

# FSV10120V

## Ultra-Low VF Schottky Rectifier, 10 A, 120 V

### Features

- Ultra-Low Forward Voltage Drop
- Low Thermal Resistance
- Very Low Profile: Typical Height of 1.1 mm
- Trench Schottky Technology
- Green Molding Compound as per IEC61249 Standard
- These Devices are Pb-Free, Halogen Free and are RoHS Compliant

### Specifications

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

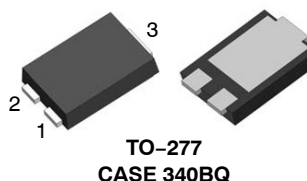
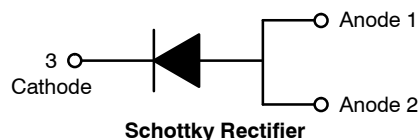
| Symbol      | Parameter                                    | Value       | Unit             |
|-------------|--|-------------|------------------|
| $V_{RRM}$   | Peak Repetitive Reverse Voltage              | 120         | V                |
| $V_{RWM}$   | Working Peak Reverse Voltage                 | 120         | V                |
| $V_{RMS}$   | RMS Reverse Voltage                          | 85          | V                |
| $V_R$       | DC Blocking Voltage                          | 120         | V                |
| $I_{F(AV)}$ | Average Rectified Peak Forward Surge Current | 10          | A                |
| $I_{FSM}$   | Non-Repetitive Peak Forward Surge Current    | 180         | 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.

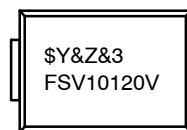


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### MARKING DIAGRAM



\$Y = ON Semiconductor Logo  
&Z = Assembly Plant Code  
&3 = Data Code (Year & Week)  
FSV10120V = Specific Device Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# FSV10120V

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

| Symbol          | Parameter  | Minimum Land Pattern | Maximum Land Pattern | Unit               |
|-----------------|--|----------------------|----------------------|--------------------|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance                                     | 100                  | 40                   | $^\circ\text{C/W}$ |
| $\Psi_{JL}$     | Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Anode   | 15                   | 12                   | $^\circ\text{C/W}$ |
|                 | 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

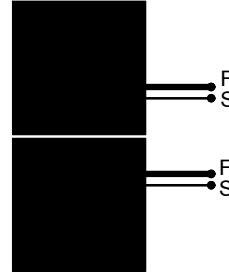


Figure 2. Maximum Land Pattern of 2 oz Copper

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

| Symbol   | Parameter             | Conditions  | Min | Typ    | Max   | Unit |
|----------|-----------------------|---|-----|--------|-------|------|
| $BV_R$   | Breakdown Voltage     | $I_R = 0.5 \text{ mA}$  | 120 | –      | –     | V    |
| $V_F$    | Forward Voltage Drop  | $I_F = 5 \text{ A}$   | –   | 0.667  | –     | V    |
|          |                       | $I_F = 5 \text{ A}, T_A = 125^\circ\text{C}$                      | –   | 0.530  | –     |      |
|          |                       | $I_F = 10 \text{ A}$  | –   | 0.748  | 0.800 |      |
|          |                       | $I_F = 10 \text{ A}, T_A = 125^\circ\text{C}$                     | –   | 0.602  | 0.620 |      |
| $I_R$    | Reverse Current       | $V_R = 80 \text{ V}$  | –   | 0.0016 | –     | mA   |
|          |                       | $V_R = 80 \text{ V}, T_A = 125^\circ\text{C}$                     | –   | 2.703  | –     |      |
|          |                       | $V_R = 120 \text{ V}$   | –   | 0.004  | 0.025 |      |
|          |                       | $V_R = 120 \text{ V}, T_A = 125^\circ\text{C}$                    | –   | 6.791  | 10    |      |
| $C_J$    | Junction Capacitance  | $V_R = 4 \text{ V}, f = 1 \text{ MHz}$                            | –   | 608    | –     | pF   |
| $T_{rr}$ | Reverse Recovery Time | $I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = 0.25 \text{ A}$ | –   | 16.70  | –     | ns   |

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.

## ORDERING INFORMATION

| Part Number | Top Mark  | Package                             | Shipping†          |
|-------------|-----------|-------------------------------------|--------------------|
| FSV10120V   | FSV10120V | TO-277 3L<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

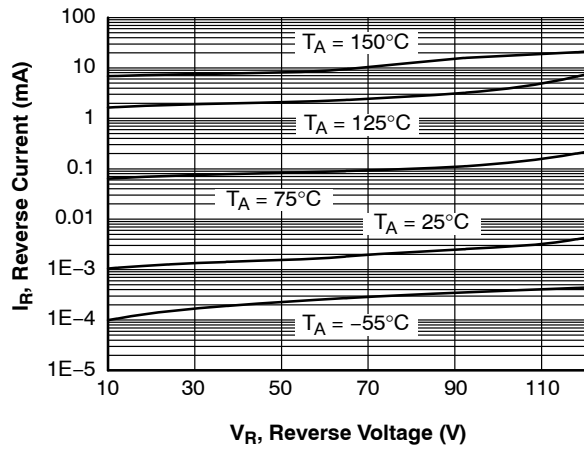


Figure 3. Typical Reverse Characteristics

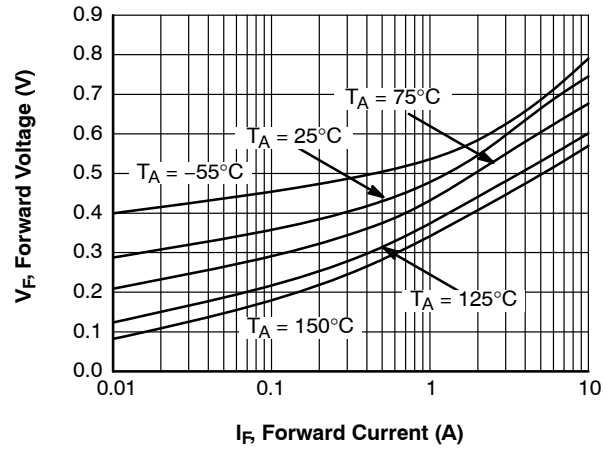


Figure 4. Typical Forward Characteristics

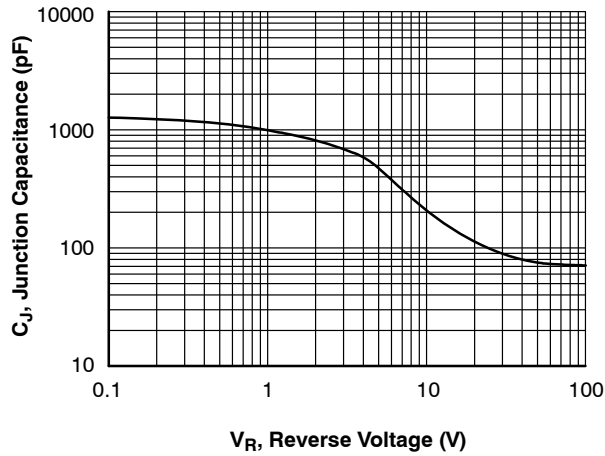


Figure 5. Typical Junction Capacitance

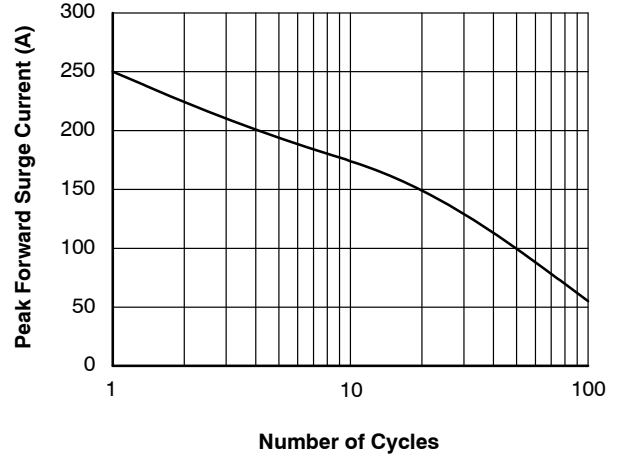


Figure 6. Maximum Non-Repetitive Peak Forward Surge Current

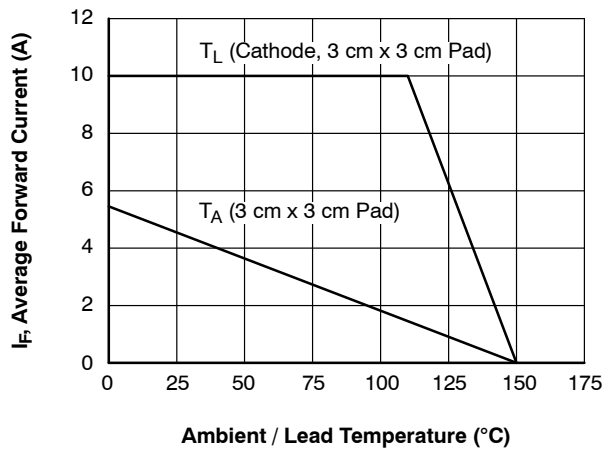
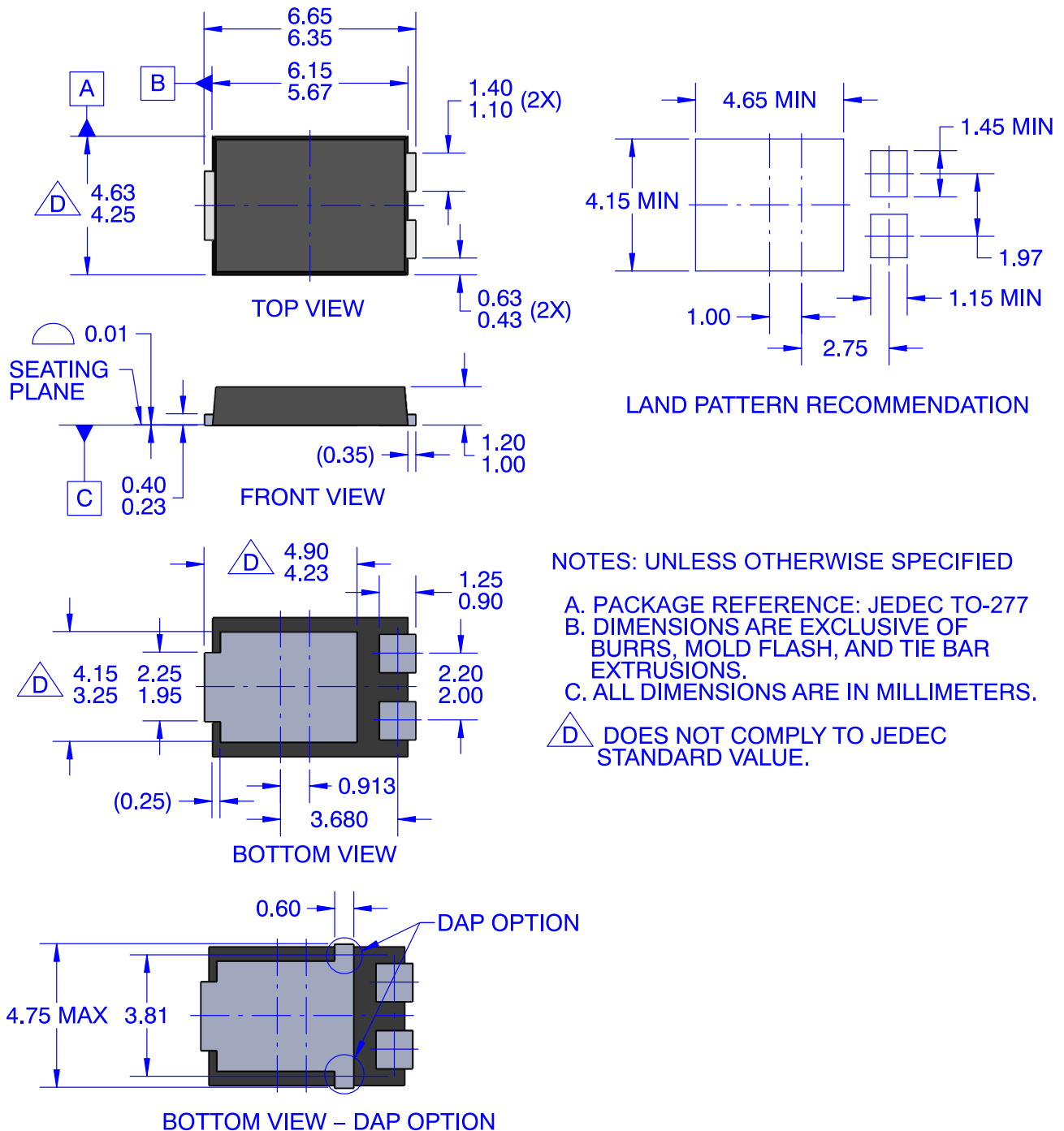


Figure 7. Forward Current Derating Curve


**TO-277-3LD**  
**CASE 340BQ**  
**ISSUE O**

DATE 30 SEP 2016



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