

# 8 A Standard Recovery Surface Mount Rectifiers

## FS8G - FS8M

### Description

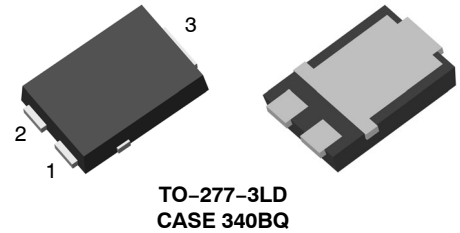
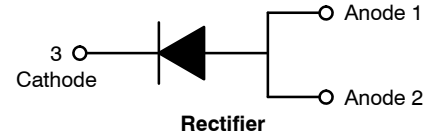
The FS8G to FS8M series offers breakthrough size and performance. It sinks 8 A DC forward current and provides up to 230 A surge current capability with only 0.37  $\mu$ A reverse leakage current. All this capability is packed into a small, flat-lead, TO-277 package, optimized for space-constrained applications.

### Features

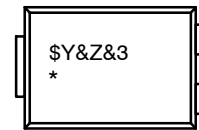
- Very High forward Surge Capability:  $I_{FSM} = 230$  A
- Low Leakage Current: 0.37  $\mu$ A at  $T_A = 25^\circ\text{C}$
- Very Low Profile: Typical Height of 1.1 mm
- Glass Passivated Junction
- HBM (JEDEC A114) > 8 KV; CDM (JEDEC C101C) > 2 KV
- Green Molding Compound as per IEC61249 Standard
- With DAP Option Only
- These Devices are Pb-Free, Halogen Free and are RoHS Compliant

### Applications

- General-Purpose Applications
- Reverse Polarity Protection
- Rectifications



### MARKING DIAGRAM



- |     |  |
|-----|--|
| \$Y | = onsemi Logo                                    |
| &Z  | = Assembly Plant Code                            |
| &3  | = Date Code (Year & Week)                        |
| *   | = Specific Device Code<br>FS8G, FS8J, FS8K, FS8M |

### ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

## FS8G – FS8M

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol      | Rating  | Value       |      |      |      | Unit             |
|-------------|---|-------------|------|------|------|------------------|
|             |   | FS8G        | FS8J | FS8K | FS8M |                  |
| $V_{RRM}$   | Maximum Repetitive Peak Reverse Voltage   | 400         | 600  | 800  | 1000 | V                |
| $V_{RMS}$   | Maximum RMS Reverse Voltage   | 280         | 420  | 560  | 700  | V                |
| $V_{DC}$    | DC Blocking Voltage   | 400         | 600  | 800  | 1000 | V                |
| $I_{F(AV)}$ | Maximum Average Rectified Forward Current   | 8           |      |      |      | A                |
| $I_{FSM}$   | Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load | 230         |      |      |      | A                |
| $T_J$       | Operating Junction Temperature Range  | -55 to +150 |      |      |      | $^\circ\text{C}$ |
| $T_{STG}$   | Storage Temperature Range   | -55 to +150 |      |      |      | $^\circ\text{C}$ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) (Note 1)

| Symbol          | Characteristic   | Minimum Land Pattern | Maximum Land Pattern | Unit                      |
|-----------------|--|----------------------|----------------------|---------------------------|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance                                     | 100                  | 40                   | $^\circ\text{C}/\text{W}$ |
| $\Psi_{JL}$     | Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Anode   | 20                   | 12                   | $^\circ\text{C}/\text{W}$ |
|                 | Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Cathode | 6                    | 5                    |                           |

1. The thermal resistances ( $R_{\theta JA}$  &  $\Psi_{JL}$ ) are characterized with device mounted on the following FR4 printed circuit boards, as shown in Figure 1 and Figure 2. PCB size: 76.2 x 114.3 mm. Minimum land pattern size: 4.9 x 4.8 mm (big pattern, x1), 1.4 x 1.52 mm (small pattern, x2). Maximum land pattern size: 30 x 30 mm (pattern, x2). Force line trace size = 55 mils, sense line trace size = 4 mils.



Figure 1. Minimum Land Pattern of 2 oz Copper

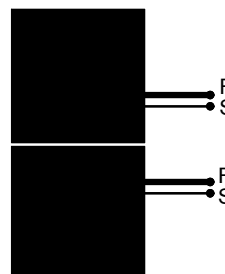


Figure 2. Maximum Land Pattern of 2 oz Copper

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol   | Parameter             | Conditions   | Min | Typ   | Max | Unit          |
|----------|-----------------------|--|-----|-------|-----|---------------|
| $V_F$    | Forward Voltage       | $I_F = 8\text{ A}$   | -   | 0.951 | 1.1 | V             |
|          |                       | $I_F = 8\text{ A}, T_A = 125^\circ\text{C}$                    |     | 0.845 |     |               |
| $I_R$    | DC Reverse Current    | $V_R = V_{DC}$   | -   | 0.37  | 5   | $\mu\text{A}$ |
|          |                       | $V_R = V_{DC}, T_A = 125^\circ\text{C}$                        |     | 84    |     |               |
| $T_{rr}$ | Reverse Recovery Time | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{rr} = 0.25\text{ A}$ |     | 3.37  |     | $\mu\text{s}$ |
| $C_J$    | Junction Capacitance  | $V_R = 0\text{ V}, f = 1\text{ MHz}$                           |     | 118   |     | pF            |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

## FS8G – FS8M

### ORDERING INFORMATION

| Part Number | Top Mark | Package   | Shipping†          |
|-------------|----------|---|--------------------|
| FS8G        | FS8G     | TO-277 3L<br>(DAP Option)<br>(Pb-Free/Halogen Free) | 5000 / Tape & Reel |
| FS8J        | FS8J     | TO-277 3L<br>(DAP Option)<br>(Pb-Free/Halogen Free) | 5000 / Tape & Reel |
| FS8K        | FS8K     | TO-277 3L<br>(DAP Option)<br>(Pb-Free/Halogen Free) | 5000 / Tape & Reel |
| FS8M        | FS8M     | TO-277 3L<br>(DAP Option)<br>(Pb-Free/Halogen Free) | 5000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

TYPICAL PERFORMANCE CHARACTERISTICS

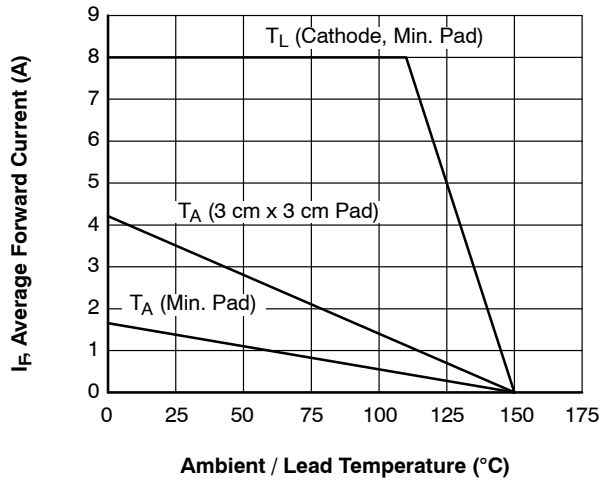


Figure 3. Forward Current Derating Curve

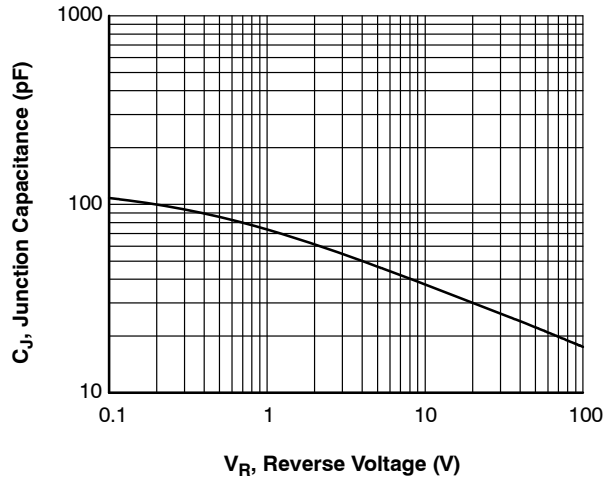


Figure 4. Typical Junction Capacitance

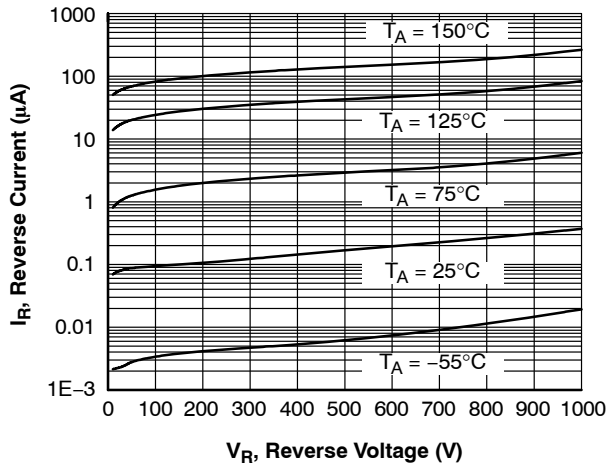


Figure 5. Typical Reverse Characteristics

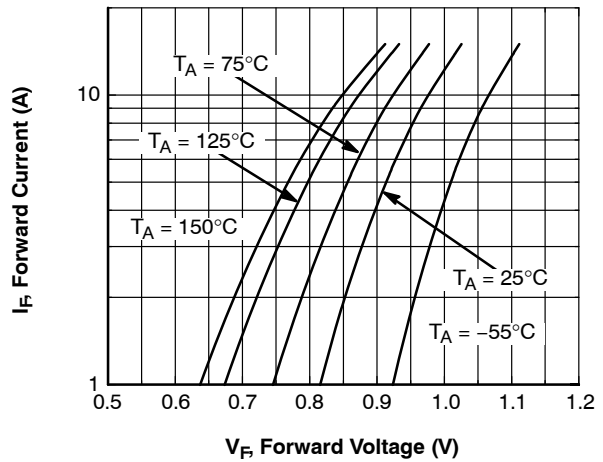


Figure 6. Typical Forward Characteristics

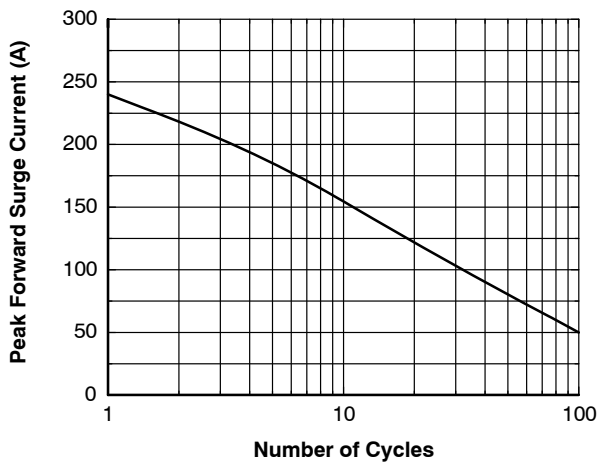
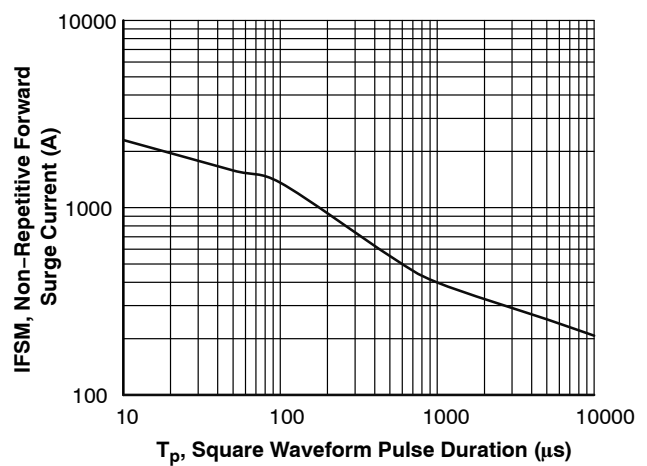


Figure 7. Maximum Non-Repetitive Peak Forward Surge Current



NOTE: Typical performance bases on a limited sample size, not guarantee rating.

Figure 8. Typical Non-Repetitive Forward Surge Current

# MECHANICAL CASE OUTLINE

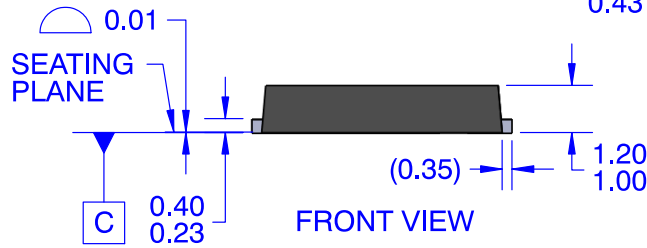
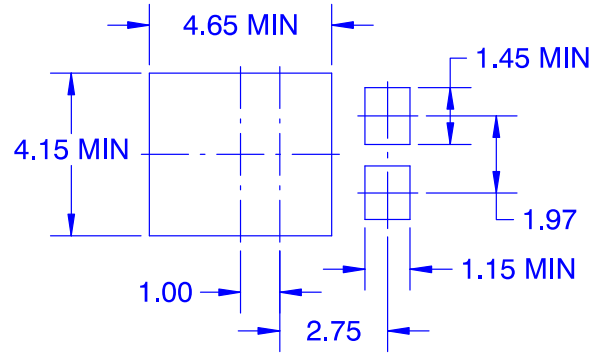
## PACKAGE DIMENSIONS

ON Semiconductor®

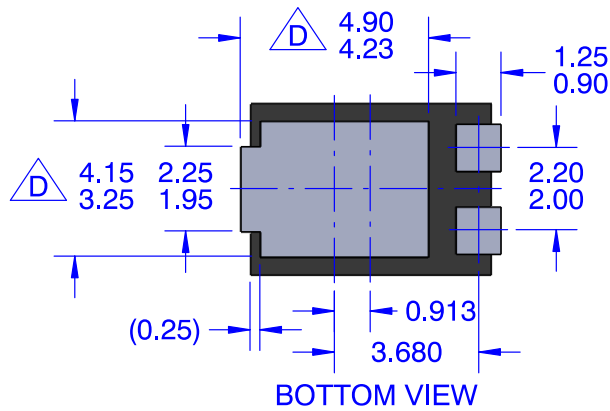


TO-277-3LD  
CASE 340BQ  
ISSUE O

DATE 30 SEP 2016



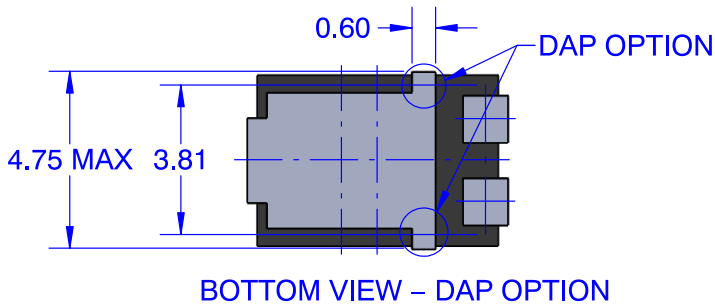
LAND PATTERN RECOMMENDATION



NOTES: UNLESS OTHERWISE SPECIFIED

- A. PACKAGE REFERENCE: JEDEC TO-277
- B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.

**D** DOES NOT COMPLY TO JEDEC STANDARD VALUE.



|                         |                    |  |
|-------------------------|--------------------|--|
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