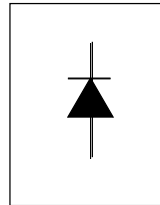


International  
**IOR** Rectifier

**QUIETIR** Series  
8EWF..S

**SURFACE MOUNTABLE  
FAST SOFT RECOVERY  
DIODE**



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

#### Description/Features

The 8EWF..S fast soft recovery **QUIETIR** 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.

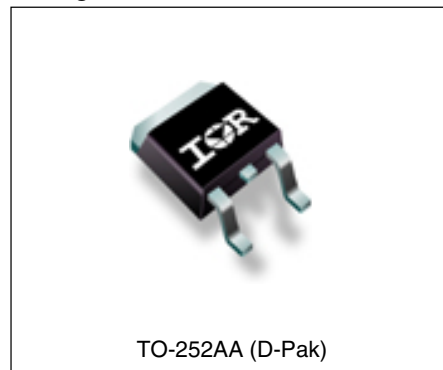
Typical applications are both:

- 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          |
| $V_F @ 8A, T_J = 25^\circ C$    | 1.2        | V          |
| $t_{rr} @ 1A, 100A/\mu s$       | 55         | ns         |
| $T_J$                           | -40 to 150 | $^\circ C$ |

#### Package Outline



Voltage Ratings

| Part Number | V <sub>RRM</sub> <sup>1</sup> maximum peak reverse voltage<br>V | V <sub>RSM</sub> <sup>1</sup> maximum non repetitive peak reverse voltage<br>V | I <sub>RRM</sub> 150°C<br>mA |
|-------------|---|--|------------------------------|
| 8EWF02S     | 200   | 300  | 3                            |
| 8EWF04S     | 400   | 500  |                              |
| 8EWF06S     | 600   | 700  |                              |

Absolute Maximum Ratings

| Parameters  | 8EWF..S | Units             | Conditions  |
|---|---------|-------------------|---|
| I <sub>F(AV)</sub> Max. Average Forward Current                   | 8       | A                 | @ T <sub>C</sub> = 96°C, 180° conduction half sine wave |
| I <sub>FSM</sub> Max. Peak One Cycle Non-Repetitive Surge Current | 170     | A                 | 10ms Sine pulse, rated V <sub>RRM</sub> applied         |
|   | 200     |                   | 10ms Sine pulse, no voltage reapplied                   |
| I <sup>2</sup> t Max. I <sup>2</sup> t for fusing                 | 140     | A <sup>2</sup> s  | 10ms Sine pulse, rated V <sub>RRM</sub> applied         |
|   | 200     |                   | 10ms Sine pulse, no voltage reapplied                   |
| I <sup>2</sup> √t Max. I <sup>2</sup> √t for fusing               | 2000    | A <sup>2</sup> /s | t = 0.1 to 10ms, no voltage reapplied                   |

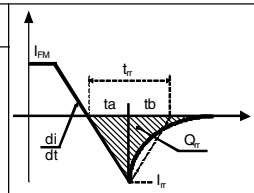
Electrical Specifications

| Parameters                                   | 8EWF..S | Units | Conditions                  |
|--|---------|-------|-----------------------------|
| V <sub>FM</sub> Max. Forward Voltage Drop    | 1.2     | V     | @ 8A, T <sub>J</sub> = 25°C |
| r <sub>t</sub> Forward slope resistance      | 16      | mΩ    | T <sub>J</sub> = 150°C      |
| V <sub>F(TO)</sub> Threshold voltage         | 1.13    | V     |                             |
| I <sub>RM</sub> Max. Reverse Leakage Current | 0.1     | mA    | T <sub>J</sub> = 25 °C      |
|  | 3       |       | T <sub>J</sub> = 150 °C     |

V<sub>R</sub> = rated V<sub>RRM</sub>

Typical Reverse Recovery Characteristics

| Parameters                               | 8EWF..S | Units | Conditions   |
|--|---------|-------|--|
| t <sub>rr</sub> Reverse Recovery Time    | 140     | ns    | I <sub>F</sub> @ 8Apk<br>@ 25A/μs<br>@ T <sub>J</sub> = 25°C |
| I <sub>rr</sub> Reverse Recovery Current | 2.6     | A     |  |
| Q <sub>rr</sub> Reverse Recovery Charge  | 0.25    | μC    |  |
| S Snap Factor                            | tb/ta   | -     |  |



**Thermal-Mechanical Specifications**

| Parameters  | 8EWF..S               | Units  | Conditions        |
|---|-----------------------|--------|-------------------|
| T <sub>J</sub> Max. Junction Temperature Range                              | -40 to 150            | °C     |                   |
| T <sub>stg</sub> Max. Storage Temperature Range                             | -40 to 150            | °C     |                   |
|   | Soldering Temperature | 240    | °C for 10 seconds |
| R <sub>thJC</sub> Max. Thermal Resistance Junction to Case                  | 2.5                   | °C/W   | DC operation      |
| R <sub>thJA</sub> 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<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

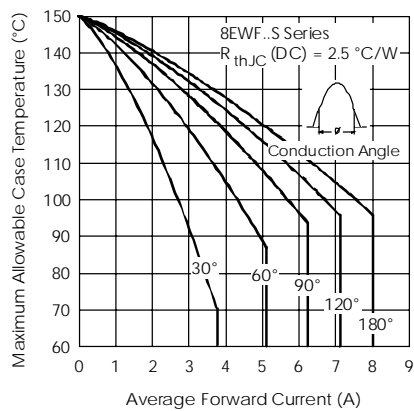


Fig. 1 - Current Rating Characteristics

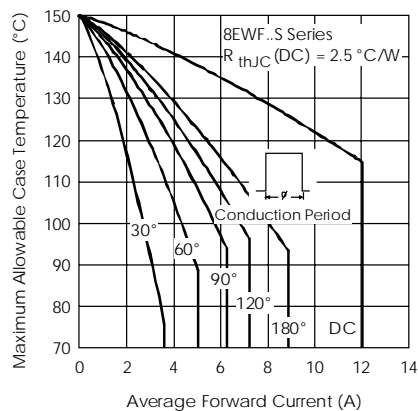


Fig. 2 - Current Rating Characteristics

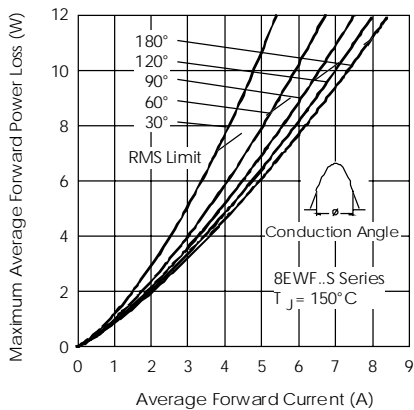


Fig. 3 - Forward Power Loss Characteristics

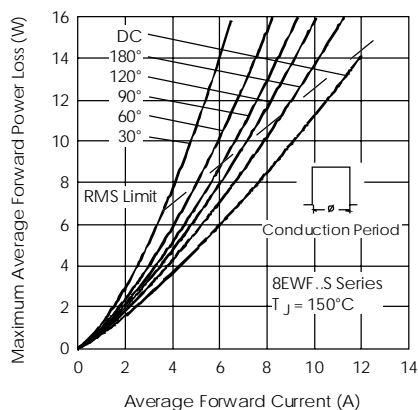


Fig. 4 - Forward Power Loss Characteristics

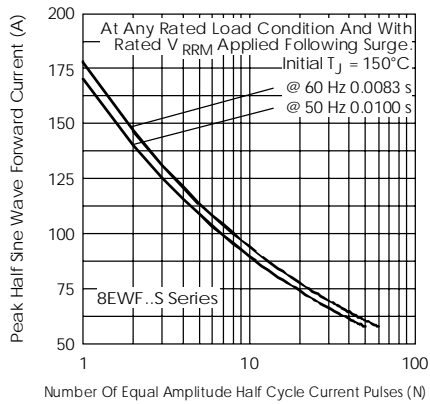


Fig. 5- Maximum Non-Repetitive Surge Current

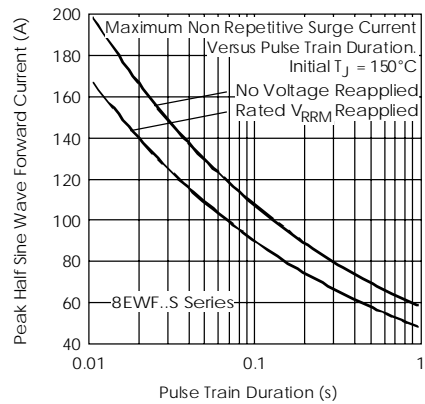


Fig. 6- Maximum Non-Repetitive Surge Current

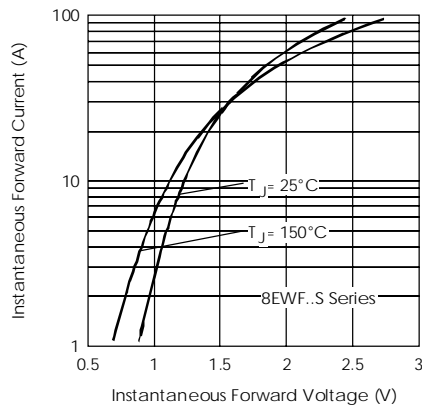


Fig. 7- Forward Voltage Drop Characteristics

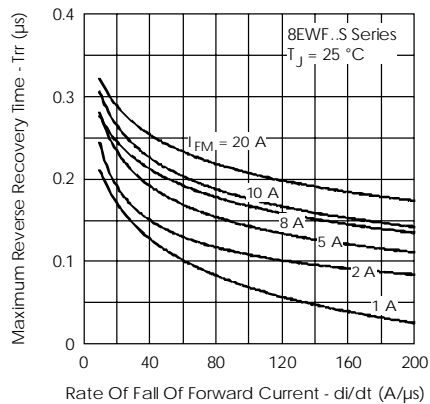


Fig. 8- Recovery Time Characteristics,  $T_J = 25^\circ\text{C}$

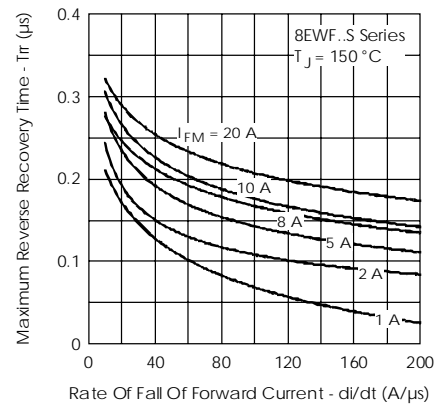


Fig. 9- Recovery Time Characteristics,  $T_J = 150^\circ\text{C}$

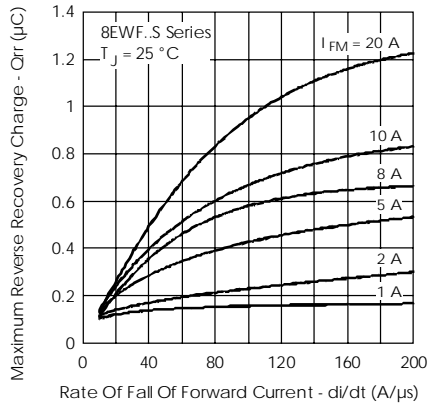


Fig. 10 - Recovery Charge Characteristics,  $T_j = 25^\circ\text{C}$

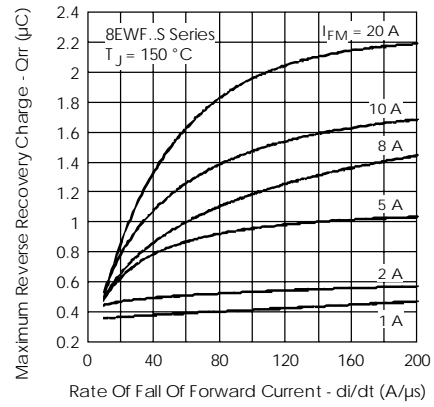


Fig. 11 - Recovery Charge Characteristics,  $T_j = 150^\circ\text{C}$

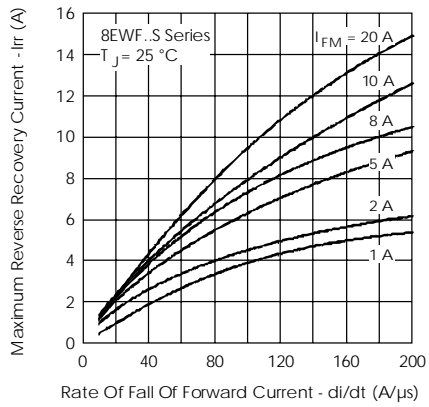


Fig. 12 - Recovery Current Characteristics,  $T_j = 25^\circ\text{C}$

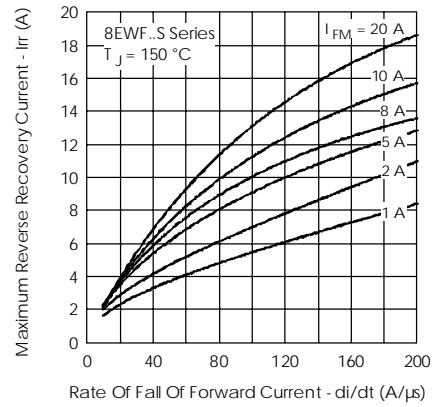


Fig. 13 - Recovery Current Characteristics,  $T_j = 150^\circ\text{C}$

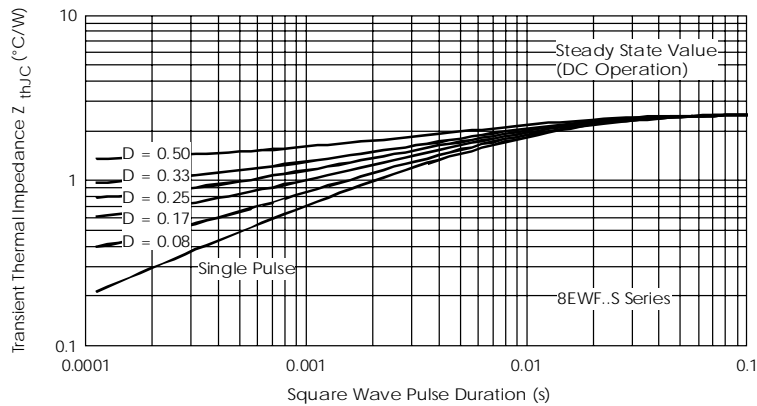


Fig. 14 - Thermal Impedance  $Z_{thjC}$  Characteristics

Ordering Information Table

**Device Code**

|   |   |   |   |    |   |     |
|---|---|---|---|----|---|-----|
| 8 | E | W | F | 06 | S | TRL |
| ① | ② | ③ | ④ | ⑤  | ⑥ | ⑦   |

**8** = Voltage Rating Code x 100 = V  
**E** = Single Diode  
**W** = Bridge Rectifier  
**F** = Fast Recovery Rectifier  
**06** = RRRM  
**S** = Surface Mountable  
**TRL** = Left Orientation Reel  
**TRR** = Right Orientation Reel

RRM ——— 02 = 200V  
 04 = 400V  
 06 = 600V

Outline Table

Dimensions in millimeters and (inches)

1 - Anode  
 2 - Cathode  
 3 - Anode  
 4 - Cathode

MINIMUM RECOMMENDED FOOTPRINT



International  
**IOR** Rectifier

**WORLD HEADQUARTERS:** 233 Kansas St., El Segundo, California 90245 U.S.A. Tel: (310) 322 3331. Fax: (310) 322 3332.  
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**IR CANADA:** 15 Lincoln Court, Brampton, Markham, Ontario L6T3Z2. Tel: (905) 453 2200. Fax: (905) 475 8801.  
**IR GERMANY:** Saalburgstrasse 157, 61350 Bad Homburg. Tel: ++ 49 6172 96590. Fax: ++ 49 6172 965933.  
**IR ITALY:** Via Liguria 49, 10071 Borgaro, Torino. Tel: ++ 39 11 4510111. Fax: ++ 39 11 4510220.  
**IR FAR EAST:** K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171. Tel: 81 3 3983 0086.  
**IR SOUTHEAST ASIA:** 1 Kim Seng Promenade, Great World City West Tower, 13-11, Singapore 237994. Tel: ++ 65 838 4630.  
**IR TAIWAN:** 16 Fl. Suite D.207, Sec. 2, Tun Haw South Road, Taipei, 10673, Taiwan. Tel: 886 2 2377 9936.

*Data and specifications subject to change without notice.*





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