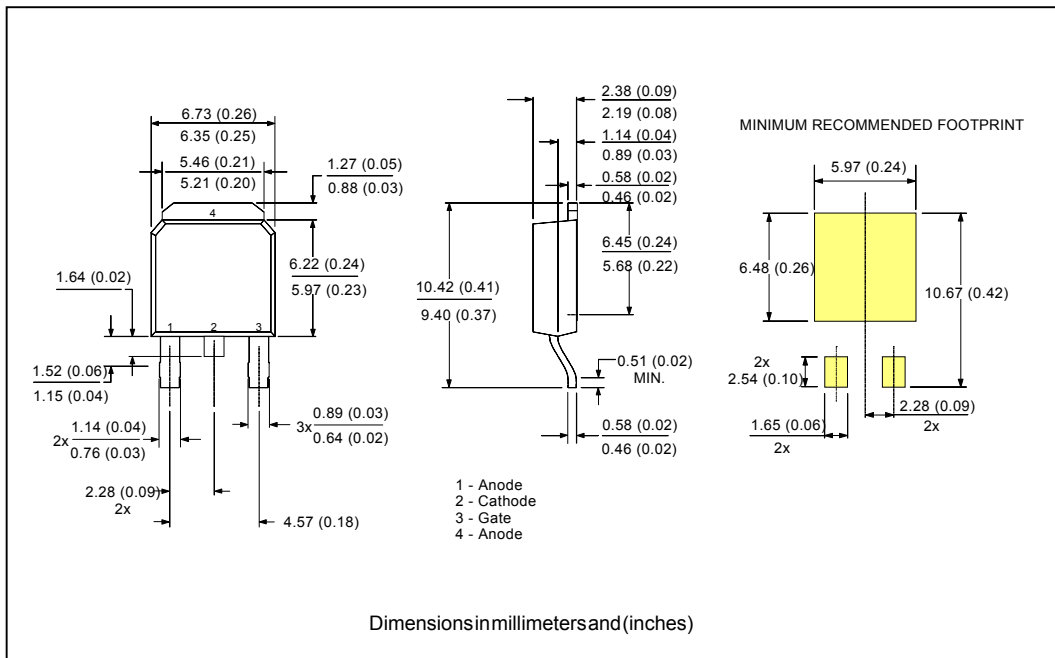
  

08	=	800V
10	=	1000V
12	=	1200V

(\*) for higher voltage up to 1600V contact factory

## Outline Table

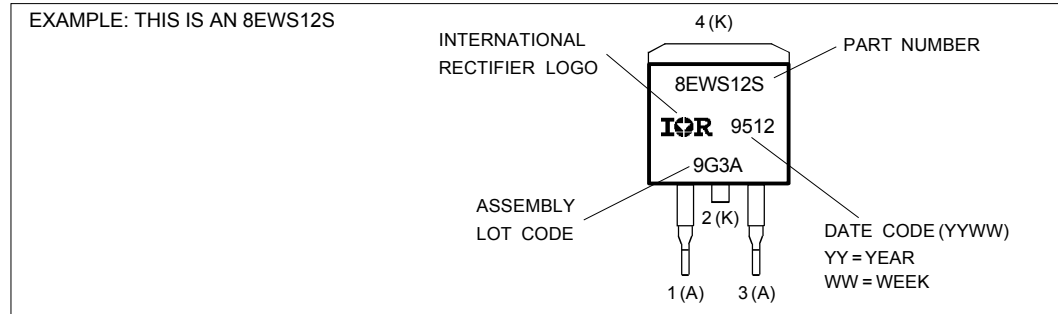


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### Marking Information



### Tape & Reel Information

